

APPENDIX 1.1:

APPROVED TRAFFIC STUDY SCOPING AGREEMENT

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Date: April 16, 2018

Mr. Justin Kirk, Senior Planner
City of Lake Elsinore
130 South Main Street
Lake Elsinore, CA 92530



SUBJECT: NICHOLS RANCH SCOPING AGREEMENT (REVISED)

Dear Mr. Justin Kirk:

The firm of Urban Crossroads, Inc. is pleased to submit this Scoping Agreement for the proposed Nichols Ranch development ("Project"), which is located south of Nichols Road and east of the I-15 Freeway in the City of Lake Elsinore. The proposed Project is located within the Alberhill Ranch Specific Plan. It is our understanding that the Project is to include the following development:

Phase 1 (Opening Year 2020)

- 34 single family detached residential dwelling units

Phase 2 (Opening Year 2021)

- 168 single family detached residential dwelling units (buildout of residential)
- 6.8-acre park

Phase 3 (Project Buildout 2024)

- 168 single family detached residential dwelling units
- 6.8-acre park
- 130 room hotel
- 6,000 square feet of fast-food restaurant with drive-through window use
- 5,500 square feet of fast-food restaurant without drive-through window use
- 9,400 square feet of high turnover (sit-down) restaurant use
- 4,400 square feet of commercial retail use
- 8,000 square foot health & fitness club
- 16 vehicle fueling position gas station with market and car wash
- 43,000 square feet of office use

Our goal is to obtain comments from City of Lake Elsinore staff, to ensure that the traffic study fully addresses the potential impacts of the proposed Project. The remainder of this letter describes the draft proposed analysis methodology, project trip generation, trip distribution, and project traffic

assignment/project trips on the surrounding roadway network, which have been used to establish the draft proposed project study area and analysis locations.

Exhibit 1 depicts the location of the proposed Project in relation to the existing roadway network. For purposes of the traffic analysis it is anticipated that the Project will be evaluated in 3 phases, with Project Buildout anticipated to occur in 2024. As indicated on Exhibit 1, access to the Project site is proposed to be provided to Nichols Avenue via "A" Street and "B" Street, and to El Toro Road via "B" Street.

STUDY AREA

As the City of Lake Elsinore does not have their own traffic study guidelines, the Riverside County traffic study guidelines have been utilized for the purposes of developing this scoping document. The traffic impact study area was defined in conformance with the requirements of the Riverside County Traffic Impact Analysis guidelines, which state that the minimum area to be studied shall include any intersection of "Collector" or higher classification street, with "Collector" or higher classification streets, at which the proposed project will add 50 or more peak hour trips not to exceed a 5-mile radius from the project site. Exhibit 2 identifies the proposed study area intersections based on the aforementioned criteria.

ANALYSIS SCENARIOS

Consistent with traffic study guidelines adopted by multiple local jurisdictions throughout the County of Riverside, peak hour operations at each of the study area intersections and site access driveways will be assessed for the following analysis scenarios:

1. Existing (2018) Conditions (Baseline)
2. Existing plus Phase 1 Project (E+P) Conditions
3. Existing plus Phase 2 Project (E+P) Conditions
4. Existing plus Project Buildout (E+P) Conditions
5. Existing plus Ambient Growth plus Project (2020) Conditions
6. Existing plus Ambient Growth plus Project (2021) Conditions
7. Existing plus Ambient Growth plus Project (2024) Conditions
8. Existing plus Ambient Growth plus Project plus Cumulative (2020) Conditions
9. Existing plus Ambient Growth plus Project plus Cumulative (2021) Conditions
10. Existing plus Ambient Growth plus Project plus Cumulative (2024) Conditions

Analysis Scenario #1 establishes the baseline for CEQA purposes.

Consistent with recent CEQA case law, Analysis Scenarios #2 through #7 identifies significant traffic impacts associated with the proposed Project for each phase of development.

Analysis Scenarios #8, #9, and #10 would identify cumulative impacts for opening year traffic conditions. It is assumed that intersection improvements required to address opening year cumulative traffic impacts will be addressed through either an existing fee program, or through a fair-share contribution.

Peak hour operations and level of service for study area intersections will be evaluated for the following time periods:

- Weekday AM Peak Hour (7AM-9AM)
- Weekday PM Peak Hour (4PM-6PM)

TRIP GENERATION

In order to develop the traffic characteristics of the proposed project, trip-generation statistics published in the Institute of Transportation Engineers (ITE) Trip Generation Manual (10th Edition, 2017). Table 1 presents the trip generation rates. Table 2 summarizes the trip generation based on the mix of land uses proposed for the Project, by phase.

As the project is proposed to include shopping center and gas station uses, pass-by percentages have been obtained from the ITE Trip Generation Handbook (3rd Edition, 2014). Patrons of the hotel and future residents may also visit other uses on-site, including the retail and restaurant uses, without leaving the site. The ITE Trip Generation Handbook has been utilized to determine the internal capture for the proposed mix of uses, for each phase of development.

As shown on Table 2, the proposed development is anticipated to generate a net total of approximately 321 net trip-ends per day on a typical weekday with 26 net vehicles per hour (VPH) during the weekday AM peak hour, 35 net VPH during the weekday PM peak hour for Phase 1 (2020) conditions. The Project is anticipated to generate 1,592 net trip-ends per day with 128 VPH during the weekday AM peak hour and 169 VPH during the weekday PM peak hour for Phase 2 (2021) conditions. The Project is anticipated to generate 6,900 net trip-ends per day with 734 VPH during the weekday AM peak hour and 622 VPH during the weekday PM peak hour for Project Buildout (2024) conditions.

The site is currently zoned for commercial retail in the Alberhill Ranch Specific Plan. A trip generation comparison will also be included in the traffic study to demonstrate a reduction in trips associated with the proposed Project's mix of land uses as compared to the currently adopted 380,000 square feet of commercial retail use.

TRIP DISTRIBUTION

Project travel patterns were then derived for each of the proposed land uses. Exhibit 3 shows the residential trip distribution patterns for the Project (Phase 1, Phase 2, and Project Buildout). Note that the Project will fully construct the connection of “B” Street between Nichols Road and El Toro Road starting with Phase 2. Exhibit 4 shows the retail trip distribution patterns which will be used for both the retail, fast-food, restaurant, office, and gas station uses. Lastly, Exhibit 5 shows the hotel trip distribution patterns for the Project.

LEVEL OF SERVICE (LOS) CRITERIA

CITY OF LAKE ELSINORE

The City of Lake Elsinore has established LOS D as the minimum level of service for its intersections. Therefore, any intersection operating at LOS E or F will be considered deficient for the purposes of this analysis.

CALTRANS

Caltrans endeavors to maintain a target LOS at the transition between LOS C and LOS D on State Highway System (SHS) facilities, however, Caltrans acknowledges that this may not always be feasible and recommends that the lead agency consult with Caltrans to determine the appropriate target LOS. If an existing State highway facility is operating at less than this target LOS, the existing LOS should be maintained. In general, the region-wide goal for an acceptable LOS on all freeways, roadway segments, and intersections is LOS D. Consistent with the City of Lake Elsinore LOS threshold of LOS D and in excess of the Riverside County Congestion Management Program (CMP) stated LOS threshold of LOS E, LOS D will be used as the target LOS for freeway ramps, freeway segments, and freeway merge/diverge ramp junctions.

CEQA COMPLIANCE AND DOCUMENTATION – INTERSECTIONS

The following types of traffic impacts are considered to be significant under CEQA:

- When existing traffic conditions exceed the General Plan target LOS (e.g., LOS D or better).
- When project traffic, when added to existing traffic, will deteriorate the LOS to below the target LOS, and impacts cannot be mitigated through project conditions of approval.
- When cumulative traffic exceeds the target LOS, and impacts cannot be mitigated through the TUMF network (or other funding mechanism), project conditions of approval, or other implementation mechanism.

EXISTING COUNT DATA

Traffic counts conducted in February 2018 will be utilized for the purposes of this analysis. The traffic counts were conducted on a typical day, with local schools in session and operating on normal bell schedules.

AMBIENT GROWTH

Consistent with other studies performed in the area, an ambient growth rate of 2% per year is proposed for the study area intersections to approximate background traffic growth not identified by nearby cumulative development projects. The rate will be compounded over a two-year period (i.e., $1.02^{2\text{years}} = 1.0404$ or 4.04% for 2020), three-year period ($1.02^{3\text{years}} = 1.0612$ or 6.12% for 2021), and six-year period ($1.02^{6\text{years}} = 1.1262$ or 12.62% for 2024).

SPECIAL ISSUES

The following special issues will also be addressed as part of the TIA:

- *El Toro Road Peak Hour Operations:* The intersection operations at the two intersections (at Tereticornis Avenue and Carmela Court) in close proximity to the existing Temescal Canyon High School on El Toro Road are proposed to be evaluated with the existing PHF from the count worksheet and also a normalized peak hour factor of 0.92. Lower PHFs during the AM peak hour are typical near schools due to the peak traffic flows during the morning drop-off period. However, identifying improvement needs to address a 10-15 minute peak condition may be excessive in comparison to operations of the intersection outside of this peak morning drop-off peak period.
- *"B" Street Connection:* Starting with Phase 2 (2021), the Project would provide a connection between Nichols Road and El Toro Road via "B" Street. As such, it is unlikely that existing through traffic would continue to utilize El Toro Road to Wood Mesa Road to access Nichols Road once "B" Street provides access to Nichols Road. As such, the existing volumes at El Toro Road at Nichols Road and El Toro Road/Wood Mesa Court at El Toro Road will be reallocated to reflect the use of "B" Street starting in Phase 2. It is anticipated that up to 85% of the existing traffic would be reallocated to utilize "B" Street.
- *Site Access Evaluation:* The turn pocket lengths will be determined through peak hour traffic simulations developed using SimTraffic software in an effort to identify the required storage capacity for turn lanes at each applicable Project driveway.
- *Interstate 15 Freeway Analysis:* The study will include a basic freeway segment analysis on the segments located immediately north and south of the I-15/Nichols Road interchange based on the currently accepted Highway Capacity Manual (HCM) Basic Freeway Segment Analysis

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methodology. In addition, merge/diverge analysis for the on and off ramps at the Nichols Road interchange will also be performed. Finally, a ramp queuing analysis at the northbound and southbound off-ramps will be conducted to identify the storage necessary to accommodate queuing during peak hour traffic flows.

OPEN ITEMS – CUMULATIVE DEVELOPMENT PROJECTS

A preliminary list of cumulative projects is provided on Table 3 and shown graphically on Exhibit 6. However, it is requested that the City review and provide a list of any additional cumulative development projects for inclusion in the traffic study and identify any cumulative projects that should be removed.

If you have any questions, please contact me directly at (949) 336-5982.

Respectfully submitted,

URBAN CROSSROADS, INC.



Charlene So, PE
Senior Associate

APPENDIX 1.2:

SITE ADJACENT QUEUING ANALYSIS WORKSHEETS

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Queuing and Blocking Report
EAPC (2024) with Improvements - AM Peak Hour

10/16/2018

Intersection: 11: A Street & Nichols Rd.

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	TR	L	T	L	R
Maximum Queue (ft)	128	159	39	139	243	30
Average Queue (ft)	65	73	13	64	121	4
95th Queue (ft)	109	128	38	114	201	19
Link Distance (ft)	459	459		1246	599	599
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			200			
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 12: B Street & Nichols Rd.

Movement	EB	NB
Directions Served	R	LR
Maximum Queue (ft)	9	94
Average Queue (ft)	0	46
95th Queue (ft)	6	75
Link Distance (ft)	1246	93
Upstream Blk Time (%)		0
Queuing Penalty (veh)		0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 13: B Street & F Street

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	50	27	17	10
Average Queue (ft)	15	4	1	0
95th Queue (ft)	37	20	9	5
Link Distance (ft)	710	323	260	93
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 14: B Street & H Street

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	55	58
Average Queue (ft)	26	16
95th Queue (ft)	49	46
Link Distance (ft)	674	809
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 15: B Street & G Street

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	44	26
Average Queue (ft)	2	10
95th Queue (ft)	22	30
Link Distance (ft)	809	461
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 16: El Toro Rd. & B Street

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	133	99	32
Average Queue (ft)	72	36	2
95th Queue (ft)	113	70	19
Link Distance (ft)	123	171	418
Upstream Blk Time (%)	1		
Queuing Penalty (veh)	2		
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 21: Driveway 1 & Nichols Rd.

Movement	NB
Directions Served	R
Maximum Queue (ft)	22
Average Queue (ft)	4
95th Queue (ft)	17
Link Distance (ft)	303
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Zone Summary

Zone wide Queuing Penalty: 2

Queuing and Blocking Report
EAPC (2024) with Improvements - PM Peak Hour

10/16/2018

Intersection: 11: A Street & Nichols Rd.

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	TR	L	T	L	R
Maximum Queue (ft)	101	120	35	92	195	30
Average Queue (ft)	39	56	11	47	102	2
95th Queue (ft)	79	99	34	84	163	13
Link Distance (ft)	449	449		1246	599	599
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			200			
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 12: B Street & Nichols Rd.

Movement	NB
Directions Served	LR
Maximum Queue (ft)	62
Average Queue (ft)	37
95th Queue (ft)	57
Link Distance (ft)	93
Upstream Blk Time (%)	0
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 13: B Street & F Street

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	28	27	10	17
Average Queue (ft)	11	4	0	1
95th Queue (ft)	30	19	7	8
Link Distance (ft)	710	323	260	93
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 14: B Street & H Street

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	49	35
Average Queue (ft)	25	5
95th Queue (ft)	46	23
Link Distance (ft)	674	809
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 15: B Street & G Street

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	28	26
Average Queue (ft)	1	8
95th Queue (ft)	13	27
Link Distance (ft)	809	461
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 16: El Toro Rd. & B Street

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	88	57
Average Queue (ft)	43	18
95th Queue (ft)	70	47
Link Distance (ft)	123	171
Upstream Blk Time (%)	0	
Queuing Penalty (veh)	0	
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 21: Driveway 1 & Nichols Rd.

Movement	WB	NB
Directions Served	T	R
Maximum Queue (ft)	24	18
Average Queue (ft)	2	3
95th Queue (ft)	24	16
Link Distance (ft)	449	377
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty: 0

APPENDIX 3.1:

EXISTING TRAFFIC COUNTS – MAY 2017

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Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Lake Elsinore
N/S: Lake Street
EW: Nichols Road
Weather: Clear

File Name : 01_LKE_Lake_Nichols AM
Site Code : 05118103
Start Date : 2/8/2018
Page No : 1

Groups Printed- Total Volume

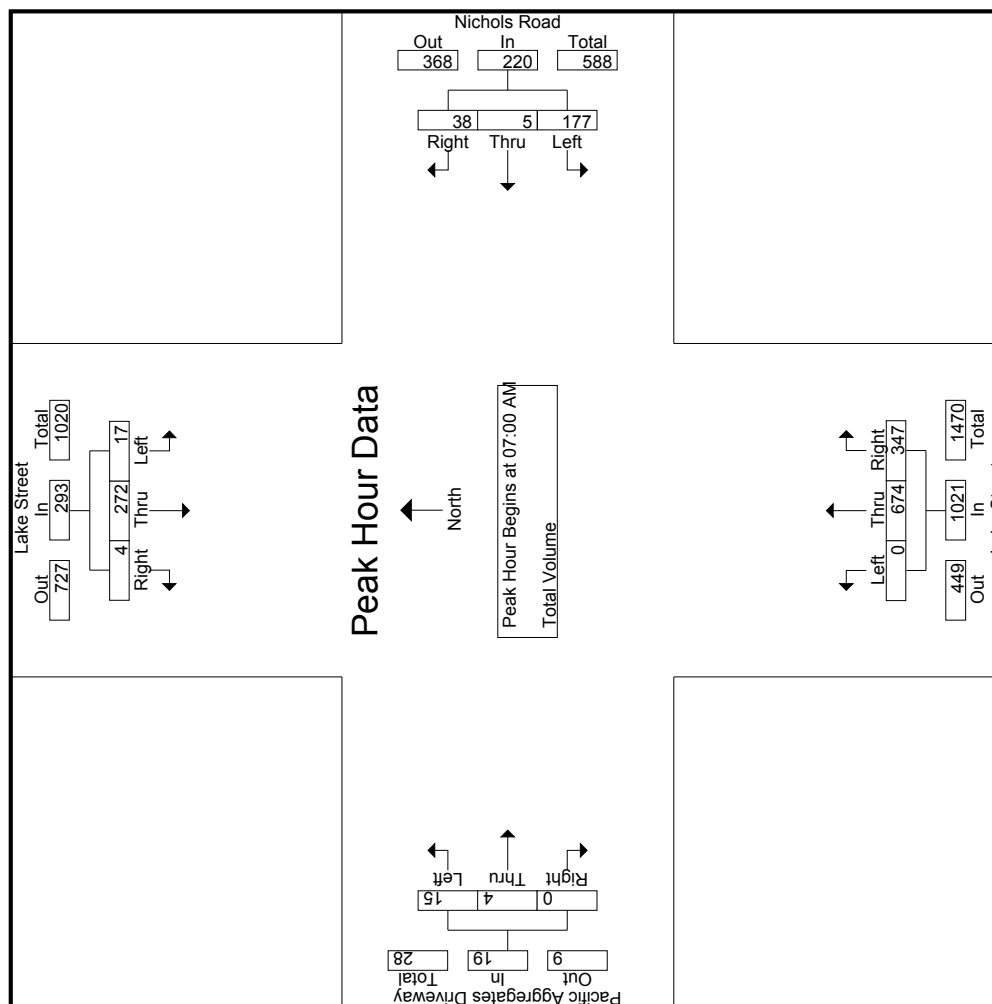
Start Time	Lake Street Southbound					Nichols Road Westbound					Lake Street Northbound					Pacific Aggregates Driveway Eastbound							
	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	5	62	2	0	69	49	1	11	3	61	0	167	103	0	270	1	1	0	0	2	3	402	405
07:15 AM	5	75	0	0	80	62	0	6	1	68	0	175	89	0	264	4	0	0	0	4	1	416	417
07:30 AM	1	55	2	0	58	42	2	11	2	55	0	171	90	0	261	5	0	0	0	5	2	379	381
07:45 AM	6	80	0	0	86	24	2	10	5	36	0	161	65	0	226	5	3	0	0	8	5	356	361
Total	17	272	4	0	293	177	5	38	11	220	0	674	347	0	1021	15	4	0	0	19	11	1553	1564
08:00 AM	4	53	0	0	57	16	1	13	4	30	0	153	53	0	206	4	1	0	0	5	4	298	302
08:15 AM	3	62	0	0	65	16	0	8	4	24	0	117	46	0	163	2	1	0	0	3	4	255	259
08:30 AM	6	60	1	0	67	18	1	3	1	22	1	125	58	0	184	6	2	0	0	8	1	281	282
08:45 AM	7	67	1	0	75	30	1	9	5	40	1	109	52	0	162	6	1	0	0	7	5	284	289
Total	20	242	2	0	264	80	3	33	14	116	2	504	209	0	715	18	5	0	0	23	14	1118	1132
Grand Total	37	514	6	0	557	257	8	71	25	336	2	1178	556	0	1736	33	9	0	0	42	25	2671	2696
Approch %	6.6	92.3	1.1			76.5	2.4	21.1		12.6	0.1	67.9	32		65	78.6	21.4	0					
Total %	1.4	19.2	0.2		20.9	9.6	0.3	2.7			0.1	44.1	20.8			1.2	0.3	0		1.6	0.9	99.1	

Start Time	Lake Street Southbound				Nichols Road Westbound				Lake Street Northbound				Pacific Aggregates Driveway Eastbound				
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	5	62	2	69	49	1	11	61	0	167	103	270	1	1	0	2	402
07:15 AM	5	75	0	80	62	0	6	68	0	175	89	264	4	0	0	4	416
07:30 AM	1	55	2	58	42	2	11	55	0	171	90	261	5	0	0	5	379
07:45 AM	6	80	0	86	24	2	10	36	0	161	65	226	5	3	0	8	356
Total Volume	17	272	4	293	177	5	38	220	0	674	347	1021	15	4	0	19	1553
% App. Total	5.8	92.8	1.4		80.5	2.3	17.3		0	66	34		78.9	21.1	0		
PHF	.708	.850	.500	.852	.714	.625	.864	.809	.000	.963	.842	.945	.750	.333	.000	.594	.933

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 07:00 AM

City of Lake Elsinore
N/S: Lake Street
E/W: Nichols Road
Weather: Clear

File Name : 01_LKE_Lake_Nichols AM
Site Code : 05118103
Start Date : 2/8/2018
Page No : 2



Counts Unlimited
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City of Lake Elsinore
N/S: Lake Street
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Site Code : 05118103
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Page No : 3

Start Time	Lake Street Southbound			Nichols Road Westbound			Lake Street Northbound			Pacific Aggregates Driveway Eastbound		
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1												
Peak Hour for Each Approach Begins at:												
+0 mins.	5	62	2	69	49	1	11	61	0	167	5	270
+15 mins.	5	75	0	80	62	0	6	68	0	175	4	264
+30 mins.	1	55	2	58	42	2	11	55	0	171	2	261
+45 mins.	6	80	0	86	24	2	10	36	0	161	6	226
Total Volume	17	272	4	293	177	5	38	220	0	674	17	1021
% App. Total	5.8	92.8	1.4		80.5	2.3	17.3		0	66	29.2	
PHF	.708	.850	.500	.852	.714	.625	.864	.809	.000	.963	.583	.945
												.750

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Lake Elsinore
N/S: Lake Street
EW: Nichols Road
Weather: Clear

File Name : 01_LKE_Lake_Nichols PM
Site Code : 05118103
Start Date : 2/8/2018
Page No : 1

Groups Printed- Total Volume

	Lake Street Southbound					Nichols Road Westbound					Lake Street Northbound					Pacific Aggregates Driveway Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	6	143	0	0	149	71	0	5	2	76	0	80	36	0	116	2	1	0	0	3	2	344	346
04:15 PM	6	168	0	0	174	55	0	7	3	62	0	95	37	0	132	3	1	0	0	4	3	372	375
04:30 PM	6	195	1	0	202	49	0	5	0	54	0	84	41	0	125	0	3	0	0	3	0	384	384
04:45 PM	10	206	0	0	216	56	0	5	2	61	0	85	46	0	131	0	1	0	0	1	2	409	411
Total	28	712	1	0	741	231	0	22	7	253	0	344	160	0	504	5	6	0	0	11	7	1509	1516
05:00 PM	8	222	0	0	230	65	0	3	1	68	1	115	41	0	157	1	2	1	0	4	1	459	460
05:15 PM	5	222	0	0	227	57	0	5	4	62	0	78	36	0	114	0	0	0	0	0	4	403	407
05:30 PM	12	188	0	0	200	69	0	7	0	76	0	65	38	0	103	1	0	0	0	1	0	380	380
05:45 PM	21	199	1	0	221	63	0	4	0	67	0	71	28	0	99	0	1	0	0	1	0	388	388
Total	46	831	1	0	878	254	0	19	5	273	1	329	143	0	473	2	3	1	0	6	5	1630	1635
Grand Total	74	1543	2	0	1619	485	0	41	12	526	1	673	303	0	977	7	9	1	0	17	12	3139	3151
Approch %	4.6	95.3	0.1			92.2	0	7.8			0.1	68.9	31		31.1	41.2	52.9	5.9					
Total %	2.4	49.2	0.1		51.6	15.5	0	1.3		16.8	0	21.4	9.7			0.2	0.3	0		0.5	0.4	99.6	

3.14

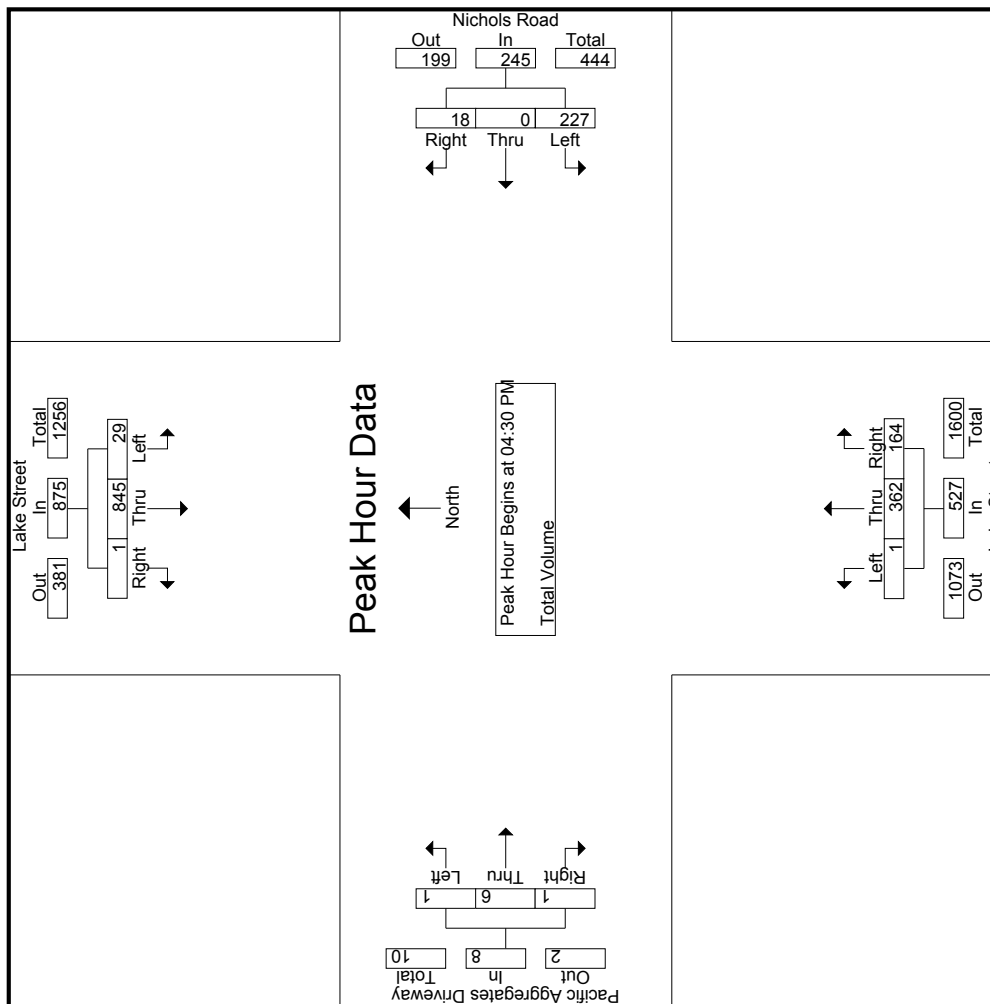
	Lake Street Southbound					Nichols Road Westbound					Lake Street Northbound					Pacific Aggregates Driveway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total			
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																				
Peak Hour for Entire Intersection Begins at 04:30 PM																				
04:30 PM	6	195	1	202	49	0	5	54	0	84	41	125	0	3	0	3	384			
04:45 PM	10	206	0	216	56	0	5	61	0	85	46	131	0	1	0	1	409			
05:00 PM	8	222	0	230	65	0	3	68	1	115	41	157	1	2	1	4	459			
05:15 PM	5	222	0	227	57	0	5	62	0	78	36	114	0	0	0	0	403			
Total Volume	29	845	1	875	227	0	18	245	1	362	164	527	1	6	1	8	1655			
% App. Total	3.3	96.6	0.1		92.7	0	7.3		0.2	68.7	31.1		12.5	75	12.5					
PHF	725	952	250	951	873	000	900	901	250	787	891	839	250	500	250	500	901			

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 04:30 PM

Counts Unlimited
 PO Box 1178
 Corona, CA 92878
 (951) 268-6268

City of Lake Elsinore
 N/S: Lake Street
 E/W: Nichols Road
 Weather: Clear

File Name : 01_LKE_Lake_Nichols PM
 Site Code : 05118103
 Start Date : 2/8/2018
 Page No : 2



City of Lake Elsinore
N/S: Lake Street
E/W: Nichols Road
Weather: Clear

File Name : 01_LKE_Lake_Nichols PM
Site Code : 05118103
Start Date : 2/8/2018
Page No : 3

Start Time	Lake Street Southbound			App. Total	Nichols Road Westbound			App. Total	Lake Street Northbound			Pacific Aggregates Driveway Eastbound			Int. Total	
	Left	Thru	Right		Left	Thru	Right		Left	Thru	Right	Left	Thru	Right		App. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																
Peak Hour for Each Approach Begins at:																
+0 mins. +15 mins. +30 mins. +45 mins. Total Volume % App. Total	05:00 PM			05:00 PM			04:15 PM			04:15 PM						
	8	222	0	230	65	0	3	68	0	95	37	132	3	1	0	4
	5	222	0	227	57	0	5	62	0	84	41	125	0	3	0	3
	12	188	0	200	69	0	7	76	0	85	46	131	0	1	0	1
	21	199	1	221	63	0	4	67	1	115	41	157	1	2	1	4
	46	831	1	878	254	0	19	273	1	379	165	545	4	7	1	12
	5.2	94.6	0.1		93	0	7		0.2	69.5	30.3		33.3	58.3	8.3	
PHF	.548	.936	.250	.954	.920	.000	.679	.898	.250	.824	.897	.868	.333	.583	.250	.750

Location: Lake Elsinore
 N/S: Lake Street
 E/W: Nichols Road



Date: 2/8/2018
 Date: Thursday

PEDESTRIANS

	North Leg Lake Street	East Leg Nichols Road	South Leg Lake Street	West Leg Pacific Aggregates DW	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0

	North Leg Lake Street	East Leg Nichols Road	South Leg Lake Street	West Leg Pacific Aggregates DW	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0

Location: Lake Elsinore
 N/S: Lake Street
 E/W: Nichols Road



Date: 2/8/2018
 Date: Thursday

BICYCLES

	Southbound Lake Street			Westbound Nichols Road			Northbound Lake Street			Eastbound Pacific Aggregates DW			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	0	0	0	0	0	0

	Southbound Lake Street			Westbound Nichols Road			Northbound Lake Street			Eastbound Pacific Aggregates DW			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	0	0	0	0	0	0

City of Lake Elsinore
N/S: Lake Street
E/W: Alberhill Ranch Road
Weather: Clear

File Name : 01_LKE_Lake_Alberhill Ranch AM
Site Code : 05118340
Start Date : 4/24/2018
Page No : 1

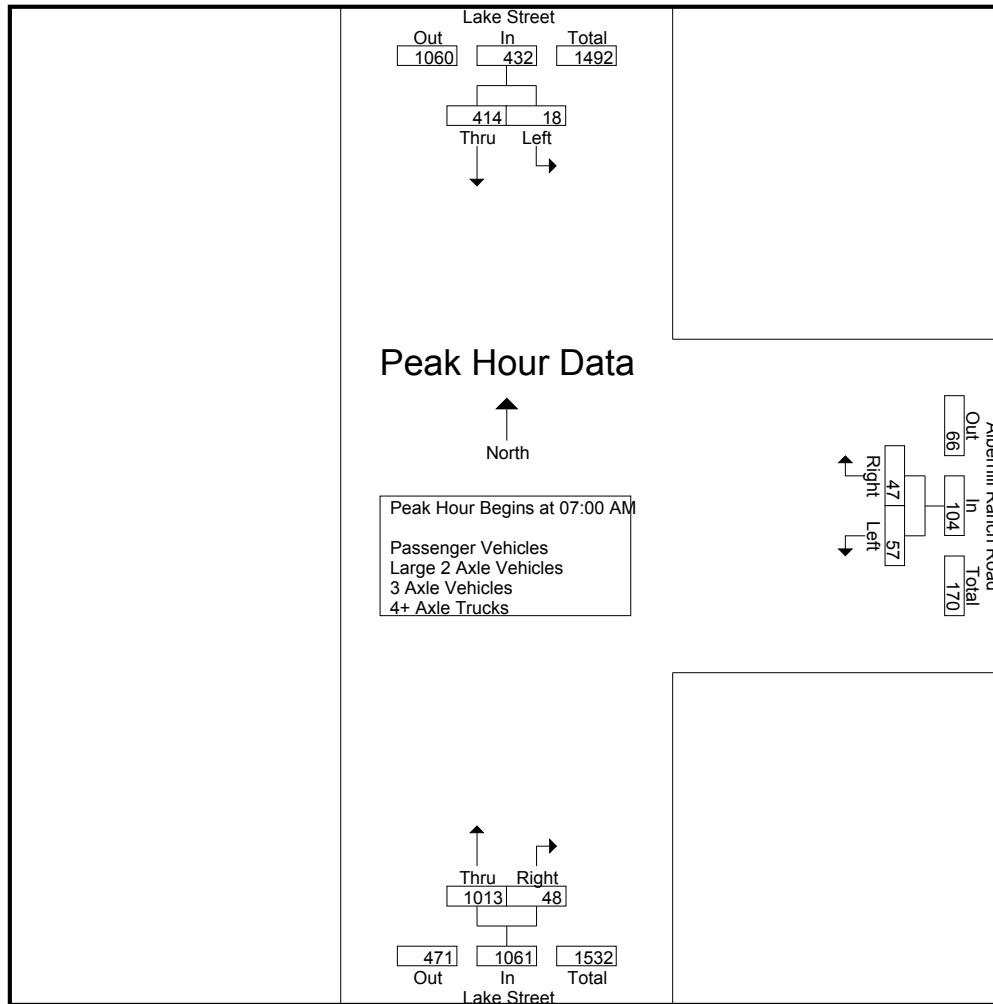
Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

Start Time	Lake Street Southbound				Alberhill Ranch Road Westbound				Lake Street Northbound				Exclu. Total	Inclu. Total	Int. Total
	Left	Thru	RTOR	App. Total	Left	Right	RTOR	App. Total	Thru	Right	RTOR	App. Total			
07:00 AM	2	109	0	111	20	12	0	32	237	6	0	243	0	386	386
07:15 AM	4	114	0	118	20	15	8	35	253	6	1	259	9	412	421
07:30 AM	4	111	0	115	14	12	9	26	262	23	5	285	14	426	440
07:45 AM	8	80	0	88	3	8	6	11	261	13	2	274	8	373	381
Total	18	414	0	432	57	47	23	104	1013	48	8	1061	31	1597	1628
08:00 AM	7	86	0	93	4	6	6	10	197	8	0	205	6	308	314
08:15 AM	1	68	0	69	3	3	2	6	169	4	1	173	3	248	251
08:30 AM	3	69	0	72	3	10	9	13	145	1	0	146	9	231	240
08:45 AM	4	61	0	65	1	6	5	7	120	1	0	121	5	193	198
Total	15	284	0	299	11	25	22	36	631	14	1	645	23	980	1003
Grand Total	33	698	0	731	68	72	45	140	1644	62	9	1706	54	2577	2631
Apprch %	4.5	95.5			48.6	51.4			96.4	3.6					
Total %	1.3	27.1		28.4	2.6	2.8		5.4	63.8	2.4		66.2	2.1	97.9	
Passenger Vehicles	30	671		701	67	71		183	1625	62		1696	0	0	2580
% Passenger Vehicles	90.9	96.1	0	95.9	98.5	98.6	100	98.9	98.8	100	100	98.9	0	0	98.1
Large 2 Axle Vehicles	3	20		23	1	0		1	10	0		10	0	0	34
% Large 2 Axle Vehicles	9.1	2.9	0	3.1	1.5	0	0	0.5	0.6	0	0	0.6	0	0	1.3
3 Axle Vehicles	0	2		2	0	1		1	2	0		2	0	0	5
% 3 Axle Vehicles	0	0.3	0	0.3	0	1.4	0	0.5	0.1	0	0	0.1	0	0	0.2
4+ Axle Trucks	0	5		5	0	0		0	7	0		7	0	0	12
% 4+ Axle Trucks	0	0.7	0	0.7	0	0	0	0	0.4	0	0	0.4	0	0	0.5

	Lake Street Southbound			Alberhill Ranch Road Westbound			Lake Street Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:00 AM										
07:00 AM	2	109	111	20	12	32	237	6	243	386
07:15 AM	4	114	118	20	15	35	253	6	259	412
07:30 AM	4	111	115	14	12	26	262	23	285	426
07:45 AM	8	80	88	3	8	11	261	13	274	373
Total Volume	18	414	432	57	47	104	1013	48	1061	1597
% App. Total	4.2	95.8		54.8	45.2		95.5	4.5		
PHF	.563	.908	.915	.713	.783	.743	.967	.522	.931	.937

City of Lake Elsinore
N/S: Lake Street
E/W: Alberhill Ranch Road
Weather: Clear

File Name : 01_LKE_Lake_Alberhill Ranch AM
Site Code : 05118340
Start Date : 4/24/2018
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM			07:00 AM			07:00 AM		
+0 mins.	2	109	111	20	12	32	237	6	243
+15 mins.	4	114	118	20	15	35	253	6	259
+30 mins.	4	111	115	14	12	26	262	23	285
+45 mins.	8	80	88	3	8	11	261	13	274
Total Volume	18	414	432	57	47	104	1013	48	1061
% App. Total	4.2	95.8		54.8	45.2		95.5	4.5	
PHF	.563	.908	.915	.713	.783	.743	.967	.522	.931

City of Lake Elsinore
N/S: Lake Street
E/W: Alberhill Ranch Road
Weather: Clear

File Name : 01_LKE_Lake_Alberhill Ranch AM
Site Code : 05118340
Start Date : 4/24/2018
Page No : 1

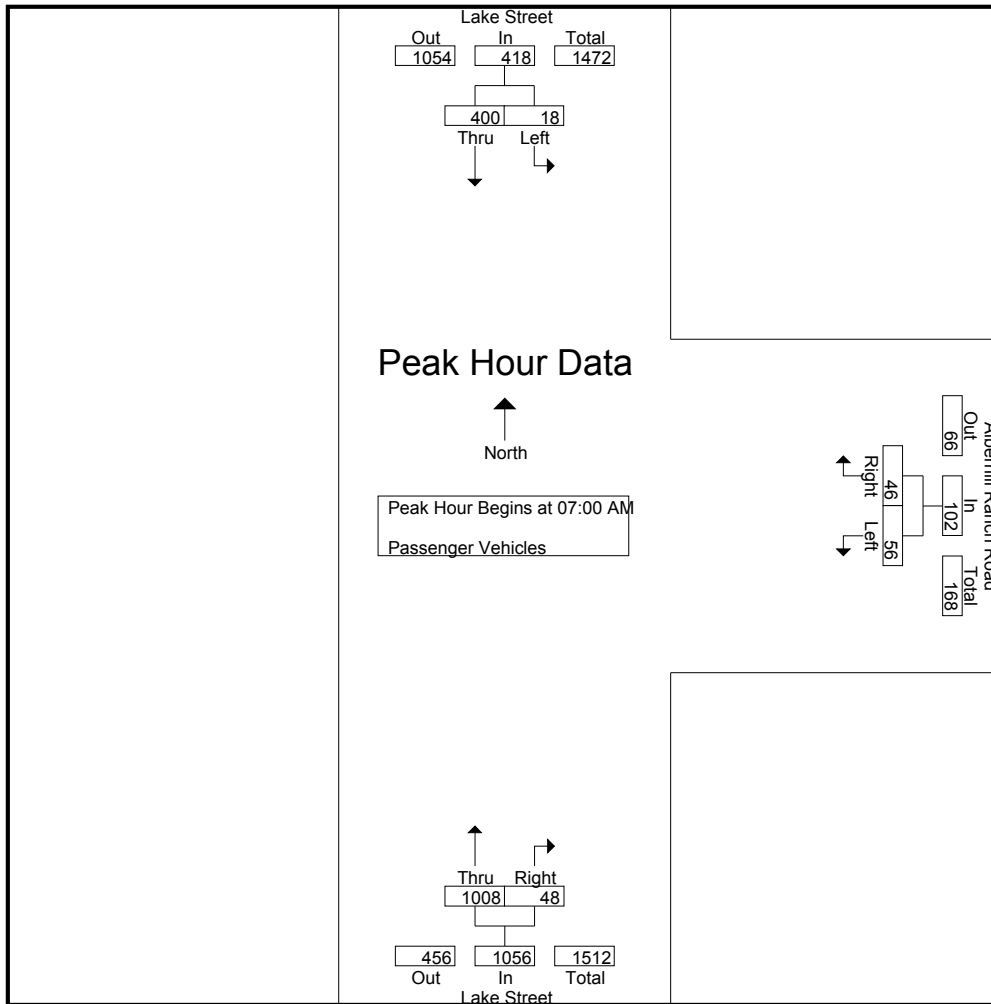
Groups Printed- Passenger Vehicles

	Lake Street Southbound				Alberhill Ranch Road Westbound				Lake Street Northbound						
Start Time	Left	Thru	RTOR	App. Total	Left	Right	RTOR	App. Total	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	2	105	0	107	19	11	0	30	237	6	0	243	0	380	380
07:15 AM	4	111	0	115	20	15	8	35	251	6	1	257	9	407	416
07:30 AM	4	106	0	110	14	12	9	26	260	23	5	283	14	419	433
07:45 AM	8	78	0	86	3	8	6	11	260	13	2	273	8	370	378
Total	18	400	0	418	56	46	23	102	1008	48	8	1056	31	1576	1607
08:00 AM	7	82	0	89	4	6	6	10	193	8	0	201	6	300	306
08:15 AM	1	64	0	65	3	3	2	6	164	4	1	168	3	239	242
08:30 AM	3	66	0	69	3	10	9	13	141	1	0	142	9	224	233
08:45 AM	1	59	0	60	1	6	5	7	119	1	0	120	5	187	192
Total	12	271	0	283	11	25	22	36	617	14	1	631	23	950	973
Grand Total	30	671	0	701	67	71	45	138	1625	62	9	1687	54	2526	2580
Apprch %	4.3	95.7			48.6	51.4			96.3	3.7					
Total %	1.2	26.6		27.8	2.7	2.8		5.5	64.3	2.5		66.8	2.1	97.9	

	Lake Street Southbound			Alberhill Ranch Road Westbound			Lake Street Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:00 AM										
07:00 AM	2	105	107	19	11	30	237	6	243	380
07:15 AM	4	111	115	20	15	35	251	6	257	407
07:30 AM	4	106	110	14	12	26	260	23	283	419
07:45 AM	8	78	86	3	8	11	260	13	273	370
Total Volume	18	400	418	56	46	102	1008	48	1056	1576
% App. Total	4.3	95.7		54.9	45.1		95.5	4.5		
PHF	.563	.901	.909	.700	.767	.729	.969	.522	.933	.940

City of Lake Elsinore
N/S: Lake Street
E/W: Alberhill Ranch Road
Weather: Clear

File Name : 01_LKE_Lake_Alberhill Ranch AM
Site Code : 05118340
Start Date : 4/24/2018
Page No : 2



Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM			07:00 AM			07:00 AM		
+0 mins.	2	105	107	19	11	30	237	6	243
+15 mins.	4	111	115	20	15	35	251	6	257
+30 mins.	4	106	110	14	12	26	260	23	283
+45 mins.	8	78	86	3	8	11	260	13	273
Total Volume	18	400	418	56	46	102	1008	48	1056
% App. Total	4.3	95.7		54.9	45.1		95.5	4.5	
PHF	.563	.901	.909	.700	.767	.729	.969	.522	.933

City of Lake Elsinore
N/S: Lake Street
E/W: Alberhill Ranch Road
Weather: Clear

File Name : 01_LKE_Lake_Alberhill Ranch AM
Site Code : 05118340
Start Date : 4/24/2018
Page No : 1

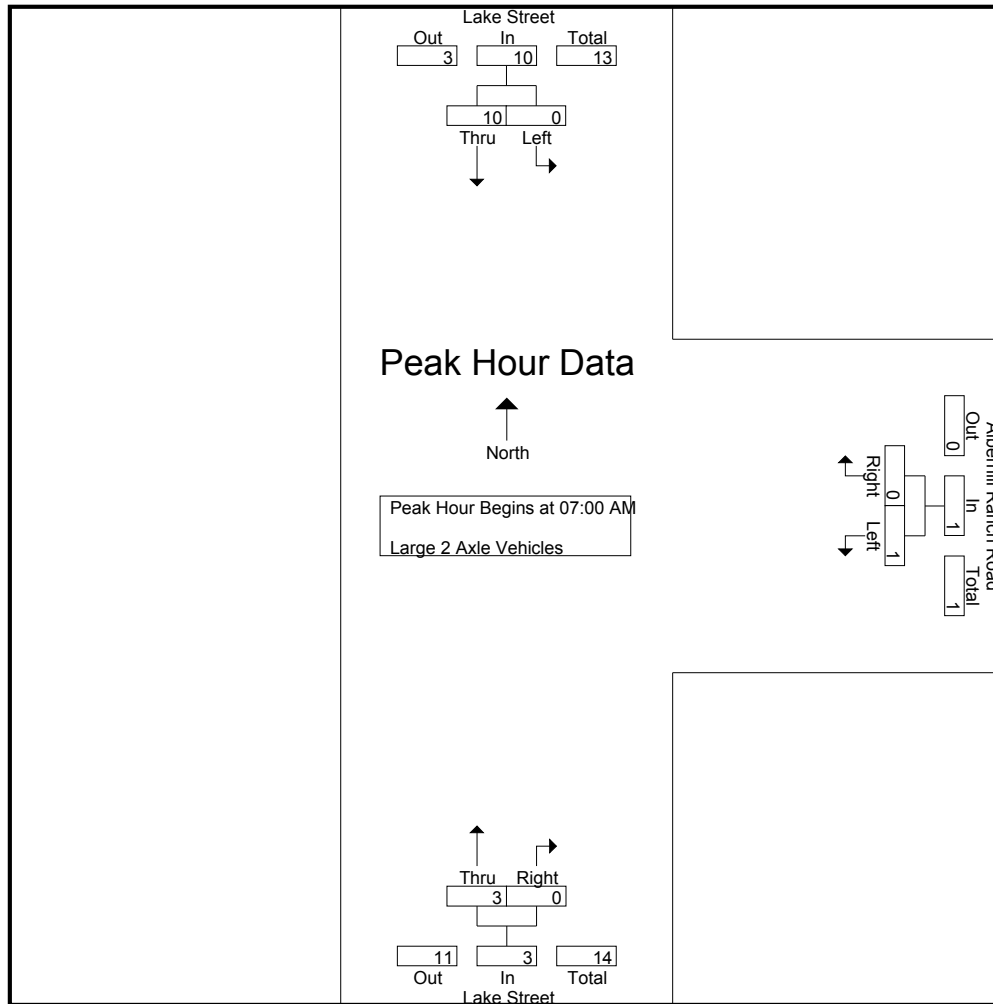
Groups Printed- Large 2 Axle Vehicles

Start Time	Lake Street Southbound				Alberhill Ranch Road Westbound				Lake Street Northbound				Exclu. Total	Inclu. Total	Int. Total
	Left	Thru	RTOR	App. Total	Left	Right	RTOR	App. Total	Thru	Right	RTOR	App. Total			
07:00 AM	0	4	0	4	1	0	0	1	0	0	0	0	0	5	5
07:15 AM	0	1	0	1	0	0	0	0	1	0	0	1	0	2	2
07:30 AM	0	4	0	4	0	0	0	0	1	0	0	1	0	5	5
07:45 AM	0	1	0	1	0	0	0	0	1	0	0	1	0	2	2
Total	0	10	0	10	1	0	0	1	3	0	0	3	0	14	14
08:00 AM	0	4	0	4	0	0	0	0	2	0	0	2	0	6	6
08:15 AM	0	3	0	3	0	0	0	0	3	0	0	3	0	6	6
08:30 AM	0	1	0	1	0	0	0	0	2	0	0	2	0	3	3
08:45 AM	3	2	0	5	0	0	0	0	0	0	0	0	0	5	5
Total	3	10	0	13	0	0	0	0	7	0	0	7	0	20	20
Grand Total	3	20	0	23	1	0	0	1	10	0	0	10	0	34	34
Apprch %	13	87			100	0			100	0					
Total %	8.8	58.8		67.6	2.9	0		2.9	29.4	0		29.4	0	100	

	Lake Street Southbound			Alberhill Ranch Road Westbound			Lake Street Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:00 AM										
07:00 AM	0	4	4	1	0	1	0	0	0	5
07:15 AM	0	1	1	0	0	0	1	0	1	2
07:30 AM	0	4	4	0	0	0	1	0	1	5
07:45 AM	0	1	1	0	0	0	1	0	1	2
Total Volume	0	10	10	1	0	1	3	0	3	14
% App. Total	0	100		100	0		100	0		
PHF	.000	.625	.625	.250	.000	.250	.750	.000	.750	.700

City of Lake Elsinore
N/S: Lake Street
E/W: Alberhill Ranch Road
Weather: Clear

File Name : 01_LKE_Lake_Alberhill Ranch AM
Site Code : 05118340
Start Date : 4/24/2018
Page No : 2



Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM			07:00 AM			07:00 AM		
+0 mins.	0	4	4	1	0	1	0	0	0
+15 mins.	0	1	1	0	0	0	1	0	1
+30 mins.	0	4	4	0	0	0	1	0	1
+45 mins.	0	1	1	0	0	0	1	0	1
Total Volume	0	10	10	1	0	1	3	0	3
% App. Total	0	100		100	0		100	0	
PHF	.000	.625	.625	.250	.000	.250	.750	.000	.750

City of Lake Elsinore
N/S: Lake Street
E/W: Alberhill Ranch Road
Weather: Clear

File Name : 01_LKE_Lake_Alberhill Ranch AM
Site Code : 05118340
Start Date : 4/24/2018
Page No : 1

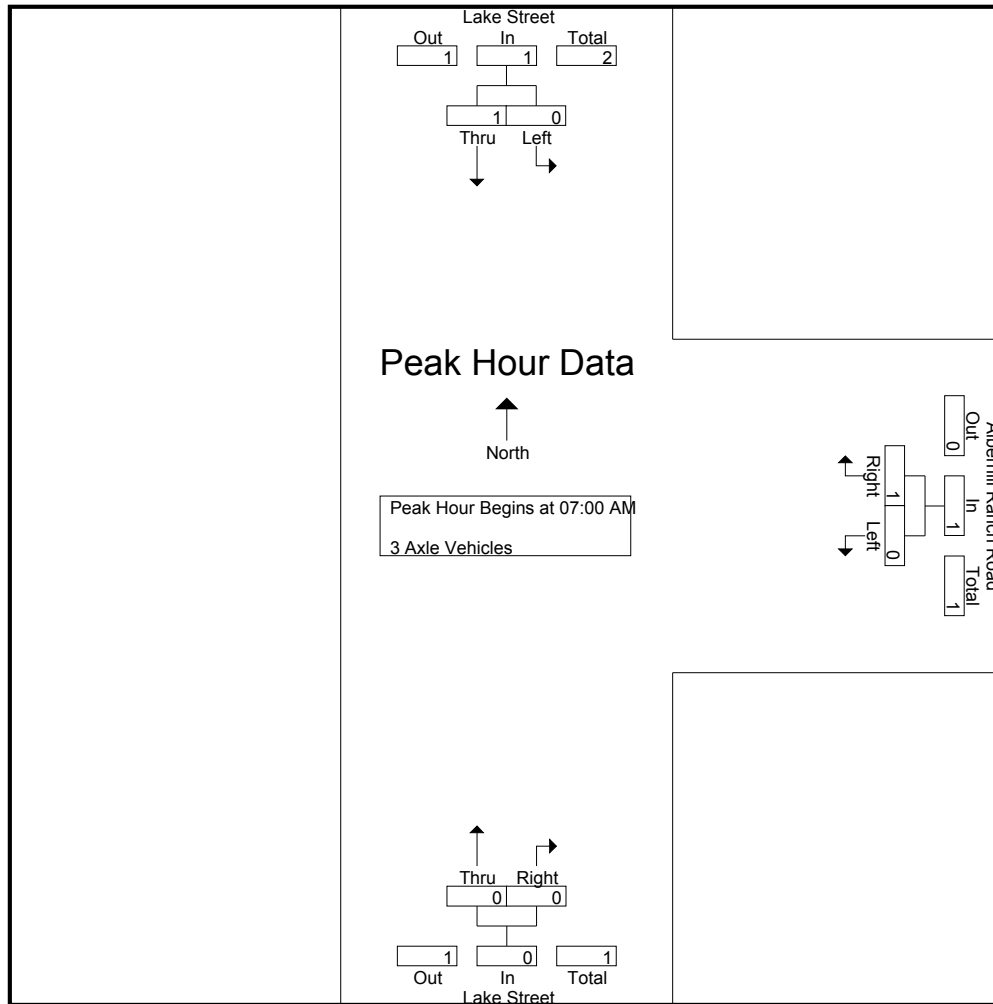
Groups Printed- 3 Axle Vehicles

	Lake Street Southbound				Alberhill Ranch Road Westbound				Lake Street Northbound						
Start Time	Left	Thru	RTOR	App. Total	Left	Right	RTOR	App. Total	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	1	1
07:15 AM	0	1	0	1	0	0	0	0	0	0	0	0	0	1	1
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	1	0	1	0	1	0	0	0	0	0	2	2
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	2	0	0	2	0	2	2
08:30 AM	0	1	0	1	0	0	0	0	0	0	0	0	0	1	1
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	1	0	0	0	0	2	0	0	2	0	3	3
Grand Total	0	2	0	2	0	1	0	1	2	0	0	2	0	5	5
Apprch %	0	100			0	100			100	0			0		
Total %	0	40		40	0	20		20	40	0		40	0	100	

	Lake Street Southbound			Alberhill Ranch Road Westbound			Lake Street Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:00 AM										
07:00 AM	0	0	0	0	1	1	0	0	0	1
07:15 AM	0	1	1	0	0	0	0	0	0	1
07:30 AM	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	1	0	1	1	0	0	0	2
% App. Total	0	100		0	100		0	0		
PHF	.000	.250	.250	.000	.250	.250	.000	.000	.000	.500

City of Lake Elsinore
N/S: Lake Street
E/W: Alberhill Ranch Road
Weather: Clear

File Name : 01_LKE_Lake_Alberhill Ranch AM
Site Code : 05118340
Start Date : 4/24/2018
Page No : 2



Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM			07:00 AM			07:00 AM		
+0 mins.	0	0	0	0	1	1	0	0	0
+15 mins.	0	1	1	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0
Total Volume	0	1	1	0	1	1	0	0	0
% App. Total	0	100		0	100		0	0	
PHF	.000	.250	.250	.000	.250	.250	.000	.000	.000

City of Lake Elsinore
N/S: Lake Street
E/W: Alberhill Ranch Road
Weather: Clear

File Name : 01_LKE_Lake_Alberhill Ranch AM
Site Code : 05118340
Start Date : 4/24/2018
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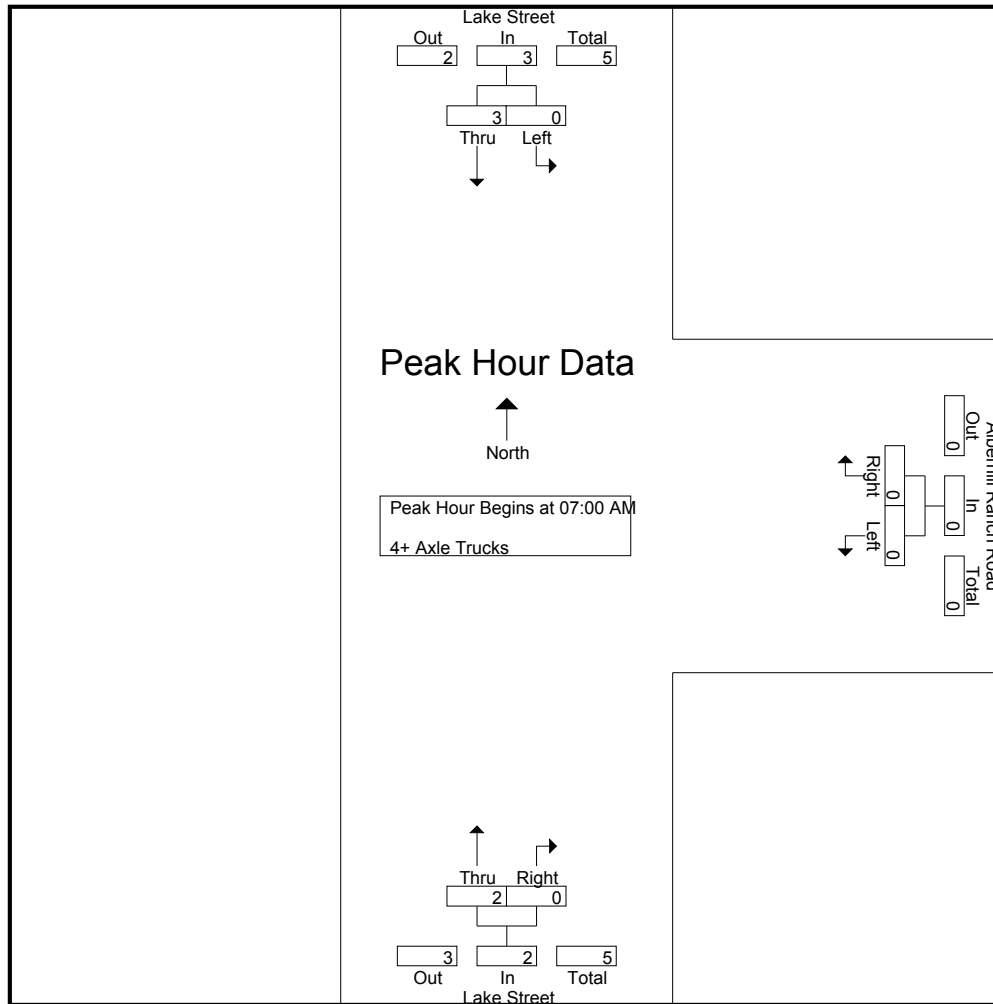
Groups Printed- 4+ Axle Trucks

Start Time	Lake Street Southbound				Alberhill Ranch Road Westbound				Lake Street Northbound				Exclu. Total	Inclu. Total	Int. Total
	Left	Thru	RTOR	App. Total	Left	Right	RTOR	App. Total	Thru	Right	RTOR	App. Total			
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	1	0	1	0	0	0	0	1	0	0	1	0	2	2
07:30 AM	0	1	0	1	0	0	0	0	1	0	0	1	0	2	2
07:45 AM	0	1	0	1	0	0	0	0	0	0	0	0	0	1	1
Total	0	3	0	3	0	0	0	0	2	0	0	2	0	5	5
08:00 AM	0	0	0	0	0	0	0	0	2	0	0	2	0	2	2
08:15 AM	0	1	0	1	0	0	0	0	0	0	0	0	0	1	1
08:30 AM	0	1	0	1	0	0	0	0	2	0	0	2	0	3	3
08:45 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	1	1
Total	0	2	0	2	0	0	0	0	5	0	0	5	0	7	7
Grand Total	0	5	0	5	0	0	0	0	7	0	0	7	0	12	12
Apprch %	0	100			0	0			100	0					
Total %	0	41.7		41.7	0	0		0	58.3	0		58.3	0	100	

	Lake Street Southbound			Alberhill Ranch Road Westbound			Lake Street Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:00 AM										
07:00 AM	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	1	1	0	0	0	1	0	1	2
07:30 AM	0	1	1	0	0	0	1	0	1	2
07:45 AM	0	1	1	0	0	0	0	0	0	1
Total Volume	0	3	3	0	0	0	2	0	2	5
% App. Total	0	100		0	0		100	0		
PHF	.000	.750	.750	.000	.000	.000	.500	.000	.500	.625

City of Lake Elsinore
N/S: Lake Street
E/W: Alberhill Ranch Road
Weather: Clear

File Name : 01_LKE_Lake_Alberhill Ranch AM
Site Code : 05118340
Start Date : 4/24/2018
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Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM			07:00 AM			07:00 AM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	1	1	0	0	0	1	0	1
+30 mins.	0	1	1	0	0	0	1	0	1
+45 mins.	0	1	1	0	0	0	0	0	0
Total Volume	0	3	3	0	0	0	2	0	2
% App. Total	0	100		0	0		100	0	
PHF	.000	.750	.750	.000	.000	.000	.500	.000	.500

City of Lake Elsinore
N/S: Lake Street
E/W: Alberhill Ranch Road
Weather: Clear

File Name : 01_LKE_Lake_Alberhill Ranch PM
Site Code : 05118340
Start Date : 4/24/2018
Page No : 1

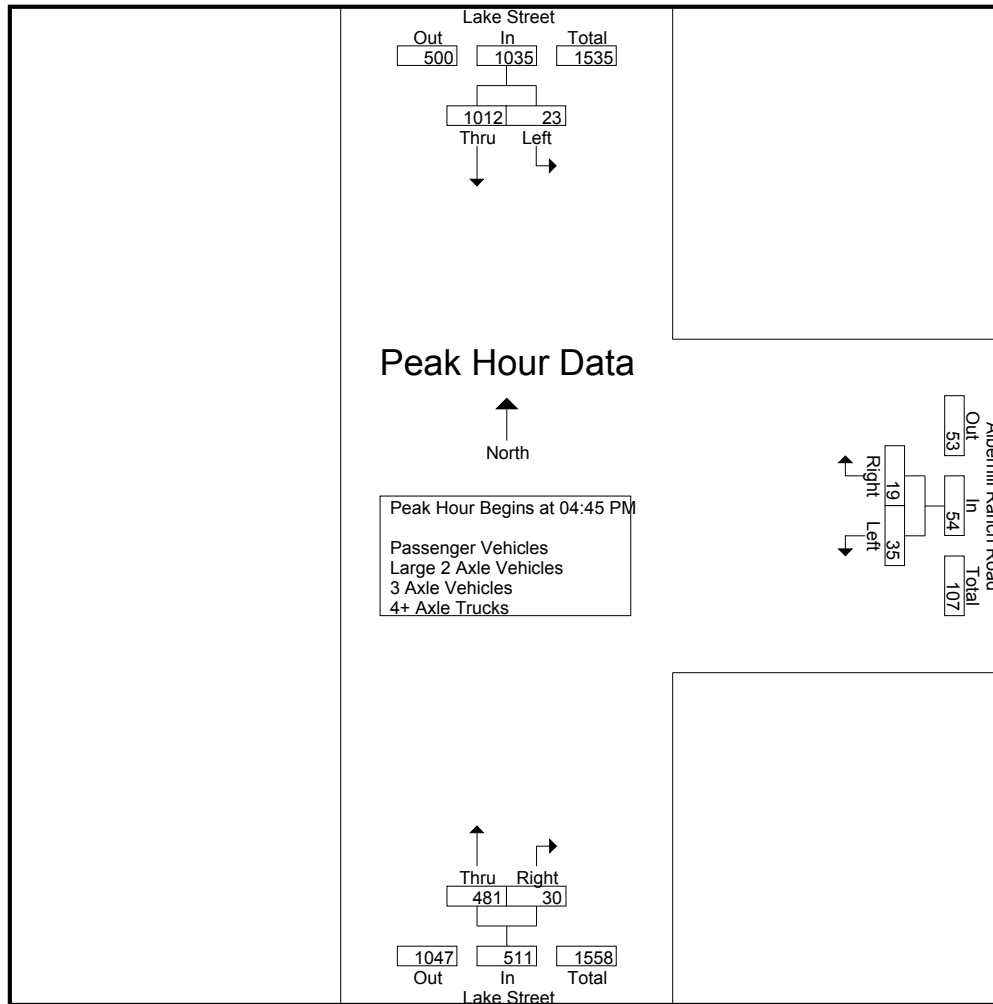
Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

Start Time	Lake Street Southbound				Alberhill Ranch Road Westbound				Lake Street Northbound				Exclu. Total	Inclu. Total	Int. Total
	Left	Thru	RTOR	App. Total	Left	Right	RTOR	App. Total	Thru	Right	RTOR	App. Total			
04:00 PM	9	211	0	220	4	3	3	7	120	5	2	125	5	352	357
04:15 PM	11	201	0	212	7	2	2	9	142	5	2	147	4	368	372
04:30 PM	11	216	0	227	3	0	0	3	128	6	0	134	0	364	364
04:45 PM	5	269	0	274	9	0	0	9	114	4	1	118	1	401	402
Total	36	897	0	933	23	5	5	28	504	20	5	524	10	1485	1495
05:00 PM	3	251	0	254	6	3	3	9	120	10	2	130	5	393	398
05:15 PM	8	239	0	247	9	7	4	16	124	11	0	135	4	398	402
05:30 PM	7	253	0	260	11	9	6	20	123	5	0	128	6	408	414
05:45 PM	13	246	0	259	4	4	4	8	113	15	2	128	6	395	401
Total	31	989	0	1020	30	23	17	53	480	41	4	521	21	1594	1615
Grand Total	67	1886	0	1953	53	28	22	81	984	61	9	1045	31	3079	3110
Apprch %	3.4	96.6			65.4	34.6			94.2	5.8					
Total %	2.2	61.3		63.4	1.7	0.9		2.6	32	2		33.9	1	99	
Passenger Vehicles	67	1870		1937	52	28		102	969	61		1039	0	0	3078
% Passenger Vehicles	100	99.2	0	99.2	98.1	100	100	99	98.5	100	100	98.6	0	0	99
Large 2 Axle Vehicles	0	13		13	1	0		1	11	0		11	0	0	25
% Large 2 Axle Vehicles	0	0.7	0	0.7	1.9	0	0	1	1.1	0	0	1	0	0	0.8
3 Axle Vehicles	0	1		1	0	0		0	1	0		1	0	0	2
% 3 Axle Vehicles	0	0.1	0	0.1	0	0	0	0	0.1	0	0	0.1	0	0	0.1
4+ Axle Trucks	0	2		2	0	0		0	3	0		3	0	0	5
% 4+ Axle Trucks	0	0.1	0	0.1	0	0	0	0	0.3	0	0	0.3	0	0	0.2

	Lake Street Southbound			Alberhill Ranch Road Westbound			Lake Street Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:45 PM										
04:45 PM	5	269	274	9	0	9	114	4	118	401
05:00 PM	3	251	254	6	3	9	120	10	130	393
05:15 PM	8	239	247	9	7	16	124	11	135	398
05:30 PM	7	253	260	11	9	20	123	5	128	408
Total Volume	23	1012	1035	35	19	54	481	30	511	1600
% App. Total	2.2	97.8		64.8	35.2		94.1	5.9		
PHF	.719	.941	.944	.795	.528	.675	.970	.682	.946	.980

City of Lake Elsinore
N/S: Lake Street
E/W: Alberhill Ranch Road
Weather: Clear

File Name : 01_LKE_Lake_Alberhill Ranch PM
Site Code : 05118340
Start Date : 4/24/2018
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Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:45 PM			04:15 PM			04:15 PM		
+0 mins.	5	269	274	9	0	9	142	5	147
+15 mins.	3	251	254	6	3	9	128	6	134
+30 mins.	8	239	247	9	7	16	114	4	118
+45 mins.	7	253	260	11	9	20	120	10	130
Total Volume	23	1012	1035	35	19	54	504	25	529
% App. Total	2.2	97.8		64.8	35.2		95.3	4.7	
PHF	.719	.941	.944	.795	.528	.675	.887	.625	.900

City of Lake Elsinore
N/S: Lake Street
E/W: Alberhill Ranch Road
Weather: Clear

File Name : 01_LKE_Lake_Alberhill Ranch PM
Site Code : 05118340
Start Date : 4/24/2018
Page No : 1

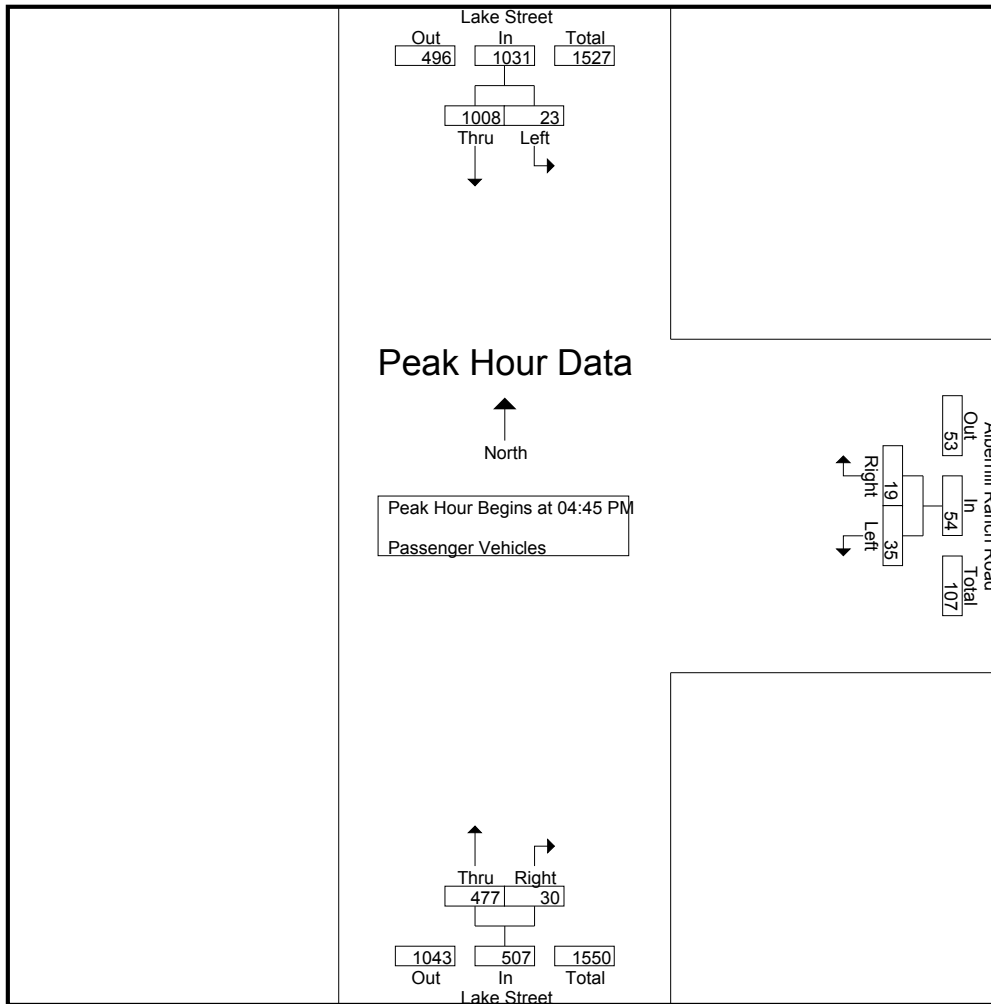
Groups Printed- Passenger Vehicles

	Lake Street Southbound				Alberhill Ranch Road Westbound				Lake Street Northbound						
Start Time	Left	Thru	RTOR	App. Total	Left	Right	RTOR	App. Total	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	9	206	0	215	4	3	3	7	119	5	2	124	5	346	351
04:15 PM	11	198	0	209	6	2	2	8	138	5	2	143	4	360	364
04:30 PM	11	214	0	225	3	0	0	3	123	6	0	129	0	357	357
04:45 PM	5	269	0	274	9	0	0	9	113	4	1	117	1	400	401
Total	36	887	0	923	22	5	5	27	493	20	5	513	10	1463	1473
05:00 PM	3	249	0	252	6	3	3	9	120	10	2	130	5	391	396
05:15 PM	8	237	0	245	9	7	4	16	123	11	0	134	4	395	399
05:30 PM	7	253	0	260	11	9	6	20	121	5	0	126	6	406	412
05:45 PM	13	244	0	257	4	4	4	8	112	15	2	127	6	392	398
Total	31	983	0	1014	30	23	17	53	476	41	4	517	21	1584	1605
Grand Total	67	1870	0	1937	52	28	22	80	969	61	9	1030	31	3047	3078
Apprch %	3.5	96.5			65	35			94.1	5.9					
Total %	2.2	61.4		63.6	1.7	0.9		2.6	31.8	2		33.8	1	99	

	Lake Street Southbound			Alberhill Ranch Road Westbound			Lake Street Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:45 PM										
04:45 PM	5	269	274	9	0	9	113	4	117	400
05:00 PM	3	249	252	6	3	9	120	10	130	391
05:15 PM	8	237	245	9	7	16	123	11	134	395
05:30 PM	7	253	260	11	9	20	121	5	126	406
Total Volume	23	1008	1031	35	19	54	477	30	507	1592
% App. Total	2.2	97.8		64.8	35.2		94.1	5.9		
PHF	.719	.937	.941	.795	.528	.675	.970	.682	.946	.980

City of Lake Elsinore
N/S: Lake Street
E/W: Alberhill Ranch Road
Weather: Clear

File Name : 01_LKE_Lake_Alberhill Ranch PM
Site Code : 05118340
Start Date : 4/24/2018
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Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	04:45 PM			04:45 PM			04:45 PM		
+0 mins.	5	269	274	9	0	9	113	4	117
+15 mins.	3	249	252	6	3	9	120	10	130
+30 mins.	8	237	245	9	7	16	123	11	134
+45 mins.	7	253	260	11	9	20	121	5	126
Total Volume	23	1008	1031	35	19	54	477	30	507
% App. Total	2.2	97.8		64.8	35.2		94.1	5.9	
PHF	.719	.937	.941	.795	.528	.675	.970	.682	.946

City of Lake Elsinore
N/S: Lake Street
E/W: Alberhill Ranch Road
Weather: Clear

File Name : 01_LKE_Lake_Alberhill Ranch PM
Site Code : 05118340
Start Date : 4/24/2018
Page No : 1

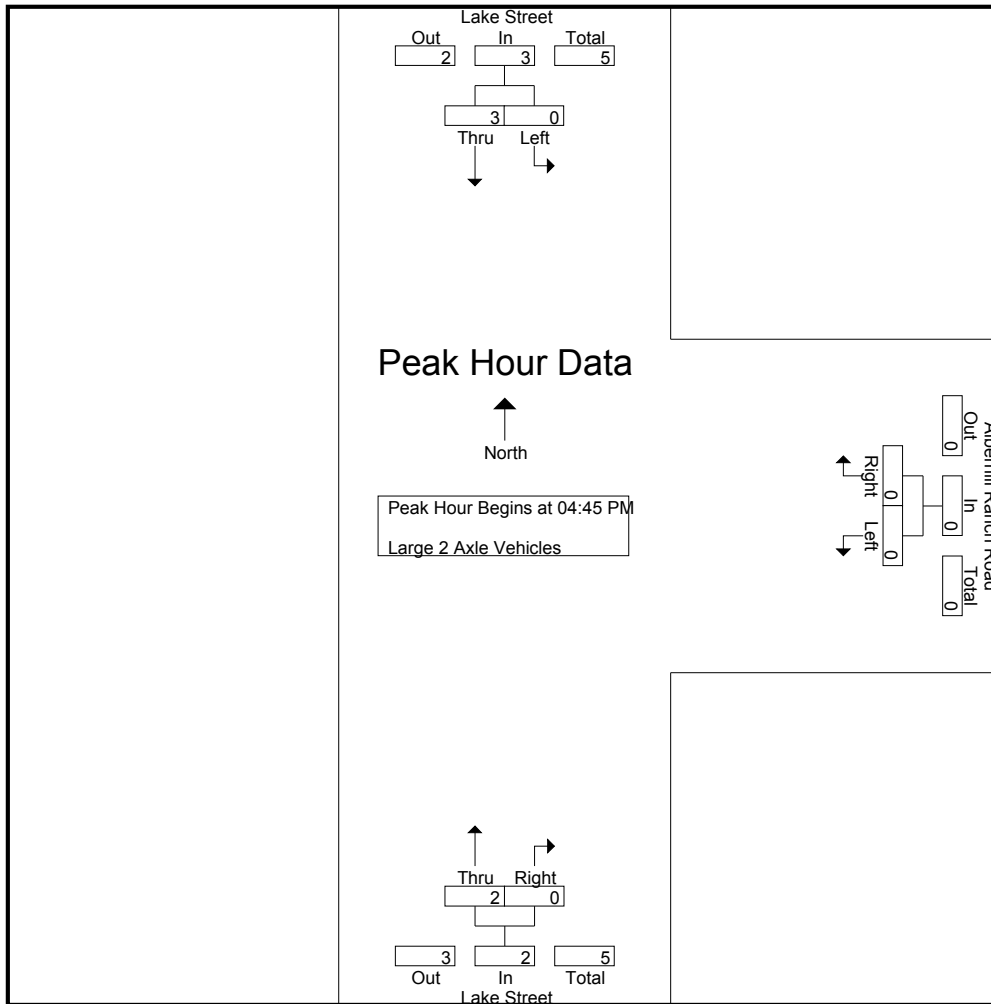
Groups Printed- Large 2 Axle Vehicles

	Lake Street Southbound				Alberhill Ranch Road Westbound				Lake Street Northbound						
Start Time	Left	Thru	RTOR	App. Total	Left	Right	RTOR	App. Total	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	5	0	5	0	0	0	0	1	0	0	1	0	6	6
04:15 PM	0	2	0	2	1	0	0	1	4	0	0	4	0	7	7
04:30 PM	0	2	0	2	0	0	0	0	3	0	0	3	0	5	5
04:45 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	1	1
Total	0	9	0	9	1	0	0	1	9	0	0	9	0	19	19
05:00 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	1	1
05:15 PM	0	2	0	2	0	0	0	0	0	0	0	0	0	2	2
05:30 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	1	1
05:45 PM	0	1	0	1	0	0	0	0	1	0	0	1	0	2	2
Total	0	4	0	4	0	0	0	0	2	0	0	2	0	6	6
Grand Total	0	13	0	13	1	0	0	1	11	0	0	11	0	25	25
Apprch %	0	100			100	0			100	0					
Total %	0	52		52	4	0		4	44	0		44	0	100	

	Lake Street Southbound			Alberhill Ranch Road Westbound			Lake Street Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:45 PM										
04:45 PM	0	0	0	0	0	0	1	0	1	1
05:00 PM	0	1	1	0	0	0	0	0	0	1
05:15 PM	0	2	2	0	0	0	0	0	0	2
05:30 PM	0	0	0	0	0	0	1	0	1	1
Total Volume	0	3	3	0	0	0	2	0	2	5
% App. Total	0	100		0	0		100	0		
PHF	.000	.375	.375	.000	.000	.000	.500	.000	.500	.625

City of Lake Elsinore
N/S: Lake Street
E/W: Alberhill Ranch Road
Weather: Clear

File Name : 01_LKE_Lake_Alberhill Ranch PM
Site Code : 05118340
Start Date : 4/24/2018
Page No : 2



Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:45 PM			04:45 PM			04:45 PM		
+0 mins.	0	0	0	0	0	0	1	0	1
+15 mins.	0	1	1	0	0	0	0	0	0
+30 mins.	0	2	2	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	1	0	1
Total Volume	0	3	3	0	0	0	2	0	2
% App. Total	0	100		0	0		100	0	
PHF	.000	.375	.375	.000	.000	.000	.500	.000	.500

City of Lake Elsinore
N/S: Lake Street
E/W: Alberhill Ranch Road
Weather: Clear

File Name : 01_LKE_Lake_Alberhill Ranch PM
Site Code : 05118340
Start Date : 4/24/2018
Page No : 1

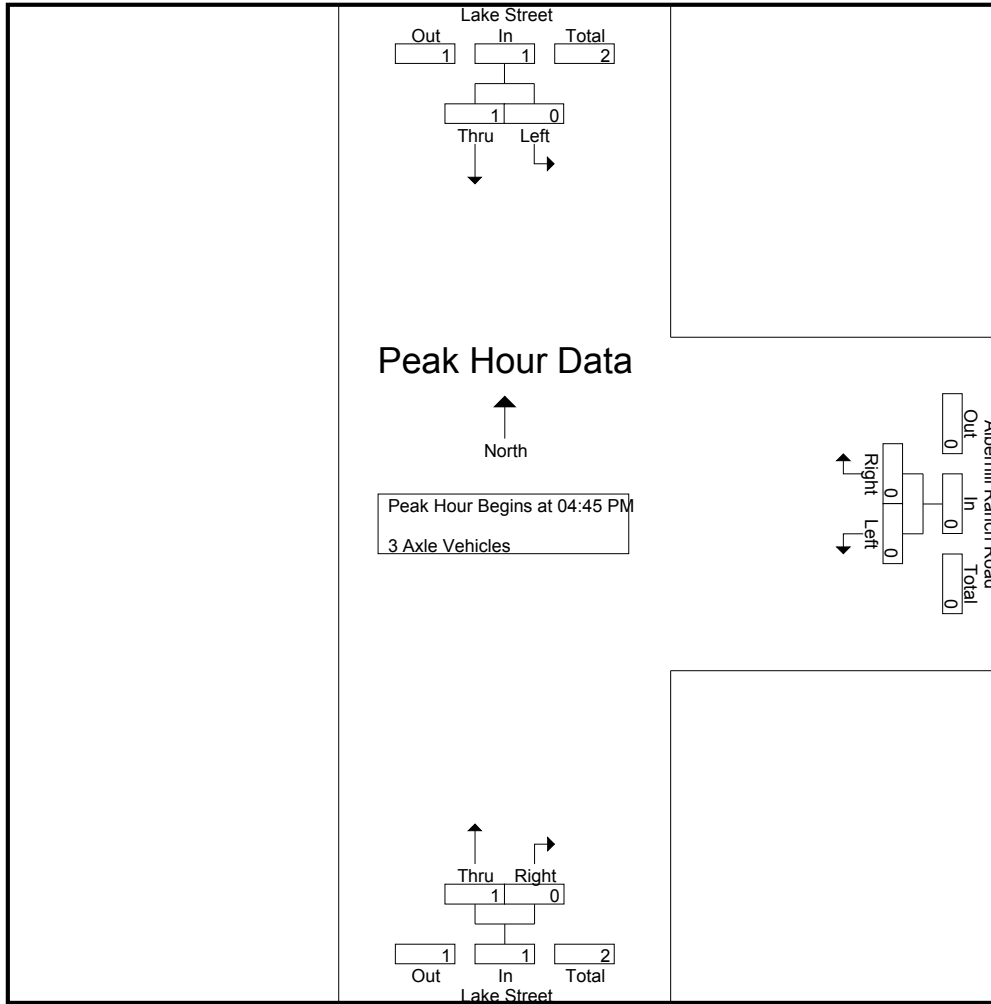
Groups Printed- 3 Axle Vehicles

	Lake Street Southbound				Alberhill Ranch Road Westbound				Lake Street Northbound						
Start Time	Left	Thru	RTOR	App. Total	Left	Right	RTOR	App. Total	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	1	1
05:15 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	1	1
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	1	0	0	0	0	1	0	0	1	0	2	2
Grand Total	0	1	0	1	0	0	0	0	1	0	0	1	0	2	2
Apprch %	0	100			0	0			100	0			0		
Total %	0	50		50	0	0		0	50	0		50	0	100	

	Lake Street Southbound			Alberhill Ranch Road Westbound			Lake Street Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:45 PM										
04:45 PM	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	1	1	0	0	0	0	0	0	1
05:15 PM	0	0	0	0	0	0	1	0	1	1
05:30 PM	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	1	0	0	0	1	0	1	2
% App. Total	0	100		0	0		100	0		
PHF	.000	.250	.250	.000	.000	.000	.250	.000	.250	.500

City of Lake Elsinore
N/S: Lake Street
E/W: Alberhill Ranch Road
Weather: Clear

File Name : 01_LKE_Lake_Alberhill Ranch PM
Site Code : 05118340
Start Date : 4/24/2018
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Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	04:45 PM			04:45 PM			04:45 PM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	1	1	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	1	0	1
+45 mins.	0	0	0	0	0	0	0	0	0
Total Volume	0	1	1	0	0	0	1	0	1
% App. Total	0	100		0	0		100	0	
PHF	.000	.250	.250	.000	.000	.000	.250	.000	.250

City of Lake Elsinore
N/S: Lake Street
E/W: Alberhill Ranch Road
Weather: Clear

File Name : 01_LKE_Lake_Alberhill Ranch PM
Site Code : 05118340
Start Date : 4/24/2018
Page No : 1

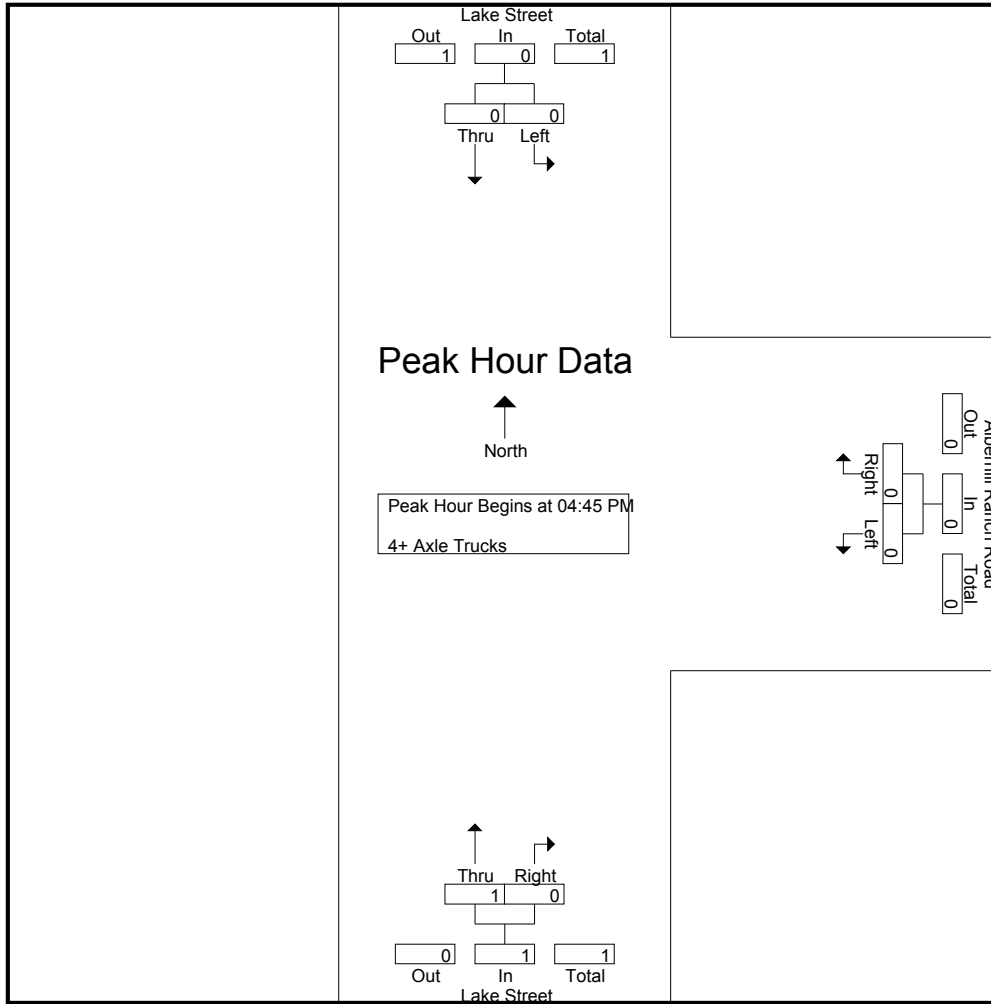
Groups Printed- 4+ Axle Trucks

	Lake Street Southbound				Alberhill Ranch Road Westbound				Lake Street Northbound						
Start Time	Left	Thru	RTOR	App. Total	Left	Right	RTOR	App. Total	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	1	1
04:30 PM	0	0	0	0	0	0	0	0	2	0	0	2	0	2	2
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	1	0	0	0	0	2	0	0	2	0	3	3
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	1	1
05:45 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	1	1
Total	0	1	0	1	0	0	0	0	1	0	0	1	0	2	2
Grand Total	0	2	0	2	0	0	0	0	3	0	0	3	0	5	5
Apprch %	0	100			0	0			100	0					
Total %	0	40		40	0	0		0	60	0		60	0	100	

	Lake Street Southbound			Alberhill Ranch Road Westbound			Lake Street Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:45 PM										
04:45 PM	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	1	0	1	1
Total Volume	0	0	0	0	0	0	1	0	1	1
% App. Total	0	0		0	0		100	0		
PHF	.000	.000	.000	.000	.000	.000	.250	.000	.250	.250

City of Lake Elsinore
N/S: Lake Street
E/W: Alberhill Ranch Road
Weather: Clear

File Name : 01_LKE_Lake_Alberhill Ranch PM
Site Code : 05118340
Start Date : 4/24/2018
Page No : 2



Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:45 PM			04:45 PM			04:45 PM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	1	0	1
Total Volume	0	0	0	0	0	0	1	0	1
% App. Total	0	0		0	0		100	0	
PHF	.000	.000	.000	.000	.000	.000	.250	.000	.250

Location: Lake Elsinore
 N/S: Lake Street
 E/W: Alberhill Ranch Road



Date: 4/24/2018
 Day: Tuesday

PEDESTRIANS

	North Leg Lake Street	East Leg Alberhill Ranch Road	South Leg Lake Street	West Leg Dead End	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	3	0	0	3
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	2	0	0	2
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	0	5	0	0	5

	North Leg Lake Street	East Leg Alberhill Ranch Road	South Leg Lake Street	West Leg Dead End	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0

Location: Lake Elsinore
 N/S: Lake Street
 E/W: Alberhill Ranch Road



Date: 4/24/2018
 Day: Tuesday

BICYCLES

	Southbound Lake Street			Westbound Alberhill Ranch Road			Northbound Lake Street			Eastbound Dead End			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	1	0	0	0	0	0	0	0	0	0	0	1
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	1	0	0	0	0	0	0	0	0	0	0	1

	Southbound Lake Street			Westbound Alberhill Ranch Road			Northbound Lake Street			Eastbound Dead End			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	1	0	0	0	0	1
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	1	0	0	0	0	1

City of Lake Elsinore
N/S: Alberhill Ranch Road
E/W: Nichols Road
Weather: Clear

File Name : 02_LKE Alberhill Ranch_Nichols AM
Site Code : 05118103
Start Date : 2/8/2018
Page No : 1

Groups Printed- Total Volume

	Nichols Road Westbound			Alberhill Ranch Road Northbound			Nichols Road Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
07:00 AM	7	47	54	13	23	36	102	4	106	196
07:15 AM	8	67	75	6	19	25	92	7	99	199
07:30 AM	12	42	54	11	12	23	94	1	95	172
07:45 AM	8	25	33	8	15	23	71	4	75	131
Total	35	181	216	38	69	107	359	16	375	698
08:00 AM	8	22	30	11	9	20	56	3	59	109
08:15 AM	9	16	25	7	23	30	50	1	51	106
08:30 AM	9	20	29	4	15	19	60	4	64	112
08:45 AM	14	31	45	7	19	26	59	7	66	137
Total	40	89	129	29	66	95	225	15	240	464
Grand Total	75	270	345	67	135	202	584	31	615	1162
Apprch %	21.7	78.3		33.2	66.8		95	5		
Total %	6.5	23.2	29.7	5.8	11.6	17.4	50.3	2.7	52.9	

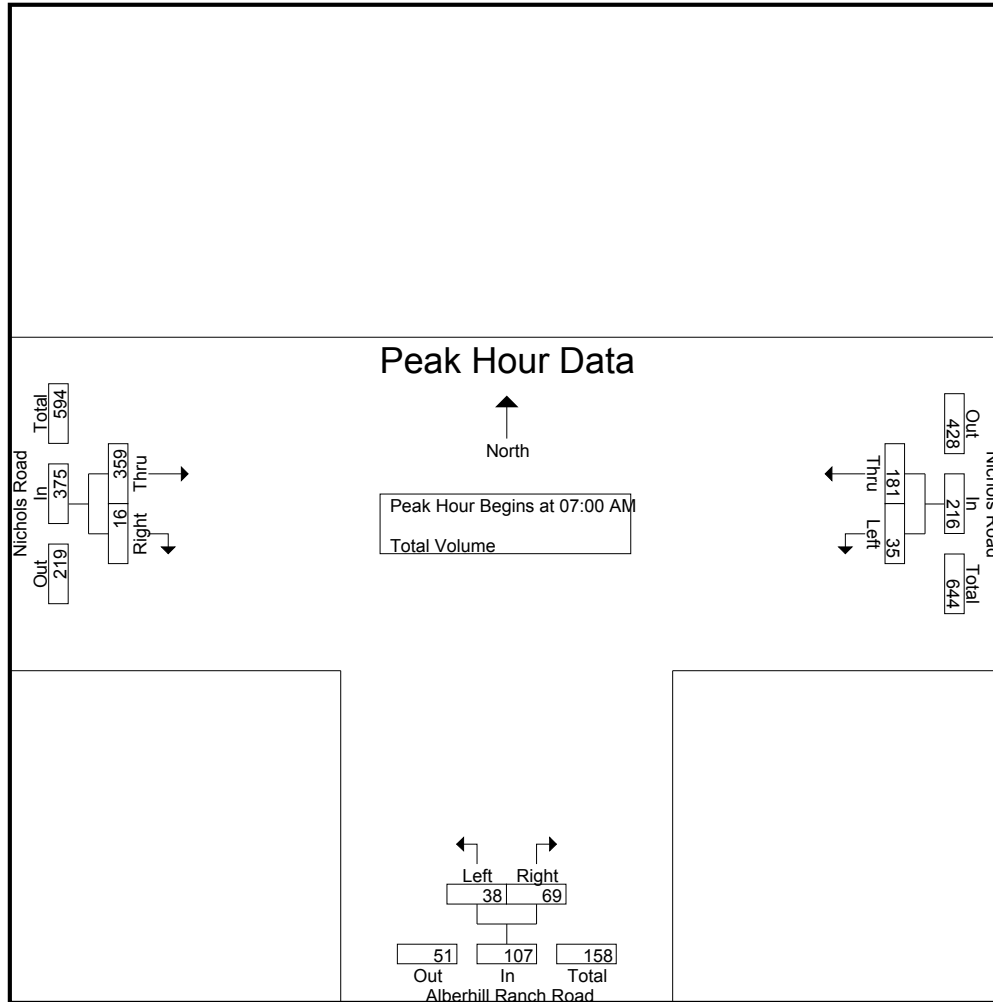
	Nichols Road Westbound			Alberhill Ranch Road Northbound			Nichols Road Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
07:00 AM	7	47	54	13	23	36	102	4	106	196
07:15 AM	8	67	75	6	19	25	92	7	99	199
07:30 AM	12	42	54	11	12	23	94	1	95	172
07:45 AM	8	25	33	8	15	23	71	4	75	131
Total Volume	35	181	216	38	69	107	359	16	375	698
% App. Total	16.2	83.8		35.5	64.5		95.7	4.3		
PHF	.729	.675	.720	.731	.750	.743	.880	.571	.884	.877

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 07:00 AM

City of Lake Elsinore
N/S: Alberhill Ranch Road
E/W: Nichols Road
Weather: Clear

File Name : 02_LKE Alberhill Ranch_Nichols AM
Site Code : 05118103
Start Date : 2/8/2018
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM			07:00 AM			07:00 AM		
+0 mins.	7	47	54	13	23	36	102	4	106
+15 mins.	8	67	75	6	19	25	92	7	99
+30 mins.	12	42	54	11	12	23	94	1	95
+45 mins.	8	25	33	8	15	23	71	4	75
Total Volume	35	181	216	38	69	107	359	16	375
% App. Total	16.2	83.8		35.5	64.5		95.7	4.3	
PHF	.729	.675	.720	.731	.750	.743	.880	.571	.884

City of Lake Elsinore
N/S: Alberhill Ranch Road
E/W: Nichols Road
Weather: Clear

File Name : 02_LKE Alberhill Ranch_Nichols PM
Site Code : 05118103
Start Date : 2/8/2018
Page No : 1

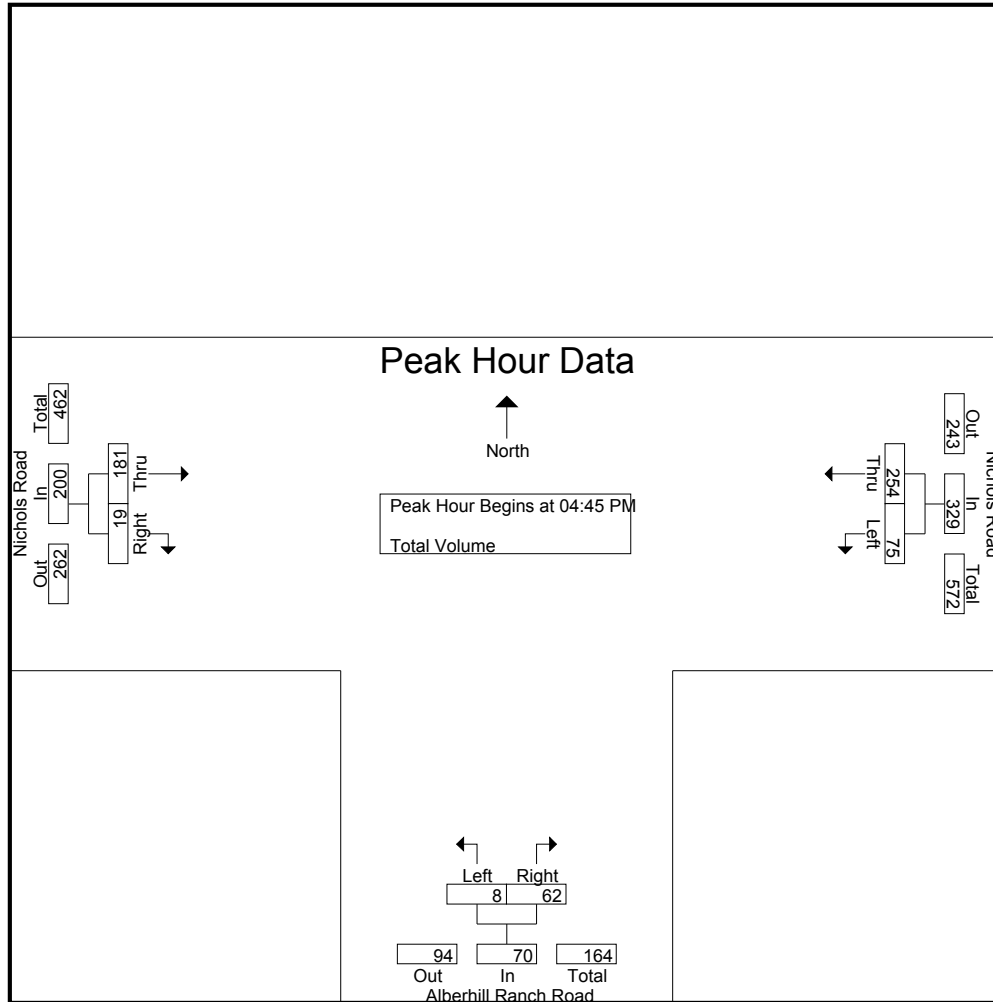
Groups Printed- Total Volume

	Nichols Road Westbound			Alberhill Ranch Road Northbound			Nichols Road Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
04:00 PM	21	70	91	3	14	17	38	3	41	149
04:15 PM	17	63	80	2	10	12	41	5	46	138
04:30 PM	19	52	71	3	16	19	45	4	49	139
04:45 PM	19	61	80	0	14	14	52	7	59	153
Total	76	246	322	8	54	62	176	19	195	579
05:00 PM	20	68	88	3	18	21	44	2	46	155
05:15 PM	16	56	72	3	13	16	42	5	47	135
05:30 PM	20	69	89	2	17	19	43	5	48	156
05:45 PM	22	75	97	2	9	11	31	9	40	148
Total	78	268	346	10	57	67	160	21	181	594
Grand Total	154	514	668	18	111	129	336	40	376	1173
Apprch %	23.1	76.9		14	86		89.4	10.6		
Total %	13.1	43.8	56.9	1.5	9.5	11	28.6	3.4	32.1	

	Nichols Road Westbound			Alberhill Ranch Road Northbound			Nichols Road Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:45 PM										
04:45 PM	19	61	80	0	14	14	52	7	59	153
05:00 PM	20	68	88	3	18	21	44	2	46	155
05:15 PM	16	56	72	3	13	16	42	5	47	135
05:30 PM	20	69	89	2	17	19	43	5	48	156
Total Volume	75	254	329	8	62	70	181	19	200	599
% App. Total	22.8	77.2		11.4	88.6		90.5	9.5		
PHF	.938	.920	.924	.667	.861	.833	.870	.679	.847	.960

City of Lake Elsinore
N/S: Alberhill Ranch Road
E/W: Nichols Road
Weather: Clear

File Name : 02_LKE Alberhill Ranch_Nichols PM
Site Code : 05118103
Start Date : 2/8/2018
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	05:00 PM			04:30 PM			04:30 PM		
+0 mins.	20	68	88	3	16	19	45	4	49
+15 mins.	16	56	72	0	14	14	52	7	59
+30 mins.	20	69	89	3	18	21	44	2	46
+45 mins.	22	75	97	3	13	16	42	5	47
Total Volume	78	268	346	9	61	70	183	18	201
% App. Total	22.5	77.5		12.9	87.1		91	9	
PHF	.886	.893	.892	.750	.847	.833	.880	.643	.852

Location: Lake Elsinore
 N/S: Alberhill Ranch Road
 E/W: Nichols Road



Date: 2/8/2018
 Date: Thursday

PEDESTRIANS

	North Leg Dead End	East Leg Nichols Road	South Leg Alberhill Ranch Road	West Leg Nichols Road	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	0	1	0	1
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	0	0	1	0	1

	North Leg Dead End	East Leg Nichols Road	South Leg Alberhill Ranch Road	West Leg Nichols Road	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	1	0	1
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	0	0	1	0	1

Location: Lake Elsinore
 N/S: Alberhill Ranch Road
 E/W: Nichols Road



Date: 2/8/2018
 Date: Thursday

BICYCLES

	Southbound Dead End			Westbound Nichols Road			Northbound Alberhill Ranch Road			Eastbound Nichols Road			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	0	0	0	0	0	0

	Southbound Dead End			Westbound Nichols Road			Northbound Alberhill Ranch Road			Eastbound Nichols Road			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	1
4:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	1
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	0	0	0	2	0	2

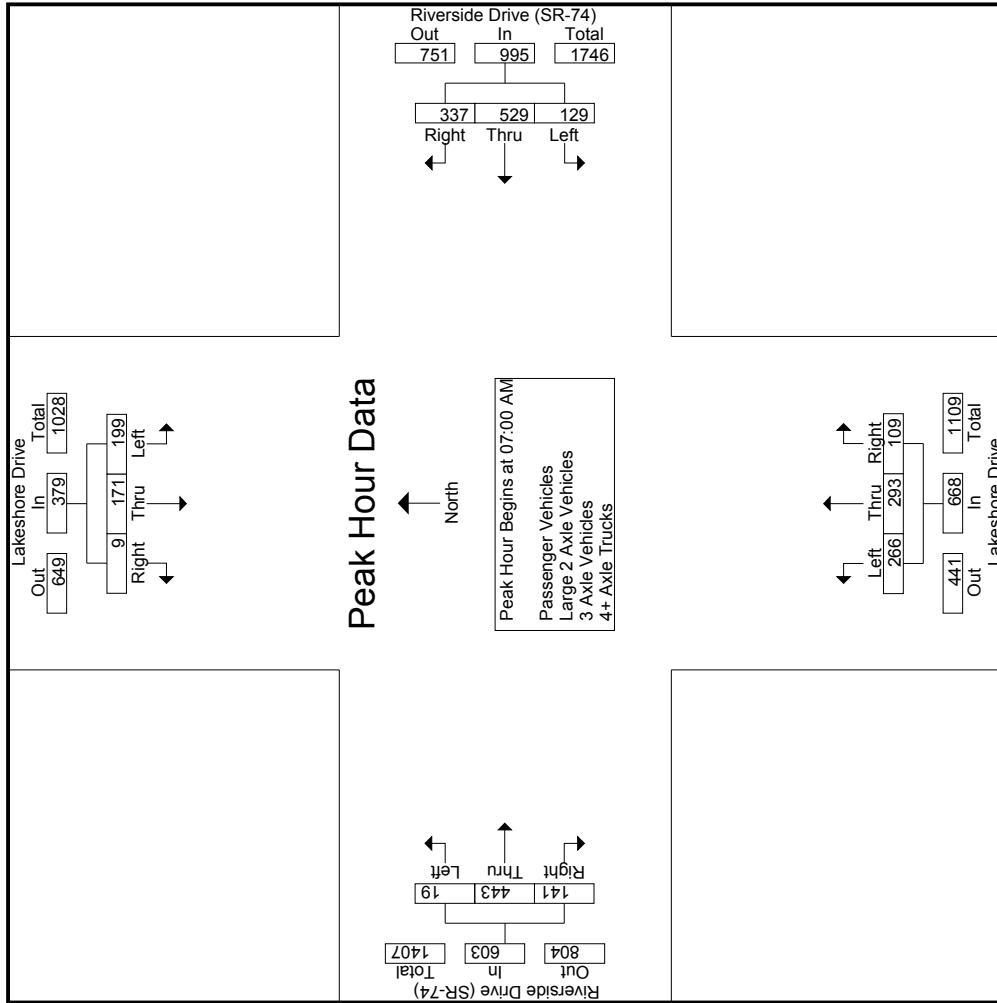
City of Lake Elsinore
N/S: Lakeshore Drive
EW: Riverside Drive (SR-74)
Weather: Clear

File Name : 02_LKE_Lakeshore_Riverside AM
Site Code : 05118340
Start Date : 4/24/2018
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

		Lakeshore Drive Southbound					Riverside Drive (SR-74) Westbound					Lakeshore Drive Northbound					Riverside Drive (SR-74) Eastbound						
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	53	28	0	0	81	20	123	62	28	205	60	44	22	15	126	2	125	37	12	164	55	576	631
07:15 AM	42	63	2	1	107	43	115	86	38	244	48	85	27	16	160	9	124	34	11	167	66	678	744
07:30 AM	55	49	3	0	107	35	144	95	36	274	90	91	37	14	218	2	107	34	18	143	68	742	810
07:45 AM	49	31	4	2	84	31	147	94	38	272	68	73	23	13	164	6	87	36	15	129	68	649	717
Total	199	171	9	3	379	129	529	337	140	995	266	293	109	58	668	19	443	141	56	603	257	2645	2902
08:00 AM	47	26	2	0	75	22	114	70	33	206	60	45	15	8	120	5	120	27	11	152	52	553	605
08:15 AM	40	46	3	0	89	25	97	79	40	201	56	71	17	6	144	4	102	31	14	137	60	571	631
08:30 AM	47	32	3	1	82	17	114	57	25	188	49	40	21	6	110	2	98	25	10	125	42	505	547
08:45 AM	28	23	3	2	54	13	107	51	23	171	46	61	16	6	123	4	99	25	11	128	42	476	518
Total	162	127	11	3	300	77	432	257	121	766	211	217	69	26	497	15	419	108	46	542	196	2105	2301
Grand Total	361	298	20	6	679	206	961	594	261	1761	477	510	178	84	1165	34	862	249	102	1145	453	4750	5203
Approch %	53.2	43.9	2.9			11.7	54.6	33.7			40.9	43.8	15.3			3	75.3	21.7					
Total %	7.6	6.3	0.4		14.3	4.3	20.2	12.5		37.1	10	10.7	3.7		24.5	0.7	18.1	5.2		24.1	8.7	91.3	
Passenger Vehicles	349	287	18		660	195	947	580		1977	461	493	167		1200	33	824	231		1183	0	0	5020
% Passenger Vehicles	96.7	96.3	90	100	96.4	94.7	98.5	97.6	97.7	97.8	96.6	96.7	93.8	94	96.1	97.1	95.6	92.8	93.1	94.9	0	0	96.5
Large 2 Axle Vehicles	9	9	2		20	4	11	12		31	13	15	5		36	1	31	17		56	0	0	143
% Large 2 Axle Vehicles	2.5	3	10	0	2.9	1.9	1.1	2	1.5	1.5	2.7	2.9	2.8	3.6	2.9	2.9	3.6	6.8	6.9	4.5	0	0	2.7
3 Axle Vehicles	1	2	0		3	0	1	2		5	2	2	1		5	0	5	0		5	0	0	18
% 3 Axle Vehicles	0.3	0.7	0	0	0.4	0	0.1	0.3	0.8	0.2	0.4	0.4	0.6	0	0.4	0	0.6	0	0	0.4	0	0	0.3
4+ Axle Trucks	2	0	0		2	7	2	0		9	1	0	5		8	0	2	1		3	0	0	22
% 4+ Axle Trucks	0.6	0	0	0	0.3	3.4	0.2	0	0	0.4	0.2	0	2.8	2.4	0.6	0	0.2	0.4	0	0.2	0	0	0.4

		Lakeshore Drive Southbound					Riverside Drive (SR-74) Westbound					Lakeshore Drive Northbound					Riverside Drive (SR-74) Eastbound						
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																							
Peak Hour for Entire Intersection Begins at 07:00 AM																							
07:00 AM	53	28	0		81	20	123	62		205	60	44	22		126	2	125	37		164	55	576	576
07:15 AM	42	63	2		107	43	115	86		244	48	85	27		160	9	124	34		167	66	678	678
07:30 AM	55	49	3		107	35	144	95		274	90	91	37		218	2	107	34		143	68	742	742
07:45 AM	49	31	4		84	31	147	94		272	68	73	23		164	6	87	36		129	68	649	649
Total Volume	199	171	9		379	129	529	337		995	266	293	109		668	19	443	141		603	257	2645	2645
% App. Total	52.5	45.1	2.4			13	53.2	33.9			39.8	43.9	16.3			3.2	73.5	23.4					
PHF	.905	.679	.563		.886	.750	.900	.887		.908	.739	.805	.736		.766	.528	.886	.953		.903			.891



Start Time	Lakeshore Drive Southbound				Riverside Drive (SR-74) Westbound				Lakeshore Drive Northbound				Riverside Drive (SR-74) Eastbound			
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																
Peak Hour for Each Approach Begins at:																
+0 mins.	53	28	0	81	07:15 AM				07:00 AM				07:00 AM			
+15 mins.	42	63	2	107	43	115	86	244	60	44	22	126	2	125	37	164
+30 mins.	55	49	3	107	35	144	95	274	48	85	27	160	9	124	34	167
+45 mins.	49	31	4	84	31	147	94	272	90	91	37	218	2	107	34	143
Total Volume	199	171	9	379	22	114	70	206	68	73	23	164	6	87	36	129
% App. Total	52.5	45.1	2.4		131	520	345	996	266	293	109	668	19	443	141	603
PHF	.905	.679	.563	.886	13.2	52.2	34.6	.909	39.8	43.9	16.3	.766	3.2	73.5	23.4	.903

City of Lake Elsinore
N/S: Lakeshore Drive
EW: Riverside Drive (SR-74)
Weather: Clear

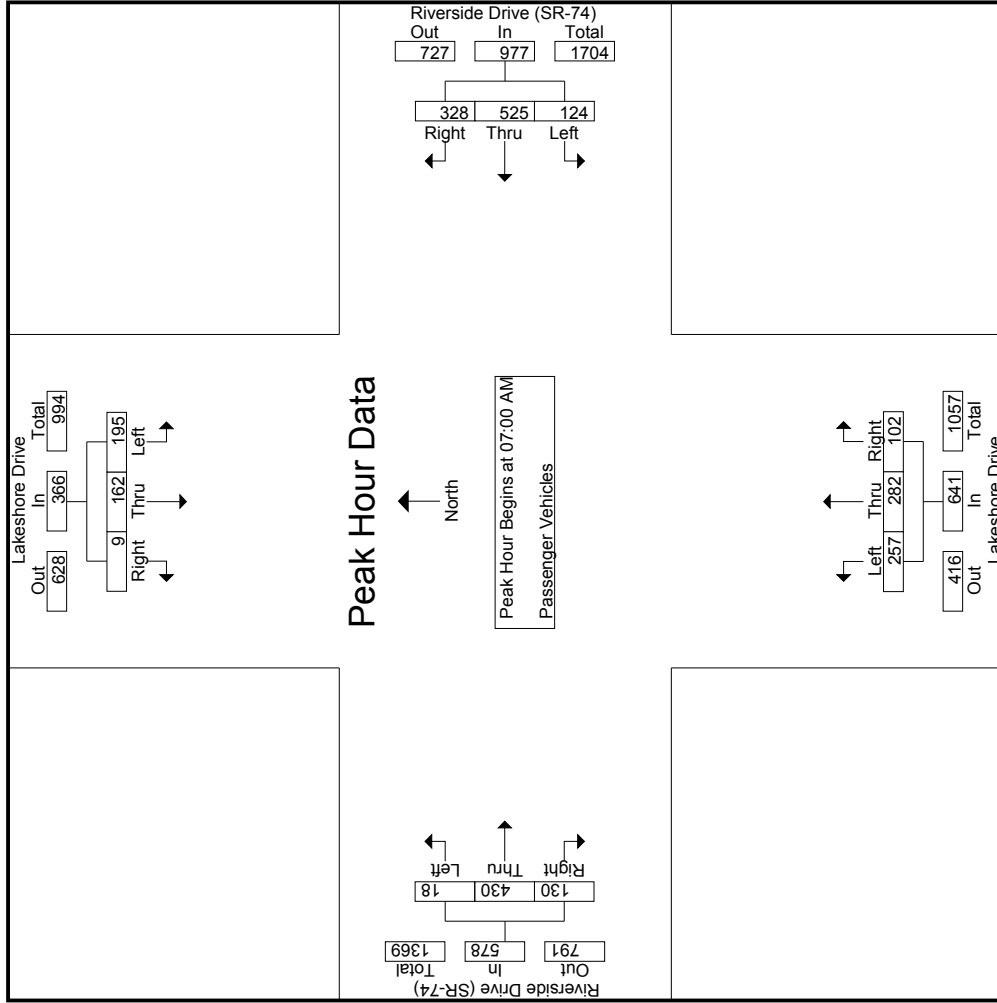
File Name : 02_LKE_Lakeshore_Riverside AM
Site Code : 05118340
Start Date : 4/24/2018
Page No : 1

Groups Printed- Passenger Vehicles

Lakeshore Drive Southbound										Riverside Drive (SR-74) Westbound										Lakeshore Drive Northbound										Riverside Drive (SR-74) Eastbound									
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total																
07:00 AM	50	26	0	0	76	17	122	60	26	199	58	39	21	14	118	2	121	33	11	156	51	549	600																
07:15 AM	41	63	2	1	106	43	115	83	37	241	46	83	26	15	155	8	119	32	9	159	62	661	723																
07:30 AM	55	45	3	0	103	33	142	95	36	270	87	90	35	14	212	2	103	32	18	137	68	722	790																
07:45 AM	49	28	4	2	81	31	146	90	37	267	66	70	20	10	156	6	87	33	13	126	62	630	692																
Total	195	162	9	3	366	124	525	328	136	977	257	282	102	53	641	18	430	130	51	578	243	2562	2805																
08:00 AM	44	26	2	0	72	20	111	69	33	200	57	44	15	8	116	5	113	26	11	144	52	532	584																
08:15 AM	36	46	2	0	84	25	96	77	39	198	54	70	15	6	139	4	94	29	13	127	58	548	606																
08:30 AM	46	30	2	1	78	15	110	55	24	180	48	40	19	6	107	2	92	23	10	117	41	482	523																
08:45 AM	28	23	3	2	54	11	105	51	23	167	45	57	16	6	118	4	95	23	10	122	41	461	502																
Total	154	125	9	3	288	71	422	252	119	745	204	211	65	26	480	15	394	101	44	510	192	2023	2215																
Grand Total	349	287	18	6	654	195	947	580	255	1722	461	493	167	79	1121	33	824	231	95	1088	435	4585	5020																
Apprch %	53.4	43.9	2.8			11.3	55	33.7			41.1	44	14.9			3	75.7	21.2																					
Total %	7.6	6.3	0.4		14.3	4.3	20.7	12.6		37.6	10.1	10.8	3.6		24.4	0.7	18	5		23.7	8.7	91.3																	

3.1
40

Lakeshore Drive Southbound				Riverside Drive (SR-74) Westbound				Lakeshore Drive Northbound				Riverside Drive (SR-74) Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																
Peak Hour for Entire Intersection Begins at 07:00 AM																
07:00 AM	50	26	0	76	17	122	60	199	58	39	21	118	2	121	33	156
07:15 AM	41	63	2	106	43	115	83	241	46	83	26	155	8	119	32	159
07:30 AM	55	45	3	103	33	142	95	270	87	90	35	212	2	103	32	137
07:45 AM	49	28	4	81	31	146	90	267	66	70	20	156	6	87	33	126
Total Volume	195	162	9	366	124	525	328	977	257	282	102	641	18	430	130	578
% App. Total	53.3	44.3	2.5		12.7	53.7	33.6		40.1	44	15.9		3.1	74.4	22.5	
PHF	.886	.643	.563	.863	.721	.899	.863	.905	.739	.783	.729	.756	.563	.888	.985	.909



Counts Unlimited
PO Box 1178
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(951) 268-6268

City of Lake Elsinore
N/S: Lakeshore Drive
E/W: Riverside Drive (SR-74)
Weather: Clear

File Name : 02_LKE_Lakeshore_Riverside AM
Site Code : 05118340
Start Date : 4/24/2018
Page No : 3

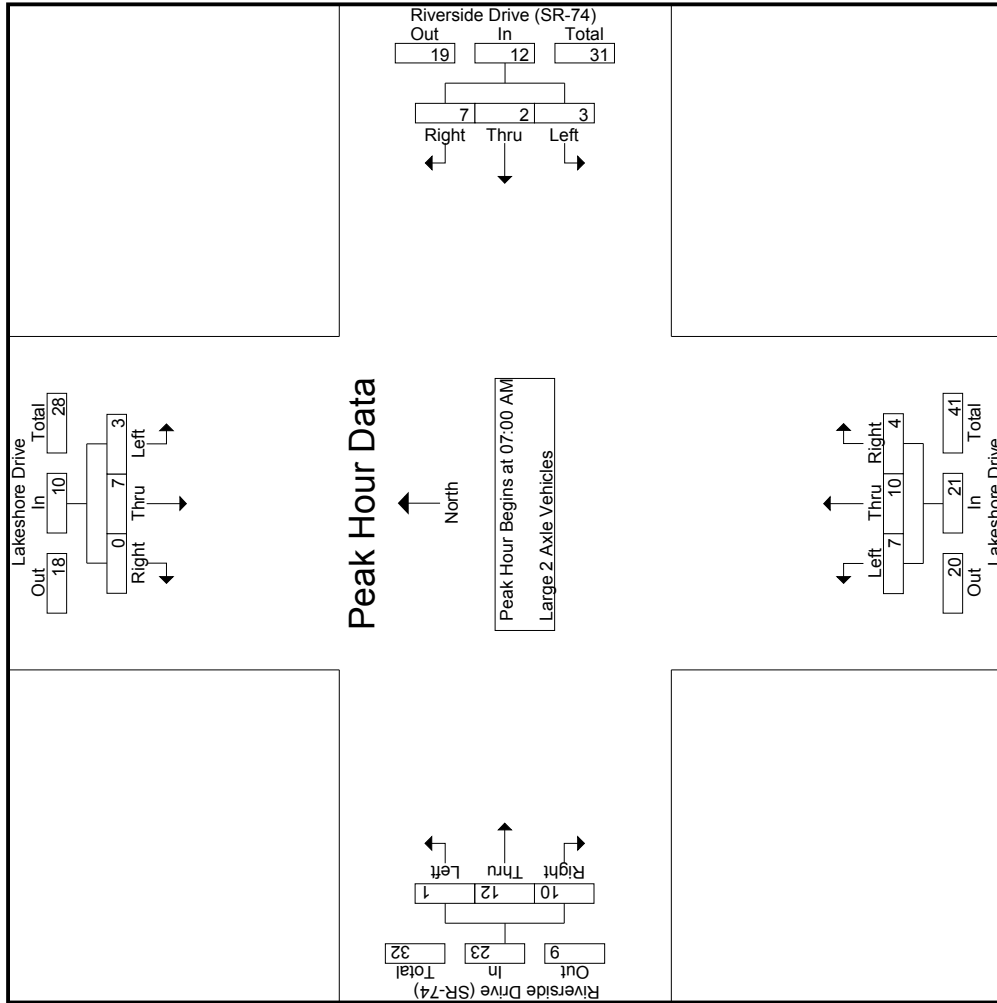
Start Time	Lakeshore Drive Southbound					Riverside Drive (SR-74) Westbound					Lakeshore Drive Northbound					Riverside Drive (SR-74) Eastbound				
	Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																				
Peak Hour for Each Approach Begins at:																				
+0 mins.	50	26	0	76	07:00 AM	17	122	60	199	07:00 AM	58	39	21	118	07:00 AM	2	121	33	156	
+15 mins.	41	63	2	106		43	115	83	241		46	83	26	155		8	119	32	159	
+30 mins.	55	45	3	103		33	142	95	270		87	90	35	212		2	103	32	137	
+45 mins.	49	28	4	81		31	146	90	267		66	70	20	156		6	87	33	126	
Total Volume	195	162	9	366		124	525	328	977		257	282	102	641		18	430	130	578	
% App. Total	53.3	44.3	2.5			12.7	53.7	33.6			40.1	44	15.9			3.1	74.4	22.5		
PHF	.886	.643	.563	.863		.721	.899	.863	.905		.739	.783	.729	.756		.563	.888	.985	.909	

City of Lake Elsinore
N/S: Lakeshore Drive
EW: Riverside Drive (SR-74)
Weather: Clear

File Name : 02_LKE_Lakeshore_Riverside AM
Site Code : 05118340
Start Date : 4/24/2018
Page No : 1

Groups Printed- Large 2 Axle Vehicles

Lakeshore Drive Southbound					Riverside Drive (SR-74) Westbound					Lakeshore Drive Northbound					Riverside Drive (SR-74) Eastbound								
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	2	2	0	0	4	2	1	2	2	5	1	4	1	1	6	0	4	3	1	7	4	22	26
07:15 AM	1	0	0	0	1	0	0	2	0	2	2	2	0	0	4	1	5	2	2	8	2	15	17
07:30 AM	0	3	0	0	3	1	1	0	0	2	3	1	1	0	5	0	3	2	0	5	0	15	15
07:45 AM	0	2	0	0	2	0	0	3	0	3	1	3	2	2	6	0	0	3	2	3	4	14	18
Total	3	7	0	0	10	3	2	7	2	12	7	10	4	3	21	1	12	10	5	23	10	66	76
08:00 AM	1	0	0	0	1	0	2	1	0	3	3	1	0	0	4	0	3	1	0	4	0	12	12
08:15 AM	4	0	1	0	5	0	1	2	1	3	2	1	0	0	3	0	7	2	1	9	2	20	22
08:30 AM	1	2	1	0	4	0	4	2	1	6	0	0	1	0	1	0	5	2	0	7	1	18	19
08:45 AM	0	0	0	0	0	1	2	0	0	3	1	3	0	0	4	0	4	2	1	6	1	13	14
Total	6	2	2	0	10	1	9	5	2	15	6	5	1	0	12	0	19	7	2	26	4	63	67
Grand Total	9	9	2	0	20	4	11	12	4	27	13	15	5	3	33	1	31	17	7	49	14	129	143
Apprch %	45	45	10		15.5	14.8	40.7	44.4		20.9	39.4	45.5	15.2		25.6	2	63.3	34.7		38	9.8	90.2	
Total %	7	7	1.6			3.1	8.5	9.3			10.1	11.6	3.9			0.8	24	13.2					
3.1																							
43																							
Lakeshore Drive Southbound					Riverside Drive (SR-74) Westbound					Lakeshore Drive Northbound					Riverside Drive (SR-74) Eastbound								
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Int. Total		
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																							
Peak Hour for Entire Intersection Begins at 07:00 AM																							
07:00 AM	2	2	0	0	4	2	1	2	2	5	1	4	1	1	6	0	4	3	1	7	22		
07:15 AM	1	0	0	0	1	0	0	2	0	2	2	2	0	0	4	1	5	2	2	8	15		
07:30 AM	0	3	0	0	3	1	1	0	0	2	3	1	1	0	5	0	3	2	0	5	15		
07:45 AM	0	2	0	0	2	0	0	3	0	3	1	3	2	2	6	0	0	3	2	3	14		
Total Volume	3	7	0	0	10	3	2	7	2	12	7	10	4	3	21	1	12	10	5	23	66		
% App. Total	30	70	0	0		25	16.7	58.3		58.3	33.3	47.6	19		52.2	4.3	52.2	43.5					
PHF	.375	.583	.000		.625	.375	.500	.583		.600	.583	.625	.500		.875	.250	.600	.833		.719		.750	



Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Lake Elsinore
N/S: Lakeshore Drive
E/W: Riverside Drive (SR-74)
Weather: Clear

File Name : 02_LKE_Lakeshore_Riverside AM
Site Code : 05118340
Start Date : 4/24/2018
Page No : 3

Start Time	Lakeshore Drive Southbound				Riverside Drive (SR-74) Westbound				Lakeshore Drive Northbound				Riverside Drive (SR-74) Eastbound			
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																
Peak Hour for Each Approach Begins at:																
+0 mins.	07:00 AM				07:00 AM				07:00 AM				07:00 AM			
	2	2	0	4	2	1	2	5	4	1	1	6	0	4	3	7
+15 mins.	1	0	0	1	0	0	2	2	2	0	0	4	1	5	2	8
+30 mins.	0	3	0	3	1	1	0	2	1	1	1	5	0	3	2	5
+45 mins.	0	2	0	2	0	0	3	3	3	2	2	6	0	0	3	3
Total Volume	3	7	0	10	3	2	7	12	10	4	4	21	1	12	10	23
% App. Total	30	70	0		25	16.7	58.3	.600	33.3	47.6	19	.875	4.3	52.2	43.5	
PHF	.375	.583	.000	.625	.375	.500	.583	.600	.583	.625	.500	.875	.250	.600	.833	.719

City of Lake Elsinore
N/S: Lakeshore Drive
EW: Riverside Drive (SR-74)
Weather: Clear

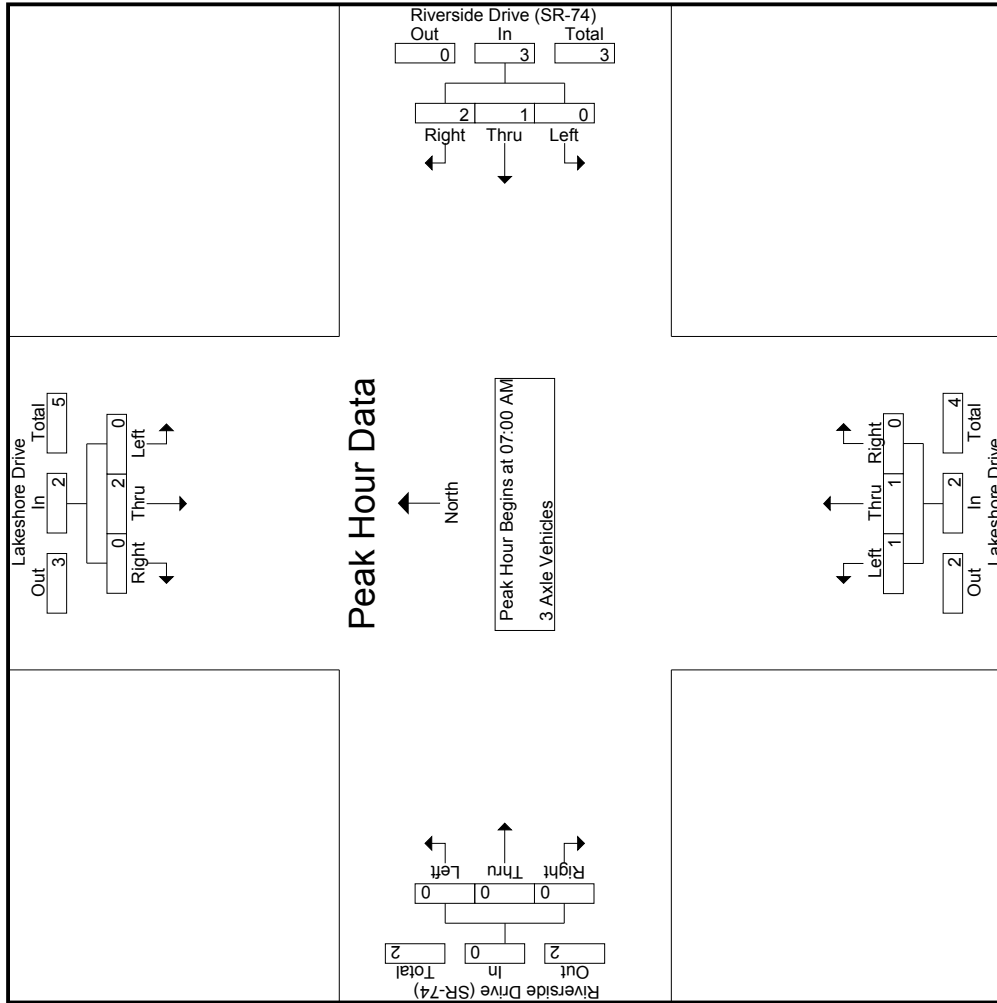
File Name : 02_LKE_Lakeshore_Riverside AM
Site Code : 05118340
Start Date : 4/24/2018
Page No : 1

Groups Printed- 3 Axle Vehicles

Lakeshore Drive Southbound				Riverside Drive (SR-74) Westbound				Lakeshore Drive Northbound				Riverside Drive (SR-74) Eastbound						
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2	0	0	2
07:15 AM	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1	2
07:30 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
07:45 AM	0	1	0	0	1	0	1	1	1	2	0	0	0	0	0	0	1	3
Total	0	2	0	0	2	0	1	2	2	3	1	1	0	0	2	0	2	7
08:00 AM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	5
08:15 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
08:30 AM	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	2	2
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	1	0	0	0	1	0	0	0	0	0	1	1	1	0	3	0	5	9
Grand Total	1	2	0	0	3	0	1	2	2	3	2	2	1	0	5	0	2	16
Apprch %	33.3	66.7	0			0	33.3	66.7			40	40	20					
Total %	6.2	12.5	0		18.8	0	6.2	12.5		18.8	12.5	12.5	6.2		31.2	0	31.2	88.9

3.1-46

Lakeshore Drive Southbound				Riverside Drive Westbound				Lakeshore Drive Northbound				Riverside Drive (SR-74) Eastbound						
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total	
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																		
Peak Hour for Entire Intersection Begins at 07:00 AM																		
07:00 AM	0	0	0	0	0	0	0	0	1	1	0	0	2	0	0	0	0	2
07:15 AM	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	1
07:30 AM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
07:45 AM	0	1	0	1	0	1	1	2	0	0	0	0	0	0	0	0	0	3
Total Volume	0	2	0	2	0	1	2	3	1	1	0	0	2	0	0	0	0	7
% App. Total	0	100	0		0	33.3	66.7		50	50	0	0		0	0	0		
PHF	.000	.500	.000	.500	.000	.250	.500	.375	.250	.250	.000	.000	.250	.000	.000	.000	.000	.583



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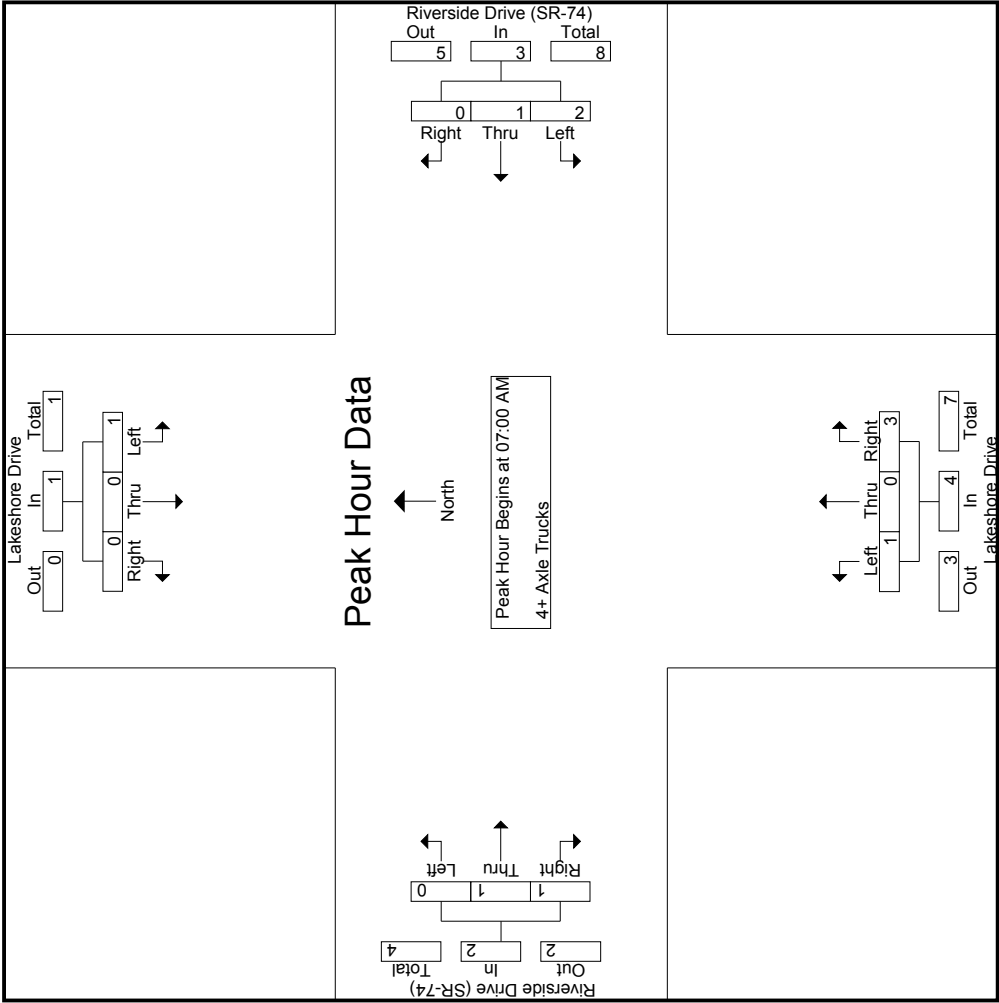
City of Lake Elsinore
N/S: Lakeshore Drive
E/W: Riverside Drive (SR-74)
Weather: Clear

File Name : 02_LKE_Lakeshore_Riverside AM
Site Code : 05118340
Start Date : 4/24/2018
Page No : 3

Start Time	Lakeshore Drive Southbound				Riverside Drive (SR-74) Westbound				Lakeshore Drive Northbound				Riverside Drive (SR-74) Eastbound			
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																
Peak Hour for Each Approach Begins at:																
+0 mins.	0	0	0	0	07:00 AM	0	0	0	0	07:00 AM	1	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	1	0	1	0	1	1	2	0	0	0	0	0	0	0	0
Total Volume	0	2	0	2	0	1	2	3	1	1	0	2	0	0	0	0
% App. Total	0	100	0	0	0	33.3	66.7	500	50	50	0	0	0	0	0	0
PHF	.000	.500	.000	.500	.000	.250	.500	.375	.250	.250	.000	.250	.000	.000	.000	.000

3.1-49

	Lakeshore Drive Southbound					Riverside Drive (SR-74) Westbound					Lakeshore Drive Northbound					Riverside Drive (SR-74) Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total			
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																				
Peak Hour for Entire Intersection Begins at 07:00 AM																				
07:00 AM	1	0	0	1	1	0	0	1	0	0	0	0	0	0	1	1	3			
07:15 AM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1	1			
07:30 AM	0	0	0	0	1	1	0	2	0	0	1	1	0	1	0	1	4			
07:45 AM	0	0	0	0	0	0	0	0	1	0	1	2	0	0	0	0	2			
Total Volume	1	0	0	1	2	1	0	3	1	0	3	4	0	1	1	2	10			
% App. Total	100	0	0	100	66.7	33.3	0	100	25	0	75	100	0	50	50	100	62.5			
PHE	250	000	000	250	500	250	000	375	250	000	750	500	000	250	250	500	625			



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City of Lake Elsinore
N/S: Lakeshore Drive
E/W: Riverside Drive (SR-74)
Weather: Clear

File Name : 02_LKE_Lakeshore_Riverside AM
Site Code : 05118340
Start Date : 4/24/2018
Page No : 3

Start Time	Lakeshore Drive Southbound				Riverside Drive (SR-74) Westbound				Lakeshore Drive Northbound				Riverside Drive (SR-74) Eastbound			
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																
Peak Hour for Each Approach Begins at:																
+0 mins.	1	0	0	1	07:00 AM	1	0	0	1	07:00 AM	0	0	0	0	0	1
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
+30 mins.	0	0	0	0	1	1	0	0	0	0	1	1	0	1	0	1
+45 mins.	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0
Total Volume	1	0	0	1	2	1	0	3	1	0	3	4	0	1	1	2
% App. Total	100	0	0		66.7	33.3	0		25	0	75		0	50	50	
PHF	.250	.000	.000	.250	.500	.250	.000	.375	.250	.000	.750	.500	.000	.250	.250	.500

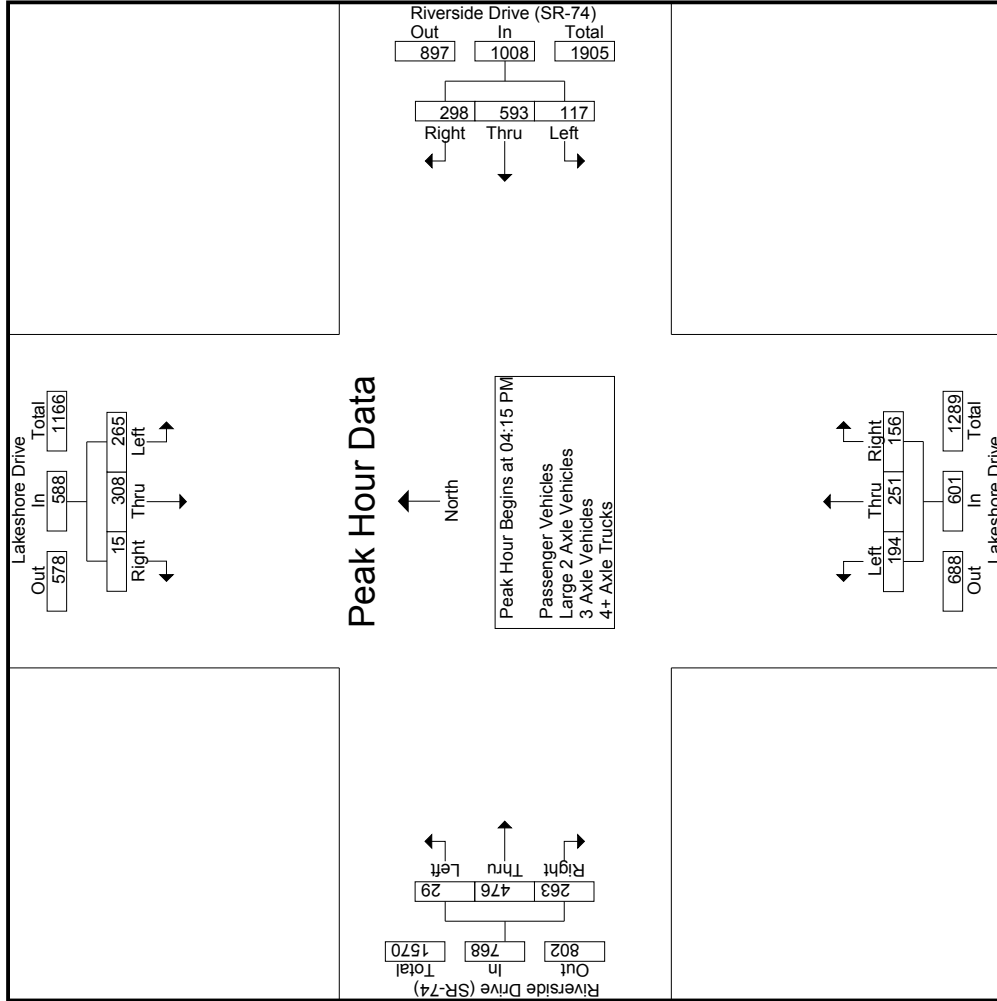
City of Lake Elsinore
N/S: Lakeshore Drive
EW: Riverside Drive (SR-74)
Weather: Clear

File Name : 02_LKE_Lakeshore_Riverside PM
Site Code : 05118340
Start Date : 4/24/2018
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

Start Time	Lakeshore Drive Southbound						Riverside Drive (SR-74) Westbound						Lakeshore Drive Northbound						Riverside Drive (SR-74) Eastbound					
	Left	Thru	Right	RTOR	App. Total		Left	Thru	Right	RTOR	App. Total		Left	Thru	Right	RTOR	App. Total		Left	Thru	Right	RTOR	App. Total	
	Exclu. Total	Inclu. Total	Int. Total				Exclu. Total	Inclu. Total	Int. Total				Exclu. Total	Inclu. Total	Int. Total				Exclu. Total	Inclu. Total	Int. Total			
04:00 PM	62	71	6	0	139		34	173	57	22	264		59	61	36	21	156		7	105	58	24	170	
04:15 PM	64	76	5	1	145		34	156	80	44	270		33	58	44	26	135		10	106	71	32	187	
04:30 PM	68	59	3	1	130		19	163	73	34	255		48	64	44	31	156		7	147	71	32	225	
04:45 PM	63	82	5	2	150		36	143	56	21	235		46	70	34	22	150		2	111	52	23	165	
Total	257	288	19	4	564		123	635	266	121	1024		186	253	158	100	597		26	469	252	111	747	
05:00 PM	70	91	2	0	163		28	131	89	50	248		67	59	34	22	160		10	112	69	29	191	
05:15 PM	68	54	4	3	126		38	128	72	40	238		46	53	44	22	143		11	113	63	35	187	
05:30 PM	61	51	4	2	116		42	177	83	38	302		41	41	37	24	119		4	127	64	23	195	
05:45 PM	63	64	6	3	133		41	164	64	36	269		57	59	38	30	154		7	116	65	22	188	
Total	262	260	16	8	538		149	600	308	164	1057		211	212	153	98	576		32	468	261	109	761	
Grand Total	519	548	35	12	1102		272	1235	574	285	2081		397	465	311	198	1173		58	937	513	220	1508	
Apprch %	47.1	49.7	3.2				13.1	59.3	27.6				33.8	39.6	26.5				3.8	62.1	34			
Total %	8.9	9.3	0.6		18.8		4.6	21.1	9.8		35.5		6.8	7.9	5.3		20		1	16	8.7		25.7	
Passenger Vehicles	515	547	34		1108		269	1213	569		2331		388	461	310		1356		58	924	509		1709	
% Passenger Vehicles	99.2	99.8	97.1	100	99.5		98.9	98.2	99.1	98.2	98.5		97.7	99.1	99.7	99.5	98.9		100	98.6	99.2	99.1	98.9	
Large 2 Axle Vehicles	4	1	1		6		2	17	5		29		6	3	1		11		0	12	4		18	
% Large 2 Axle Vehicles	0.8	0.2	2.9	0	0.5		0.7	1.4	0.9	1.8	1.2		1.5	0.6	0.3	0.5	0.8		0	1.3	0.8	0.9	1	
3 Axle Vehicles	0	0	0	0	0		0	2	0	0	2		2	1	0	0	3		0	0	0	0	0	
% 3 Axle Vehicles	0	0	0	0	0		0	0.2	0	0	0.1		0.5	0.2	0	0	0.2		0	0	0	0	0	
4+ Axle Trucks	0	0	0	0	0		1	3	0	0	4		1	0	0	0	1		0	1	0	0	1	
% 4+ Axle Trucks	0	0	0	0	0		0.4	0.2	0	0	0.2		0.3	0	0	0	0.1		0	0.1	0	0	0.1	

Start Time	Lakeshore Drive Southbound						Riverside Drive (SR-74) Westbound						Lakeshore Drive Northbound						Riverside Drive (SR-74) Eastbound					
	Left	Thru	Right	RTOR	App. Total		Left	Thru	Right	RTOR	App. Total		Left	Thru	Right	RTOR	App. Total		Left	Thru	Right	RTOR	App. Total	
	Exclu. Total	Inclu. Total	Int. Total				Exclu. Total	Inclu. Total	Int. Total				Exclu. Total	Inclu. Total	Int. Total				Exclu. Total	Inclu. Total	Int. Total			
04:15 PM	64	76	5		145		34	156	80		270		33	58	44		135		10	106	71		187	
04:30 PM	68	59	3		130		19	163	73		255		48	64	44		156		7	147	71		225	
04:45 PM	63	82	5		150		36	143	56		235		46	70	34		150		2	111	52		165	
05:00 PM	70	91	2		163		28	131	89		248		67	59	34		160		10	112	69		191	
Total Volume	265	308	15		588		117	593	298		1008		194	251	156		601		29	476	263		768	
% App. Total	45.1	52.4	2.6				11.6	58.8	29.6				32.3	41.8	26				3.8	62	34.2			
PHF	.946	.846	.750		.902		.813	.910	.837		.933		.724	.896	.886		.939		.725	.810	.926		.853	



City of Lake Elsinore
N/S: Lakeshore Drive
E/W: Riverside Drive (SR-74)
Weather: Clear

File Name : 02_LKE_Lakeshore_Riverside PM
Site Code : 05118340
Start Date : 4/24/2018
Page No : 3

Start Time	Lakeshore Drive Southbound				Riverside Drive (SR-74) Westbound				Lakeshore Drive Northbound				Riverside Drive (SR-74) Eastbound			
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																
Peak Hour for Each Approach Begins at:																
+0 mins. +15 mins. +30 mins. +45 mins.	04:15 PM															
	64	76	5	145	28	131	89	248	48	64	44	156	10	106	71	187
	68	59	3	130	38	128	72	238	46	70	34	150	7	147	71	225
	63	82	5	150	42	177	83	302	67	59	34	160	2	111	52	165
Total Volume % App. Total PHF	70	91	2	163	41	164	64	269	46	53	44	143	10	112	69	191
	265	308	15	588	149	600	308	1057	207	246	156	609	29	476	263	768
	45.1	52.4	2.6		14.1	56.8	29.1		34	40.4	25.6		3.8	62	34.2	
	.946	.846	.750	.902	.887	.847	.865	.875	.772	.879	.886	.952	.725	.810	.926	.853

City of Lake Elsinore
N/S: Lakeshore Drive
EW: Riverside Drive (SR-74)
Weather: Clear

File Name : 02_LKE_Lakeshore_Riverside PM
Site Code : 05118340
Start Date : 4/24/2018
Page No : 1

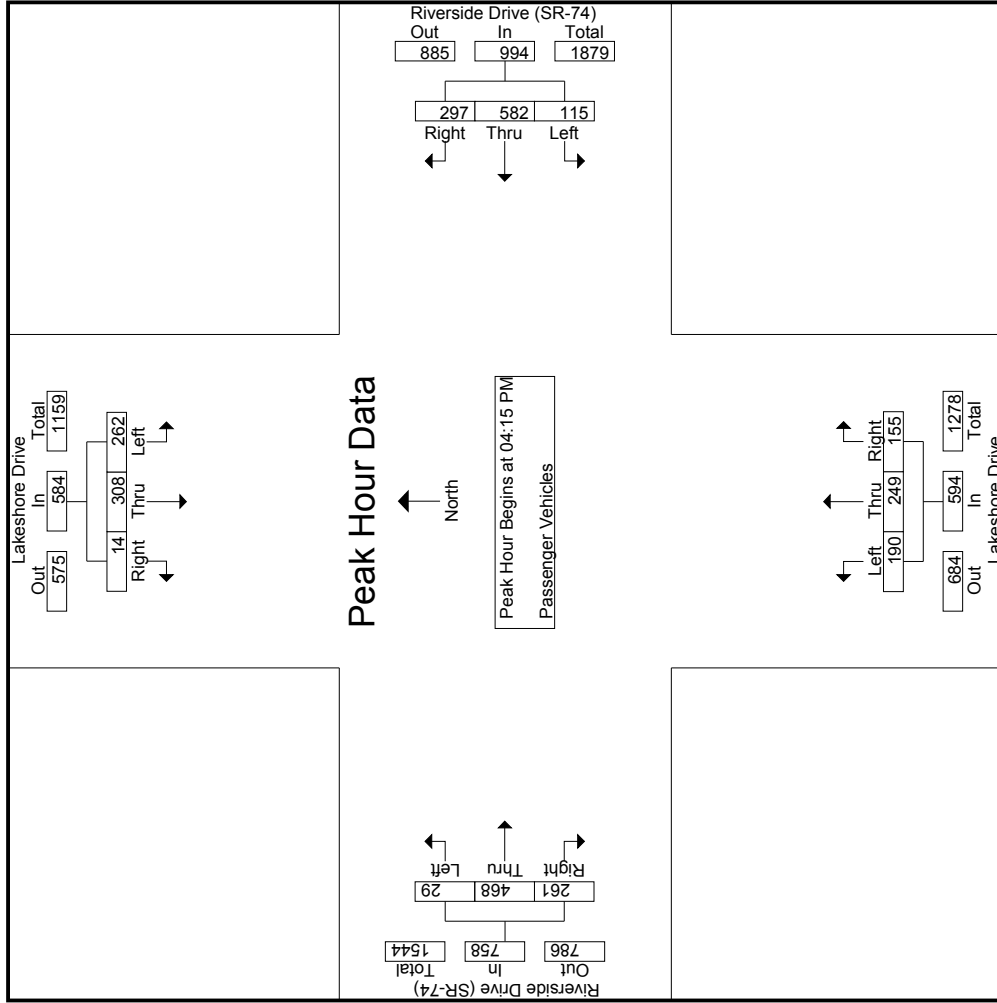
Groups Printed- Passenger Vehicles

Lakeshore Drive Southbound					Riverside Drive (SR-74) Westbound					Lakeshore Drive Northbound					Riverside Drive (SR-74) Eastbound				
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total	
04:00 PM	62	71	6	0	139	33	168	56	21	257	57	60	36	21	153	66	716	782	
04:15 PM	64	76	5	1	145	34	154	80	44	268	32	56	43	25	131	102	728	830	
04:30 PM	68	59	3	1	130	18	155	73	34	246	47	64	44	31	155	98	755	853	
04:45 PM	62	82	4	2	148	35	142	56	21	233	45	70	34	22	149	68	694	762	
Total	256	288	18	4	562	120	619	265	120	1004	181	250	157	99	588	334	2893	3227	
05:00 PM	68	91	2	0	161	28	131	88	49	247	66	59	34	22	159	99	753	852	
05:15 PM	68	54	4	3	126	38	125	72	40	235	44	52	44	22	140	99	685	784	
05:30 PM	61	51	4	2	116	42	175	81	36	298	41	41	37	24	119	85	728	813	
05:45 PM	62	63	6	3	131	41	163	63	35	267	56	59	38	30	153	90	738	828	
Total	259	259	16	8	534	149	594	304	160	1047	207	211	153	98	571	373	2904	3277	
Grand Total	515	547	34	12	1096	269	1213	569	280	2051	388	461	310	197	1159	707	5797	6504	
Apprch %	47	49.9	3.1		13.1	59.1	27.7			35.4	33.5	39.8	26.7		20	3.9	62	34.1	
Total %	8.9	9.4	0.6		18.9	4.6	20.9	9.8			6.7	8	5.3			1	15.9	8.8	

3.1-55

3.1
-55

Lakeshore Drive Southbound				Riverside Drive (SR-74) Westbound				Lakeshore Drive Northbound				Riverside Drive (SR-74) Eastbound					
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:15 PM																	
04:15 PM	64	76	5	145	34	154	80	268	32	56	43	131	10	103	71	184	728
04:30 PM	68	59	3	130	18	155	73	246	47	64	44	155	7	146	71	224	755
04:45 PM	62	82	4	148	35	142	56	233	45	70	34	149	2	110	52	164	694
05:00 PM	68	91	2	161	28	131	88	247	66	59	34	159	10	109	67	186	753
Total Volume	262	308	14	584	115	582	297	994	190	249	155	594	29	468	261	758	2930
% App. Total	44.9	52.7	2.4		11.6	58.6	29.9		32	41.9	26.1		3.8	61.7	34.4		
PHF	.963	.846	.700	.907	.821	.939	.844	.927	.720	.889	.881	.934	.725	.801	.919	.846	.970



Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Lake Elsinore
N/S: Lakeshore Drive
E/W: Riverside Drive (SR-74)
Weather: Clear

File Name : 02_LKE_Lakeshore_Riverside PM
Site Code : 05118340
Start Date : 4/24/2018
Page No : 3

Start Time	Lakeshore Drive Southbound				Riverside Drive (SR-74) Westbound				Lakeshore Drive Northbound				Riverside Drive (SR-74) Eastbound			
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1																
Peak Hour for Each Approach Begins at:																
+0 mins.	64	76	5	145	04:15 PM				04:15 PM				04:15 PM			
+15 mins.	68	59	3	130	34	154	80	268	32	56	43	131	10	103	71	184
+30 mins.	62	82	4	148	18	155	73	246	47	64	44	155	7	146	71	224
+45 mins.	68	91	2	161	35	142	56	233	45	70	34	149	2	110	52	164
Total Volume	262	308	14	584	28	131	88	247	66	59	34	159	10	109	67	186
% App. Total	44.9	52.7	2.4		11.6	58.6	29.9	994	190	249	155	594	29	468	261	758
PHF	.963	.846	.700	.907	.821	.939	.844	.927	.720	.889	.881	.934	.725	.801	.919	.846

City of Lake Elsinore
N/S: Lakeshore Drive
EW: Riverside Drive (SR-74)
Weather: Clear

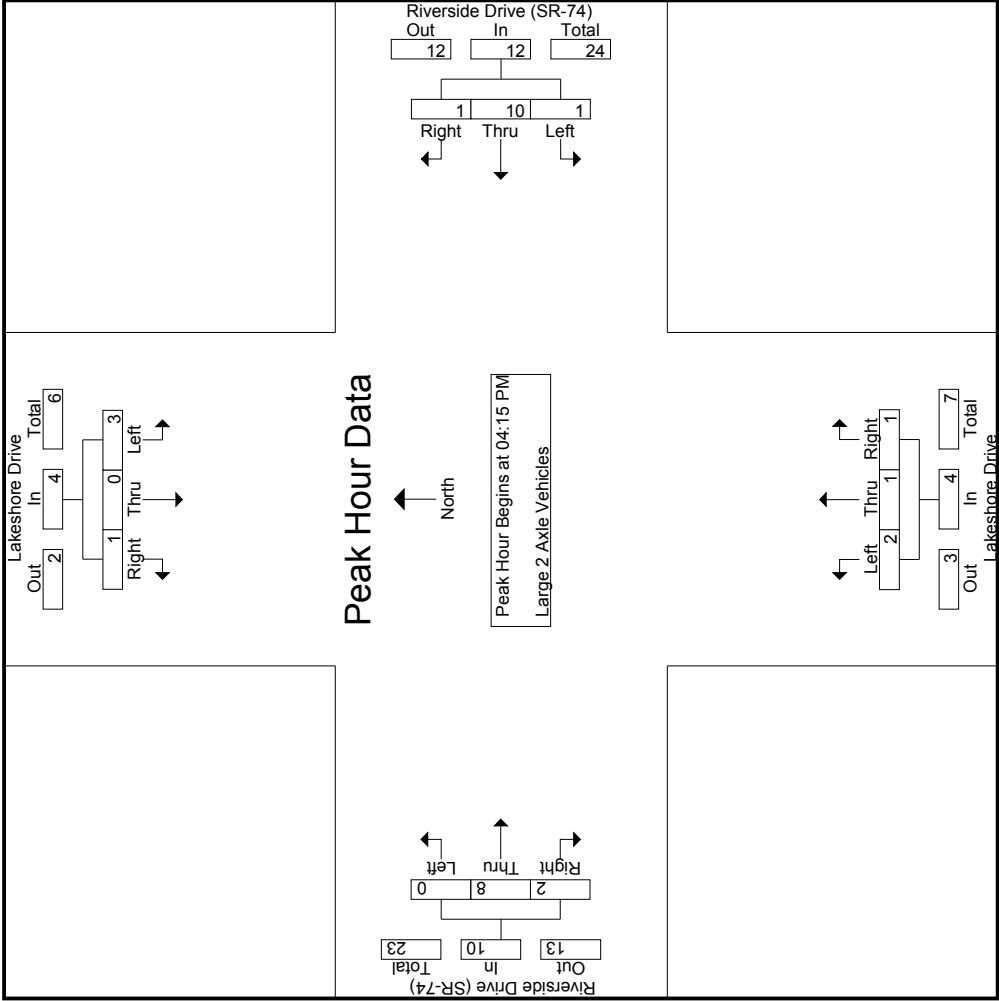
File Name : 02_LKE_Lakeshore_Riverside PM
Site Code : 05118340
Start Date : 4/24/2018
Page No : 1

Groups Printed- Large 2 Axle Vehicles

Lakeshore Drive Southbound				Riverside Drive Westbound				Lakeshore Drive Northbound				Riverside Drive Eastbound			
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total
04:00 PM	0	0	0	0	0	1	2	1	1	4	0	1	1	0	2
04:15 PM	0	0	0	0	0	0	2	0	0	2	3	0	3	0	3
04:30 PM	0	0	0	0	0	0	7	0	0	7	1	0	1	0	1
04:45 PM	1	0	1	0	2	1	1	0	0	2	0	1	0	0	1
Total	1	0	1	0	2	2	12	1	1	15	0	6	1	0	7
05:00 PM	2	0	0	0	2	0	0	1	1	1	0	3	2	1	5
05:15 PM	0	0	0	0	0	0	3	0	0	3	0	2	1	1	3
05:30 PM	0	0	0	0	0	0	2	2	2	4	0	0	0	0	0
05:45 PM	1	1	0	0	2	0	1	1	1	1	0	1	0	0	1
Total	3	1	0	0	4	0	5	4	4	9	0	6	3	2	9
Grand Total	4	1	1	0	6	2	17	5	5	24	0	12	4	2	16
Apprch %	66.7	16.7	16.7			8.3	70.8	20.8			0	75	25		
Total %	7.1	1.8	1.8		10.7	3.6	30.4	8.9		42.9	0	21.4	7.1		28.6

3.1
-1
58

Lakeshore Drive Southbound				Riverside Drive Westbound				Lakeshore Drive Northbound				Riverside Drive Eastbound			
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total
Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1															
Peak Hour for Entire Intersection Begins at 04:15 PM															
04:15 PM	0	0	0	0	0	0	2	0	2	2	1	1	1	0	3
04:30 PM	0	0	0	0	0	0	7	0	0	7	0	0	0	0	1
04:45 PM	1	0	1	0	2	1	1	0	0	2	0	1	1	0	1
05:00 PM	2	0	0	0	2	0	0	1	1	1	0	3	2	2	5
Total Volume	3	0	1		4	1	10	1	12	12	2	8	2	10	30
% App. Total	75	0	25			8.3	83.3	8.3			0	80	20		
PHF	.375	.000	.250		.500	.250	.357	.250	.429	.333	.000	.667	.250		.833



Counts Unlimited
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City of Lake Elsinore
N/S: Lakeshore Drive
E/W: Riverside Drive (SR-74)
Weather: Clear

File Name : 02_LKE_Lakeshore_Riverside PM
Site Code : 05118340
Start Date : 4/24/2018
Page No : 3

Start Time	Lakeshore Drive Southbound				Riverside Drive (SR-74) Westbound				Lakeshore Drive Northbound				Riverside Drive (SR-74) Eastbound			
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1																
Peak Hour for Each Approach Begins at:																
+0 mins.	04:15 PM				04:15 PM				04:15 PM				04:15 PM			
	0	0	0	0	0	2	0	0	1	1	1	1	0	3	0	3
+15 mins.	0	0	0	0	0	7	0	0	1	0	0	0	0	1	0	1
+30 mins.	1	0	1	2	1	1	0	0	0	0	0	0	0	1	0	1
+45 mins.	2	0	0	2	0	0	1	1	0	0	0	0	0	3	2	5
Total Volume	3	0	1	4	1	10	1	12	2	1	1	1	0	8	2	10
% App. Total	75	0	25		8.3	83.3	8.3		50	25	25		0	80	20	
PHF	.375	.000	.250	.500	.250	.357	.250	.429	.500	.250	.250	.333	.000	.667	.250	.500

City of Lake Elsinore
N/S: Lakeshore Drive
E/W: Riverside Drive (SR-74)
Weather: Clear

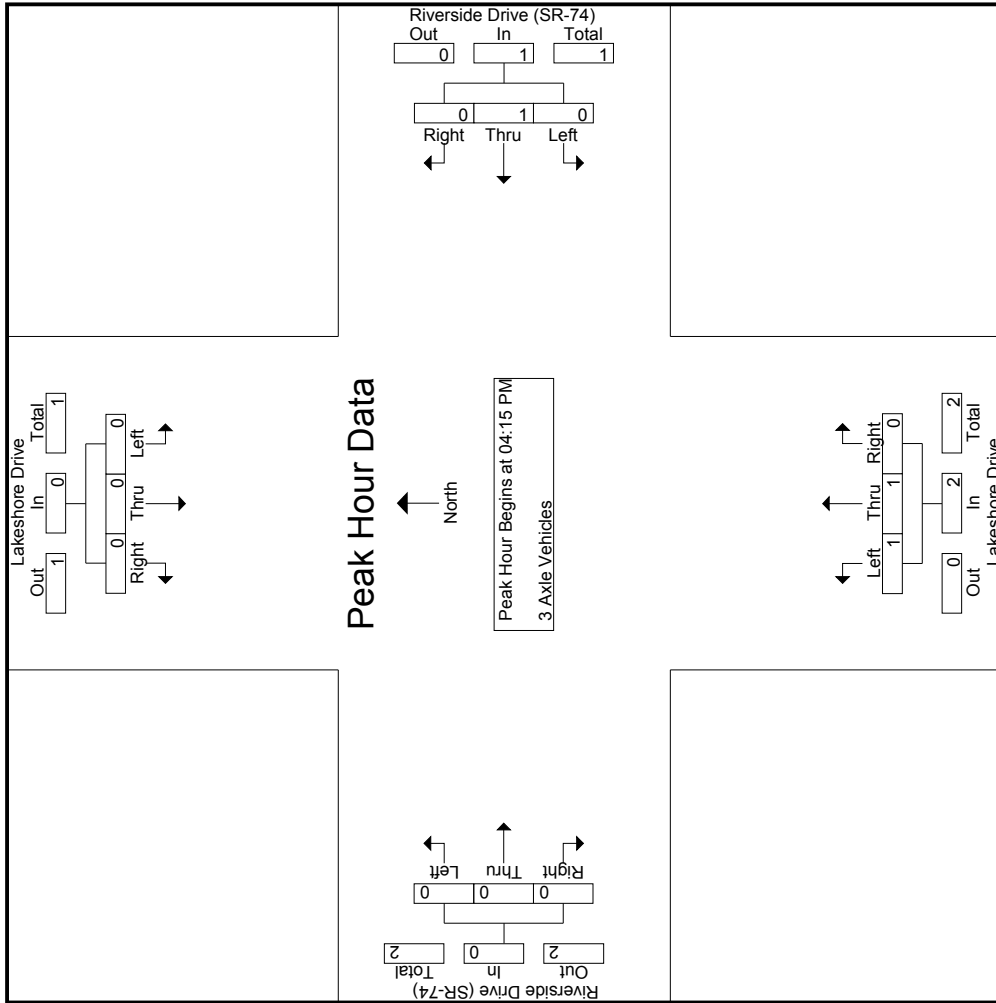
File Name : 02_LKE_Lakeshore_Riverside PM
Site Code : 05118340
Start Date : 4/24/2018
Page No : 1

Groups Printed- 3 Axle Vehicles

Lakeshore Drive Southbound				Riverside Drive (SR-74) Westbound				Lakeshore Drive Northbound				Riverside Drive (SR-74) Eastbound			
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total
04:00 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
Grand Total	0	0	0	0	0	0	2	1	0	0	0	0	0	0	0
Apprch %	0	0	0			0	100	33.3	0	3	0	0	0	0	5
Total %	0	0	0			0	40	20	0	60	0	0	0	0	100

3.1
-1
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Lakeshore Drive Southbound				Riverside Drive (SR-74) Westbound				Lakeshore Drive Northbound				Riverside Drive (SR-74) Eastbound			
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total
Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1															
Peak Hour for Entire Intersection Begins at 04:15 PM															
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0
% App. Total	0	0	0	0	0	0	100	50	0	0	0	0	0	0	0
PHF	.000	.000	.000	.000	.000	.000	.250	.250	.000	.500	.000	.000	.000	.000	.750



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City of Lake Elsinore
N/S: Lakeshore Drive
E/W: Riverside Drive (SR-74)
Weather: Clear

File Name : 02_LKE_Lakeshore_Riverside PM
Site Code : 05118340
Start Date : 4/24/2018
Page No : 3

Start Time	Lakeshore Drive Southbound				Riverside Drive (SR-74) Westbound				Lakeshore Drive Northbound				Riverside Drive (SR-74) Eastbound			
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1																
Peak Hour for Each Approach Begins at:																
+0 mins.	0	0	0	0	04:15 PM				04:15 PM				04:15 PM			
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	1	0	1	1	1	0	1	0	0	0	0
% App. Total	0	0	0	0	0	100	0	0	50	50	0	0	0	0	0	0
PHF	.000	.000	.000	.000	.000	.250	.000	.250	.250	.250	.000	.500	.000	.000	.000	.000

City of Lake Elsinore
N/S: Lakeshore Drive
E/W: Riverside Drive (SR-74)
Weather: Clear

File Name : 02_LKE_Lakeshore_Riverside PM
Site Code : 05118340
Start Date : 4/24/2018
Page No : 1

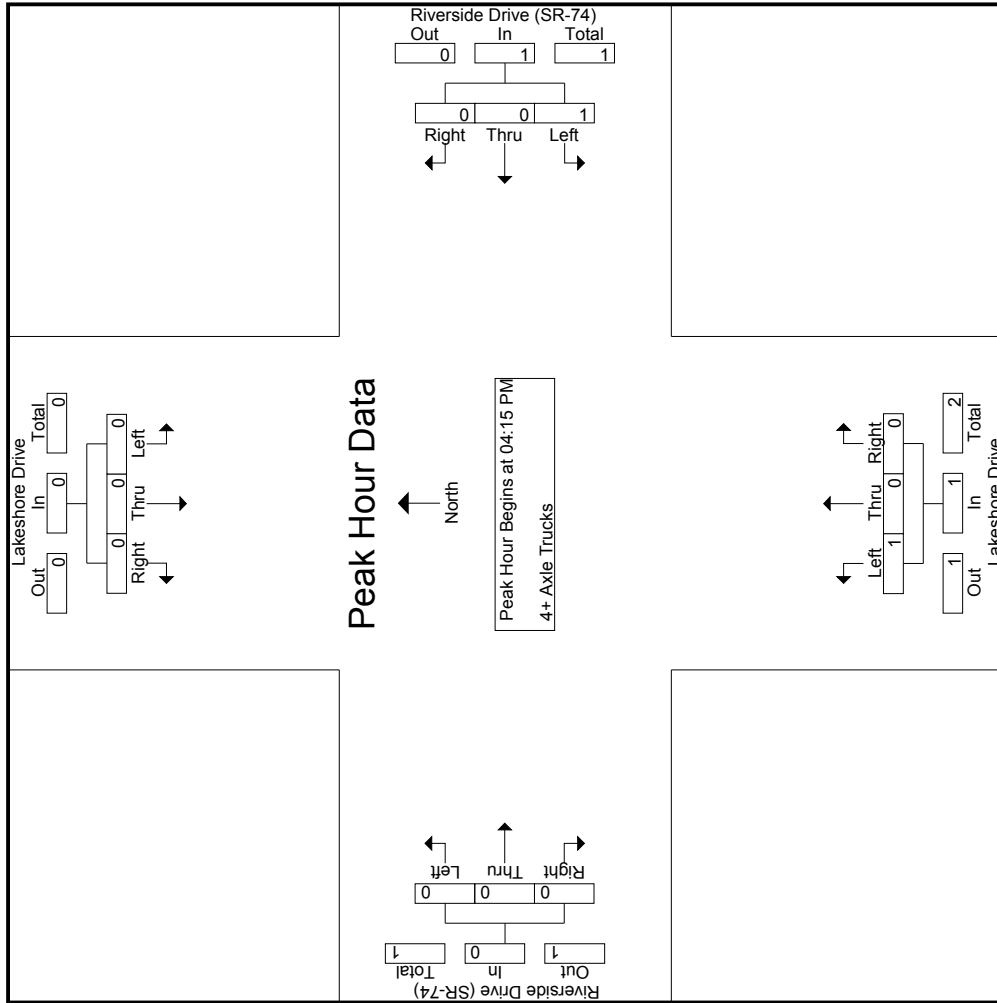
Groups Printed- 4+ Axle Trucks

Lakeshore Drive Southbound					Riverside Drive (SR-74) Westbound					Lakeshore Drive Northbound					Riverside Drive (SR-74) Eastbound				
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total	
04:00 PM	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	1	0	3	3
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	1	1
04:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	1	1
Total	0	0	0	0	0	1	2	0	0	3	1	0	0	0	1	0	5	5	5
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	1	1
Total	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	1	1
Grand Total	0	0	0	0	0	1	3	0	0	4	1	0	0	0	1	0	6	6	6
Apprch %	0	0	0			25	75	0			100	0	0						
Total %	0	0	0		0	16.7	50	0		66.7	16.7	0	0		16.7	0	100	0	100

3.1-64

Start Time	Lakeshore Drive Southbound					Riverside Drive (SR-74) Westbound					Lakeshore Drive Northbound					Riverside Drive (SR-74) Eastbound				
	Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total	
Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1																				
Peak Hour for Entire Intersection Begins at 04:15 PM																				
04:15 PM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0	
04:30 PM	0	0	0	0		1	0	0	1		0	0	0	0		0	0	0	0	1
04:45 PM	0	0	0	0		0	0	0	0		1	0	0	1		0	0	0	0	1
05:00 PM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0	0
Total Volume	0	0	0	0		1	0	0	1		1	0	0	1		0	0	0	0	2
% App. Total	0	0	0	0		100	0	0	0		100	0	0	0		0	0	0	0	0
PHF	.000	.000	.000	.000		.250	.000	.000	.250		.250	.000	.000	.250		.000	.000	.000	.000	.500

Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 04:15 PM



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File Name : 02_LKE_Lakeshore_Riverside PM
Site Code : 05118340
Start Date : 4/24/2018
Page No : 3

City of Lake Elsinore
N/S: Lakeshore Drive
E/W: Riverside Drive (SR-74)
Weather: Clear

Start Time	Lakeshore Drive Southbound				Riverside Drive (SR-74) Westbound				Lakeshore Drive Northbound				Riverside Drive (SR-74) Eastbound			
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1																
Peak Hour for Each Approach Begins at:																
+0 mins.	0	0	0	0	04:15 PM	0	0	0	0	04:15 PM	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	1	100	0	1	1	1	0	0	1	0	0	0
% App. Total	0	0	0	0	100	.250	.000	.250	.000	.250	.000	.000	.250	.000	.000	.000
PHF	.000	.000	.000	.000	.250	.000	.000	.250	.000	.250	.000	.000	.250	.000	.000	.000

Location: Lake Elsinore
 N/S: Lakeshore Drive
 E/W: Riverside Drive (SR-74)



Date: 4/24/2018
 Day: Tuesday

PEDESTRIANS

	North Leg Lakeshore Drive	East Leg Riverside Drive (SR-74)	South Leg Lakeshore Drive	West Leg Riverside Drive (SR-74)	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	2	1	0	3
7:15 AM	0	1	0	0	1
7:30 AM	1	0	0	0	1
7:45 AM	0	0	1	0	1
8:00 AM	0	0	2	0	2
8:15 AM	0	2	1	0	3
8:30 AM	1	0	0	1	2
8:45 AM	0	0	2	0	2
TOTAL VOLUMES:	2	5	7	1	15

	North Leg Lakeshore Drive	East Leg Riverside Drive (SR-74)	South Leg Lakeshore Drive	West Leg Riverside Drive (SR-74)	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	2	0	0	2
4:15 PM	0	1	0	0	1
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	1	1	0	0	2
5:15 PM	0	1	0	0	1
5:30 PM	1	0	0	0	1
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	2	5	0	0	7

Location: Lake Elsinore
 N/S: Lakeshore Drive
 E/W: Riverside Drive (SR-74)



Date: 4/24/2018
 Day: Tuesday

BICYCLES

	Southbound Lakeshore Drive			Westbound Riverside Drive (SR-74)			Northbound Lakeshore Drive			Eastbound Riverside Drive (SR-74)			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	1	0	0	0	0	0	0	1
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	1	0	0	0	0	0	0	1

	Southbound Lakeshore Drive			Westbound Riverside Drive (SR-74)			Northbound Lakeshore Drive			Eastbound Riverside Drive (SR-74)			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	0	2	0	0	1	0	3
4:15 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	1	1	0	1	0	3
TOTAL VOLUMES:	0	1	0	0	1	0	0	3	1	0	2	0	8

City of Lake Elsinore
N/S: Gunnerson St/Strickland Ave
E/W: Riverside Drive
Weather: Clear

File Name : 06_LKE_Gunnerson_Strickland_Riverside AM
Site Code : 05118103
Start Date : 2/8/2018
Page No : 1

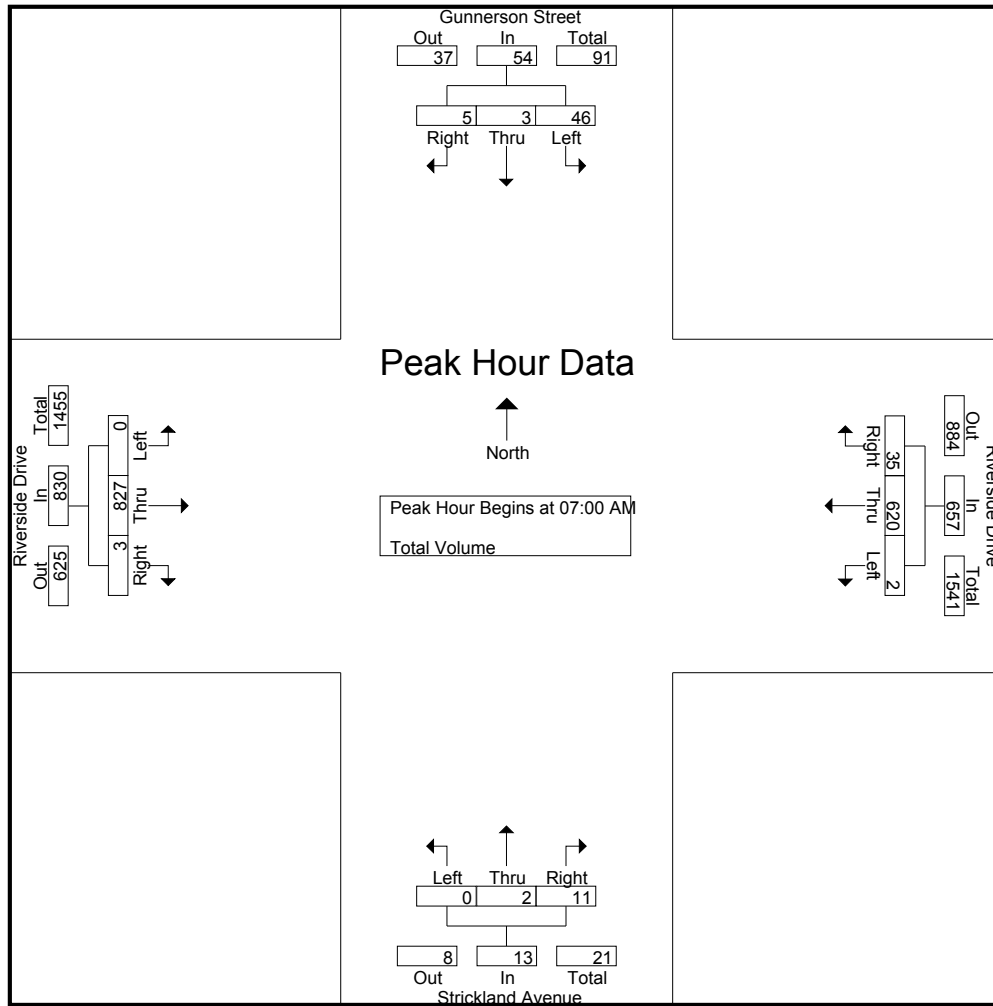
Groups Printed- Total Volume

	Gunnerson Street Southbound				Riverside Drive Westbound				Strickland Avenue Northbound				Riverside Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	11	1	3	15	1	171	7	179	0	0	3	3	0	182	1	183	380
07:15 AM	11	0	1	12	0	159	11	170	0	1	1	2	0	198	0	198	382
07:30 AM	14	1	0	15	0	143	8	151	0	0	2	2	0	231	1	232	400
07:45 AM	10	1	1	12	1	147	9	157	0	1	5	6	0	216	1	217	392
Total	46	3	5	54	2	620	35	657	0	2	11	13	0	827	3	830	1554
08:00 AM	10	1	2	13	1	119	10	130	1	0	4	5	0	183	0	183	331
08:15 AM	6	1	2	9	3	122	8	133	0	0	4	4	0	164	0	164	310
08:30 AM	11	1	0	12	1	157	7	165	0	0	3	3	0	176	0	176	356
08:45 AM	12	1	1	14	1	127	10	138	0	0	0	0	0	159	0	159	311
Total	39	4	5	48	6	525	35	566	1	0	11	12	0	682	0	682	1308
Grand Total	85	7	10	102	8	1145	70	1223	1	2	22	25	0	1509	3	1512	2862
Apprch %	83.3	6.9	9.8		0.7	93.6	5.7		4	8	88		0	99.8	0.2		
Total %	3	0.2	0.3	3.6	0.3	40	2.4	42.7	0	0.1	0.8	0.9	0	52.7	0.1	52.8	

	Gunnerson Street Southbound				Riverside Drive Westbound				Strickland Avenue Northbound				Riverside Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	11	1	3	15	1	171	7	179	0	0	3	3	0	182	1	183	380
07:15 AM	11	0	1	12	0	159	11	170	0	1	1	2	0	198	0	198	382
07:30 AM	14	1	0	15	0	143	8	151	0	0	2	2	0	231	1	232	400
07:45 AM	10	1	1	12	1	147	9	157	0	1	5	6	0	216	1	217	392
Total Volume	46	3	5	54	2	620	35	657	0	2	11	13	0	827	3	830	1554
% App. Total	85.2	5.6	9.3		0.3	94.4	5.3		0	15.4	84.6		0	99.6	0.4		
PHF	.821	.750	.417	.900	.500	.906	.795	.918	.000	.500	.550	.542	.000	.895	.750	.894	.971

City of Lake Elsinore
N/S: Gunnerson St/Strickland Ave
E/W: Riverside Drive
Weather: Clear

File Name : 06_LKE_Gunnerson_Strickland_Riverside AM
Site Code : 05118103
Start Date : 2/8/2018
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Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM				07:00 AM				07:45 AM				07:00 AM			
+0 mins.	11	1	3	15	1	171	7	179	0	1	5	6	0	182	1	183
+15 mins.	11	0	1	12	0	159	11	170	1	0	4	5	0	198	0	198
+30 mins.	14	1	0	15	0	143	8	151	0	0	4	4	0	231	1	232
+45 mins.	10	1	1	12	1	147	9	157	0	0	3	3	0	216	1	217
Total Volume	46	3	5	54	2	620	35	657	1	1	16	18	0	827	3	830
% App. Total	85.2	5.6	9.3		0.3	94.4	5.3		5.6	5.6	88.9		0	99.6	0.4	
PHF	.821	.750	.417	.900	.500	.906	.795	.918	.250	.250	.800	.750	.000	.895	.750	.894

City of Lake Elsinore
N/S: Gunnerson St/Strickland Ave
E/W: Riverside Drive
Weather: Clear

File Name : 06_LKE_Gunnerson_Strickland_Riverside PM
Site Code : 05118103
Start Date : 2/8/2018
Page No : 1

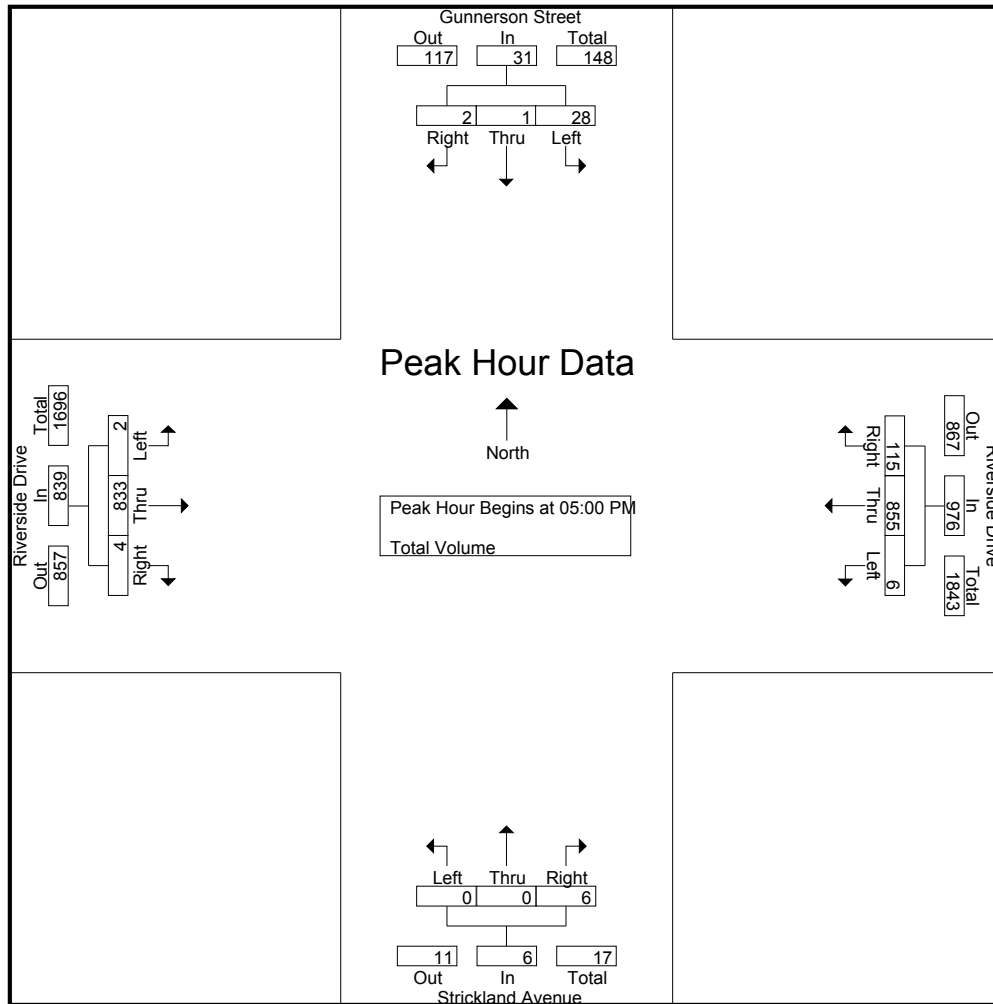
Groups Printed- Total Volume

	Gunnerson Street Southbound				Riverside Drive Westbound				Strickland Avenue Northbound				Riverside Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	5	0	0	5	2	209	25	236	0	0	4	4	0	213	0	213	458
04:15 PM	7	1	1	9	1	207	22	230	0	1	4	5	1	214	1	216	460
04:30 PM	3	1	2	6	0	221	34	255	0	0	4	4	0	200	1	201	466
04:45 PM	8	0	1	9	0	201	21	222	0	0	3	3	0	203	1	204	438
Total	23	2	4	29	3	838	102	943	0	1	15	16	1	830	3	834	1822
05:00 PM	9	1	1	11	1	223	26	250	0	0	1	1	0	196	0	196	458
05:15 PM	6	0	0	6	1	217	29	247	0	0	1	1	0	219	2	221	475
05:30 PM	8	0	0	8	2	212	31	245	0	0	1	1	0	212	1	213	467
05:45 PM	5	0	1	6	2	203	29	234	0	0	3	3	2	206	1	209	452
Total	28	1	2	31	6	855	115	976	0	0	6	6	2	833	4	839	1852
Grand Total	51	3	6	60	9	1693	217	1919	0	1	21	22	3	1663	7	1673	3674
Apprch %	85	5	10		0.5	88.2	11.3		0	4.5	95.5		0.2	99.4	0.4		
Total %	1.4	0.1	0.2	1.6	0.2	46.1	5.9	52.2	0	0	0.6	0.6	0.1	45.3	0.2	45.5	

	Gunnerson Street Southbound				Riverside Drive Westbound				Strickland Avenue Northbound				Riverside Drive Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	9	1	1	11	1	223	26	250	0	0	1	1	0	196	0	196	458
05:15 PM	6	0	0	6	1	217	29	247	0	0	1	1	0	219	2	221	475
05:30 PM	8	0	0	8	2	212	31	245	0	0	1	1	0	212	1	213	467
05:45 PM	5	0	1	6	2	203	29	234	0	0	3	3	2	206	1	209	452
Total Volume	28	1	2	31	6	855	115	976	0	0	6	6	2	833	4	839	1852
% App. Total	90.3	3.2	6.5		0.6	87.6	11.8		0	0	100		0.2	99.3	0.5		
PHF	.778	.250	.500	.705	.750	.959	.927	.976	.000	.000	.500	.500	.250	.951	.500	.949	.975

City of Lake Elsinore
N/S: Gunnerson St/Strickland Ave
E/W: Riverside Drive
Weather: Clear

File Name : 06_LKE_Gunnerson_Strickland_Riverside PM
Site Code : 05118103
Start Date : 2/8/2018
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Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:15 PM				05:00 PM				04:00 PM				05:00 PM			
+0 mins.	7	1	1	9	1	223	26	250	0	0	4	4	0	196	0	196
+15 mins.	3	1	2	6	1	217	29	247	0	1	4	5	0	219	2	221
+30 mins.	8	0	1	9	2	212	31	245	0	0	4	4	0	212	1	213
+45 mins.	9	1	1	11	2	203	29	234	0	0	3	3	2	206	1	209
Total Volume	27	3	5	35	6	855	115	976	0	1	15	16	2	833	4	839
% App. Total	77.1	8.6	14.3		0.6	87.6	11.8		0	6.2	93.8		0.2	99.3	0.5	
PHF	.750	.750	.625	.795	.750	.959	.927	.976	.000	.250	.938	.800	.250	.951	.500	.949

Location: Lake Elsinore
 N/S: Gunnerson St/Strickland Ave
 E/W: Riverside Drive



Date: 2/8/2018
 Date: Thursday

PEDESTRIANS

	North Leg Gunnerson Street Pedestrians	East Leg Riverside Drive Pedestrians	South Leg Strickland Avenue Pedestrians	West Leg Riverside Drive Pedestrians	
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	0	1	0	1
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	0	0	1	0	1

	North Leg Gunnerson Street Pedestrians	East Leg Riverside Drive Pedestrians	South Leg Strickland Avenue Pedestrians	West Leg Riverside Drive Pedestrians	
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	1	0	0	0	1
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	1	0	0	0	1

Location: Lake Elsinore
 N/S: Gunnerson
 E/W: Riverside Drive



Date: 2/8/2018
 Date: Thursday

BICYCLES

		Southbound Gunnerson Street			Westbound Riverside Drive			Northbound Strickland Avenue			Eastbound Riverside Drive			
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:		0	0	0	0	0	0	0	0	0	0	0	0	0

		Southbound Gunnerson Street			Westbound Riverside Drive			Northbound Strickland Avenue			Eastbound Riverside Drive			
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:30 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
	4:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	1
	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:		0	0	0	0	1	0	0	0	0	0	1	0	2

City of Lake Elsinore
N/S: Collier Avenue
E/W: Nichols Road
Weather: Clear

File Name : 03_LKE_Collier_Nichols AM
Site Code : 05118103
Start Date : 2/8/2018
Page No : 1

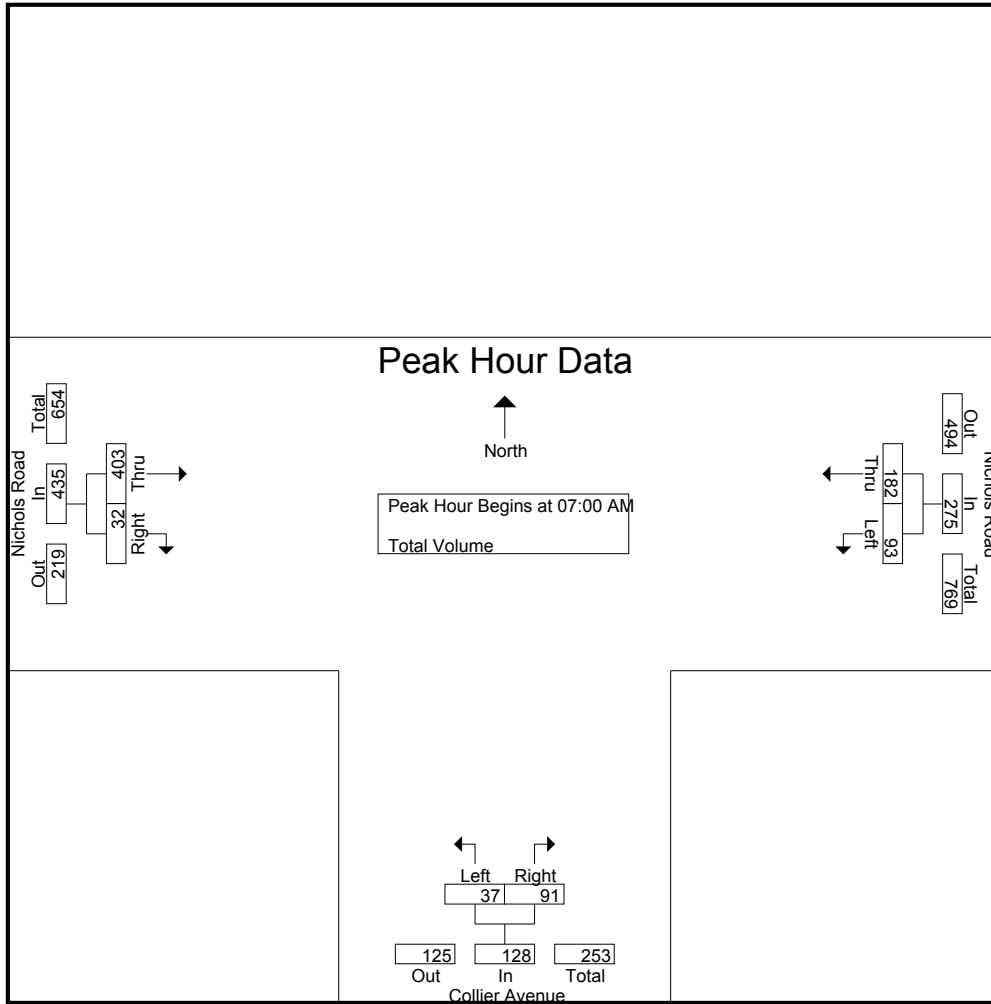
Groups Printed- Total Volume

	Nichols Road Westbound			Collier Avenue Northbound			Nichols Road Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
07:00 AM	19	53	72	7	31	38	121	3	124	234
07:15 AM	19	70	89	7	25	32	111	8	119	240
07:30 AM	32	40	72	9	15	24	99	10	109	205
07:45 AM	23	19	42	14	20	34	72	11	83	159
Total	93	182	275	37	91	128	403	32	435	838
08:00 AM	20	29	49	5	19	24	60	13	73	146
08:15 AM	20	18	38	5	21	26	64	9	73	137
08:30 AM	17	29	46	7	15	22	63	10	73	141
08:45 AM	35	28	63	12	21	33	60	18	78	174
Total	92	104	196	29	76	105	247	50	297	598
Grand Total	185	286	471	66	167	233	650	82	732	1436
Apprch %	39.3	60.7		28.3	71.7		88.8	11.2		
Total %	12.9	19.9	32.8	4.6	11.6	16.2	45.3	5.7	51	

	Nichols Road Westbound			Collier Avenue Northbound			Nichols Road Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:00 AM										
07:00 AM	19	53	72	7	31	38	121	3	124	234
07:15 AM	19	70	89	7	25	32	111	8	119	240
07:30 AM	32	40	72	9	15	24	99	10	109	205
07:45 AM	23	19	42	14	20	34	72	11	83	159
Total Volume	93	182	275	37	91	128	403	32	435	838
% App. Total	33.8	66.2		28.9	71.1		92.6	7.4		
PHF	.727	.650	.772	.661	.734	.842	.833	.727	.877	.873

City of Lake Elsinore
N/S: Collier Avenue
E/W: Nichols Road
Weather: Clear

File Name : 03_LKE_Collier_Nichols AM
Site Code : 05118103
Start Date : 2/8/2018
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM			07:00 AM			07:00 AM		
+0 mins.	19	53	72	7	31	38	121	3	124
+15 mins.	19	70	89	7	25	32	111	8	119
+30 mins.	32	40	72	9	15	24	99	10	109
+45 mins.	23	19	42	14	20	34	72	11	83
Total Volume	93	182	275	37	91	128	403	32	435
% App. Total	33.8	66.2		28.9	71.1		92.6	7.4	
PHF	.727	.650	.772	.661	.734	.842	.833	.727	.877

City of Lake Elsinore
N/S: Collier Avenue
E/W: Nichols Road
Weather: Clear

File Name : 03_LKE_Collier_Nichols PM
Site Code : 05118103
Start Date : 2/8/2018
Page No : 1

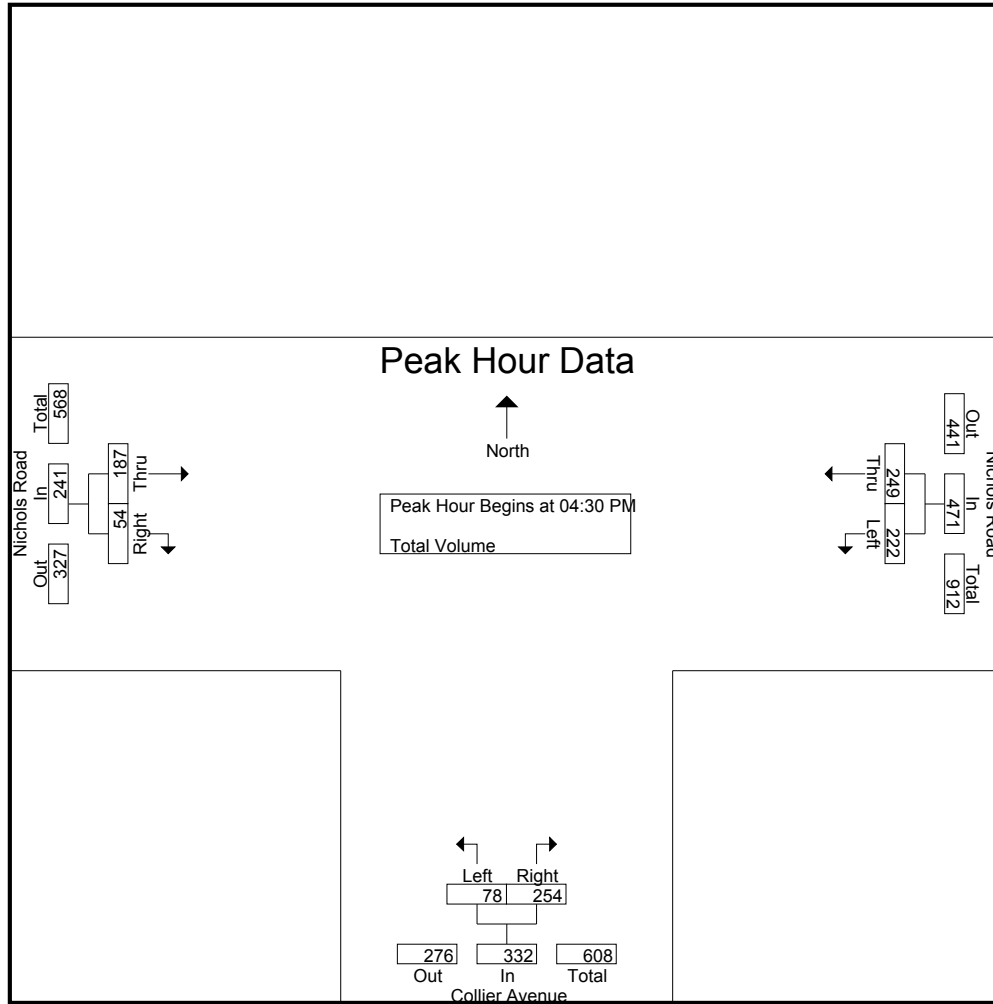
Groups Printed- Total Volume

	Nichols Road Westbound			Collier Avenue Northbound			Nichols Road Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
04:00 PM	38	72	110	22	50	72	45	12	57	239
04:15 PM	41	60	101	24	51	75	39	12	51	227
04:30 PM	62	60	122	17	60	77	46	15	61	260
04:45 PM	65	64	129	22	57	79	49	20	69	277
Total	206	256	462	85	218	303	179	59	238	1003
05:00 PM	39	62	101	21	76	97	48	11	59	257
05:15 PM	56	63	119	18	61	79	44	8	52	250
05:30 PM	46	65	111	23	64	87	53	9	62	260
05:45 PM	54	73	127	23	57	80	29	13	42	249
Total	195	263	458	85	258	343	174	41	215	1016
Grand Total	401	519	920	170	476	646	353	100	453	2019
Apprch %	43.6	56.4		26.3	73.7		77.9	22.1		
Total %	19.9	25.7	45.6	8.4	23.6	32	17.5	5	22.4	

	Nichols Road Westbound			Collier Avenue Northbound			Nichols Road Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:30 PM										
04:30 PM	62	60	122	17	60	77	46	15	61	260
04:45 PM	65	64	129	22	57	79	49	20	69	277
05:00 PM	39	62	101	21	76	97	48	11	59	257
05:15 PM	56	63	119	18	61	79	44	8	52	250
Total Volume	222	249	471	78	254	332	187	54	241	1044
% App. Total	47.1	52.9		23.5	76.5		77.6	22.4		
PHF	.854	.973	.913	.886	.836	.856	.954	.675	.873	.942

City of Lake Elsinore
N/S: Collier Avenue
E/W: Nichols Road
Weather: Clear

File Name : 03_LKE_Collier_Nichols PM
Site Code : 05118103
Start Date : 2/8/2018
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM			05:00 PM			04:45 PM		
+0 mins.	62	60	122	21	76	97	49	20	69
+15 mins.	65	64	129	18	61	79	48	11	59
+30 mins.	39	62	101	23	64	87	44	8	52
+45 mins.	56	63	119	23	57	80	53	9	62
Total Volume	222	249	471	85	258	343	194	48	242
% App. Total	47.1	52.9		24.8	75.2		80.2	19.8	
PHF	.854	.973	.913	.924	.849	.884	.915	.600	.877

Location: Lake Elsinore
 N/S: Collier Avenue
 E/W: Nichols Road



Date: 2/8/2018
 Date: Thursday

PEDESTRIANS

	North Leg Dead End	East Leg Nichols Road	South Leg Collier Avenue	West Leg Nichols Road	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	1	1
TOTAL VOLUMES:	0	0	0	1	1

	North Leg Dead End	East Leg Nichols Road	South Leg Collier Avenue	West Leg Nichols Road	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0

Location: Lake Elsinore
 N/S: Collier Avenue
 E/W: Nichols Road



Date: 2/8/2018
 Date: Thursday

BICYCLES

	Southbound Dead End			Westbound Nichols Road			Northbound Collier Avenue			Eastbound Nichols Road			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
8:00 AM	0	0	0	1	1	0	0	0	0	0	0	0	2
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	1	2	0	0	0	0	0	0	0	3

	Southbound Dead End			Westbound Nichols Road			Northbound Collier Avenue			Eastbound Nichols Road			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	1	1
4:15 PM	0	0	0	0	0	0	0	0	1	0	1	1	3
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	1	0	0	0	0	0	0	0	0	1
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	1	0	0	0	0	1	0	1	2	5

City of Lake Elsinore
N/S: Collier Avenue
E/W: Riverside Drive
Weather: Clear

Groups Printed- Total Volume

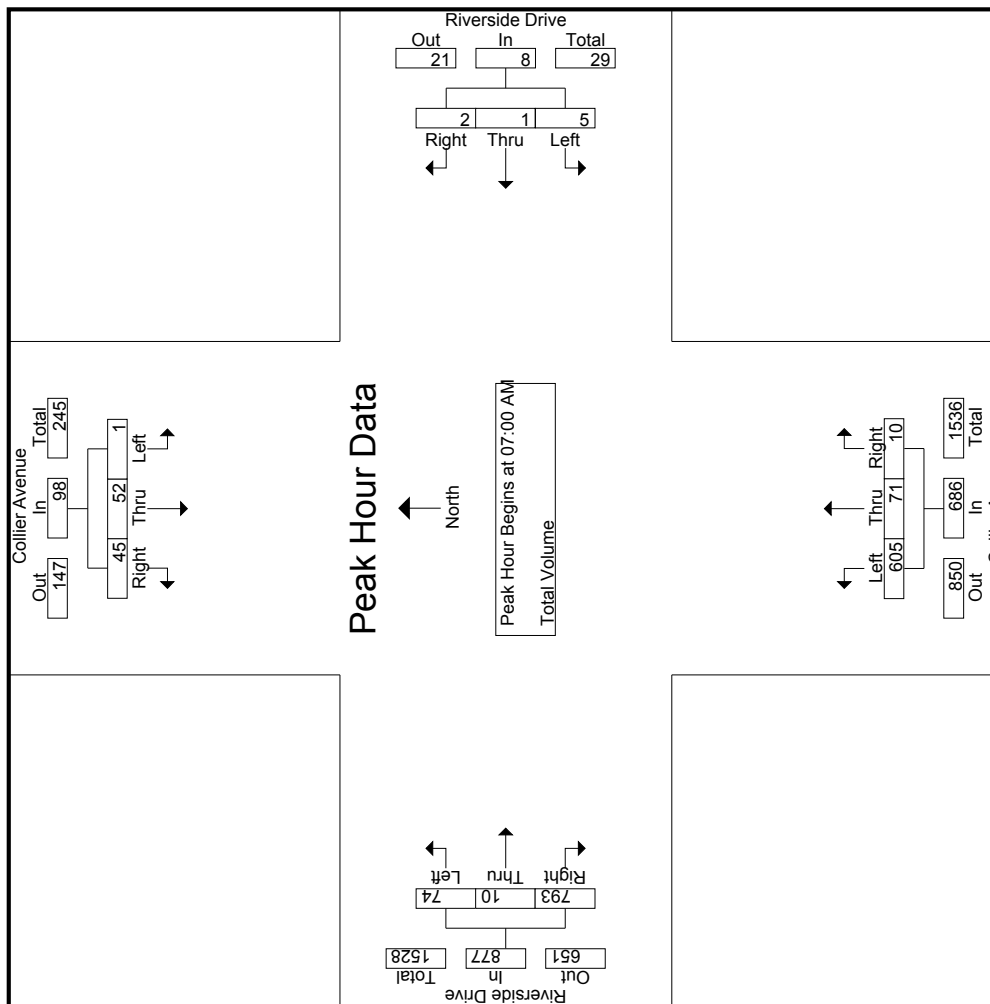
3.1-81

	Collier Avenue Southbound				Riverside Drive Westbound				Collier Avenue Northbound				Riverside Drive Eastbound			
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total			
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																
Peak Hour for Entire Intersection Begins at 07:00 AM																
07:00 AM	0	8	9	17	1	0	0	1	173	12	1	186	31	1	165	197
07:15 AM	0	11	12	23	0	0	1	1	156	18	3	177	15	2	197	214
07:30 AM	1	10	12	23	2	0	0	2	137	17	3	157	15	2	238	255
07:45 AM	0	23	12	35	2	1	1	4	139	24	3	166	13	5	193	211
Total Volume	1	52	45	98	5	1	2	8	605	71	10	686	74	10	793	877
% App. Total	1	53.1	45.9		62.5	12.5	25		88.2	10.3	1.5		8.4	1.1	90.4	
PHE	250	565	938	700	625	250	500	500	874	740	833	922	597	500	833	860
																955

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City of Lake Elsinore
 N/S: Collier Avenue
 E/W: Riverside Drive
 Weather: Clear

File Name : 11_LKE_Collier_Riverside AM
 Site Code : 05118103
 Start Date : 2/8/2018
 Page No : 2



City of Lake Elsinore
N/S: Collier Avenue
E/W: Riverside Drive
Weather: Clear

	Collier Avenue Southbound			Riverside Drive Westbound			Collier Avenue Northbound			Riverside Drive Eastbound			
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total

	08:00 AM				08:00 AM				07:00 AM				07:15 AM			
+0 mins.	1	16	11	28	0	0	2	173	12	1	186	15	2	197	214	
+15 mins.	4	11	8	23	1	0	3	156	18	3	177	15	2	238	255	
+30 mins.	0	12	10	22	2	3	9	137	17	3	157	13	5	193	211	
+45 mins.	2	27	17	46	2	0	5	139	24	3	166	19	2	185	206	
Total Volume	7	66	46	119	8	4	19	605	71	10	686	62	11	813	886	
% App. Total	5.9	55.5	38.7		42.1	21.1	36.8	88.2	10.3	1.5		7	1.2	91.8		
PHE	.438	.611	.676	.647	1.000	.333	.528	.874	.740	.833	.922	.816	.550	.854	.869	

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City of Lake Elsinore
N/S: Collier Avenue
EW: Riverside Drive
Weather: Clear

File Name : 11_LKE_Collier_Riverside PM
Site Code : 05118103
Start Date : 2/8/2018
Page No : 1

Groups Printed- Total Volume

Start Time	Collier Avenue Southbound						Riverside Drive Westbound						Collier Avenue Northbound						Riverside Drive Eastbound					
	Left	Thru	Right	RTOR	App. Total		Left	Thru	Right	RTOR	App. Total		Left	Thru	Right	RTOR	App. Total		Left	Thru	Right	RTOR	App. Total	
04:00 PM	2	44	20	17	66		8	2	3	2	13		219	62	6	0	287		34	1	185	20	220	
04:15 PM	0	55	20	15	75		6	6	1	1	13		208	49	3	0	260		20	5	197	8	222	
04:30 PM	0	41	29	24	70		4	6	2	2	12		218	56	7	0	281		24	2	176	6	202	
04:45 PM	1	38	23	14	62		2	3	1	1	6		204	55	3	1	262		21	3	183	12	207	
Total	3	178	92	70	273		20	17	7	6	44		849	222	19	1	1090		99	11	741	46	851	
05:00 PM	1	36	21	17	58		3	8	7	5	18		216	55	1	0	272		22	0	196	12	218	
05:15 PM	0	39	31	24	70		3	3	0	0	6		212	56	0	0	268		23	0	188	10	211	
05:30 PM	0	46	34	23	80		3	0	1	1	4		211	60	1	0	272		18	2	200	6	220	
05:45 PM	1	55	19	14	75		1	2	1	1	4		218	51	1	0	270		20	1	185	5	206	
Total	2	176	105	78	283		10	13	9	7	32		857	222	3	0	1082		83	3	769	33	855	
Grand Total	5	354	197	148	556		30	30	16	13	76		1706	444	22	1	2172		182	14	1510	79	1706	
Approch %	0.9	63.7	35.4		12.3		39.5	39.5	21.1		1.7		78.5	20.4	1		48.2		10.7	0.8	88.5		37.8	
Total %	0.1	7.8	4.4				0.7	0.7	0.4				37.8	9.8	0.5				4	0.3	33.5		5.1	94.9

3.1-84

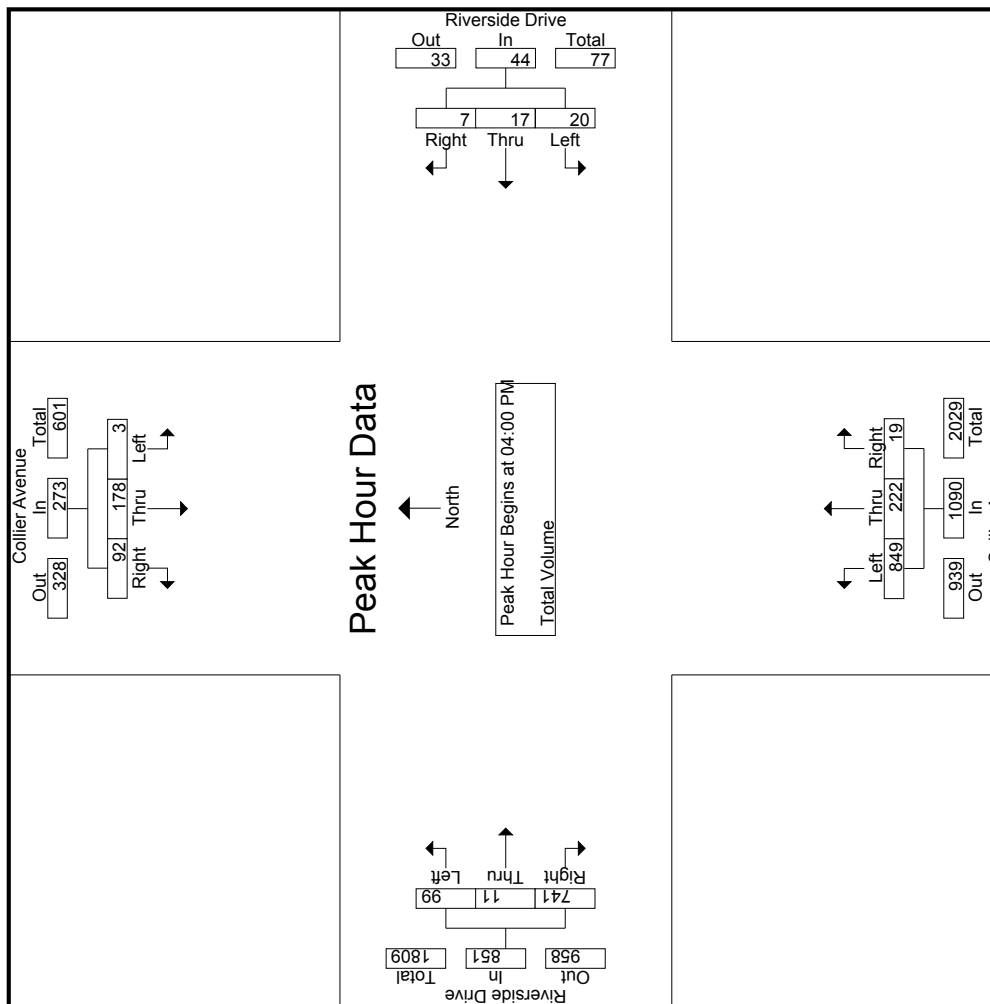
Start Time	Collier Avenue Southbound						Riverside Drive Westbound						Collier Avenue Northbound						Riverside Drive Eastbound					
	Left	Thru	Right	RTOR	App. Total		Left	Thru	Right	RTOR	App. Total		Left	Thru	Right	RTOR	App. Total		Left	Thru	Right	RTOR	App. Total	
04:00 PM	2	44	20	17	66		8	2	3	2	13		219	62	6	0	287		34	1	185	20	220	
04:15 PM	0	55	20	15	75		6	6	1	1	13		208	49	3	0	260		20	5	197	8	222	
04:30 PM	0	41	29	24	70		4	6	2	2	12		218	56	7	0	281		24	2	176	6	202	
04:45 PM	1	38	23	14	62		2	3	1	1	6		204	55	3	1	262		21	3	183	12	207	
Total Volume	3	178	92	70	273		20	17	7	6	44		849	222	19	1	1090		99	11	741	46	851	
% App. Total	1.1	65.2	33.7		12.3		45.5	38.6	15.9		1.7		77.9	20.4	1.7		48.2		11.6	1.3	87.1		37.8	
PHF	.375	.809	.793		.910		.625	.708	.583		.846		.969	.895	.679		.949		.728	.550	.940		.958	

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 04:00 PM

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City of Lake Elsinore
N/S: Collier Avenue
E/W: Riverside Drive
Weather: Clear

File Name : 11_LKE_Collier_Riverside PM
Site Code : 05118103
Start Date : 2/8/2018
Page No : 2



City of Lake Elsinore
N/S: Collier Avenue
E/W: Riverside Drive
Weather: Clear

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3.1-86

Location: Lake Elsinore
N/S: Collier Avenue
E/W: Riverside Drive



Date: 2/8/2018
Date: Thursday

PEDESTRIANS

	North Leg Collier Avenue Pedestrians	East Leg Riverside Drive Pedestrians	South Leg Collier Avenue Pedestrians	West Leg Riverside Drive Pedestrians	
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	1	1
TOTAL VOLUMES:	0	0	0	1	1

	North Leg Collier Avenue Pedestrians	East Leg Riverside Drive Pedestrians	South Leg Collier Avenue Pedestrians	West Leg Riverside Drive Pedestrians	
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	1	0	0	1
5:30 PM	0	2	0	5	7
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	0	3	0	5	8

Location: Lake Elsinore
N/S: Collier Avenue
E/W: Riverside Drive



Date: 2/8/2018
Date: Thursday

BICYCLES

	Southbound Collier Avenue			Westbound Riverside Drive			Northbound Collier Avenue			Eastbound Riverside Drive		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	1	0	0	0	0	0	0	1	0	0	2
8:15 AM	0	1	0	0	0	0	0	0	0	0	0	1
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	2	0	0	0	0	0	0	1	0	0	3

	Southbound Collier Avenue			Westbound Riverside Drive			Northbound Collier Avenue			Eastbound Riverside Drive		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
4:00 PM	0	1	0	0	0	0	0	0	0	0	0	1
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	1	0	0	1	0	0	0	0	2
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	1	0	1	0	0	1	0	0	0	0	3

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City of Lake Elsinore
N/S: Collier Avenue
EW: Central Avenue
Weather: Clear

File Name : 12_LKE_Collier_Central AM
Site Code : 05118103
Start Date : 2/8/2018
Page No : 1

Groups Printed- Total Volume

	Collier Avenue Southbound						Central Avenue Westbound						Collier Avenue Northbound						Central Avenue Eastbound					
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total	
07:00 AM	176	9	1	1	186	104	54	172	101	330	4	8	61	18	73	8	16	6	4	30	124	619	743	
07:15 AM	183	10	1	0	194	158	69	154	96	381	5	15	93	51	113	9	17	6	3	32	150	720	870	
07:30 AM	233	12	4	2	249	121	46	142	106	309	9	9	81	52	99	12	23	7	2	42	162	699	861	
07:45 AM	174	15	4	1	193	109	86	160	91	355	5	16	50	21	71	5	21	5	0	31	113	650	763	
Total	766	46	10	4	822	492	255	628	394	1375	23	48	285	142	356	34	77	24	9	135	549	2688	3237	
08:00 AM	167	20	2	0	189	111	74	135	78	320	10	13	50	30	73	7	26	11	3	44	111	626	737	
08:15 AM	131	24	0	0	155	76	73	133	73	282	9	33	71	32	113	16	31	13	5	60	110	610	720	
08:30 AM	193	16	3	1	212	57	47	130	70	234	8	18	55	29	81	20	30	7	0	57	100	584	684	
08:45 AM	152	26	2	1	180	68	47	130	60	245	5	23	51	21	79	19	36	5	2	60	84	564	648	
Total	643	86	7	2	736	312	241	528	281	1081	32	87	227	112	346	62	123	36	10	221	405	2384	2789	
Grand Total	1409	132	17	6	1558	804	496	1156	675	2456	55	135	512	254	702	96	200	60	19	356	954	5072	6026	
Approch %	90.4	8.5	1.1		32.7	20.2	20.2	47.1		48.4	7.8	19.2	72.9		13.8	27	56.2	16.9		7	15.8	84.2		
Total %	27.8	2.6	0.3		30.7	15.9	9.8	22.8			1.1	2.7	10.1			1.9	3.9	1.2						

3.1-89

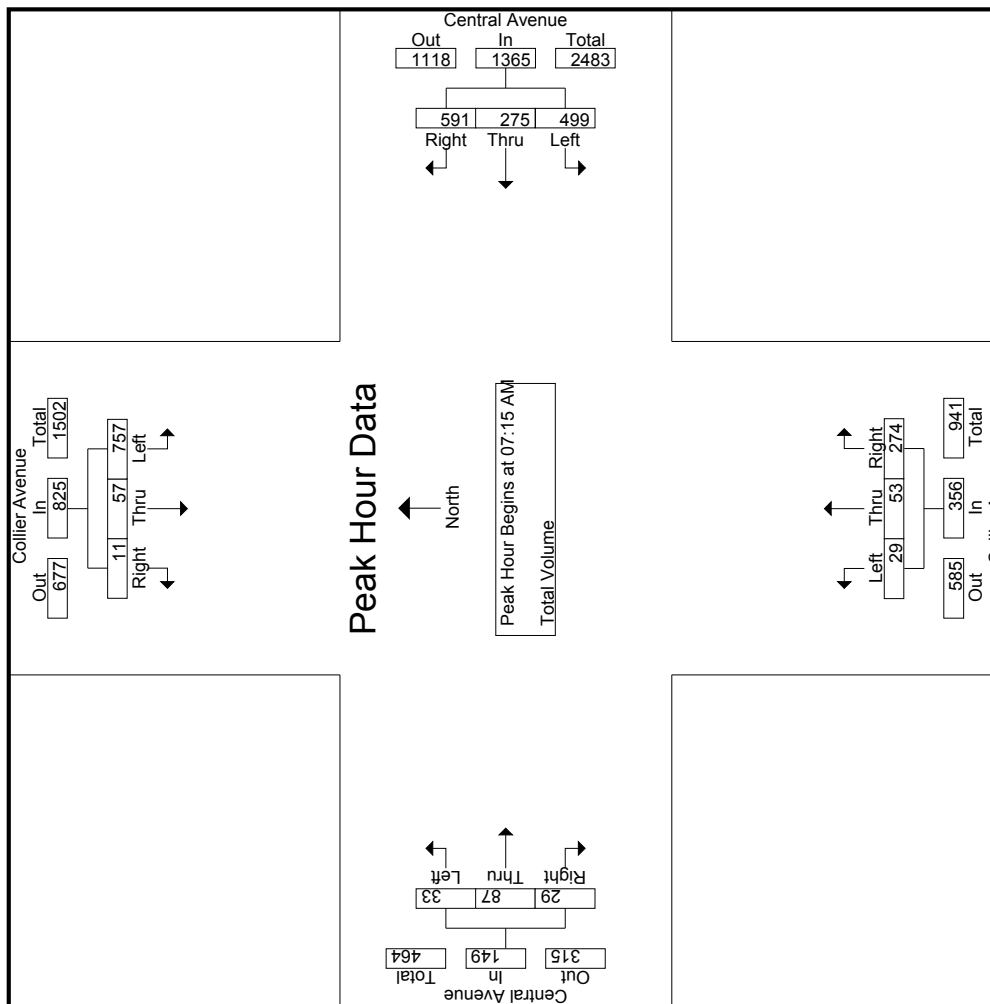
	Collier Avenue Southbound					Central Avenue Westbound					Collier Avenue Northbound					Central Avenue Eastbound					
Start Time	Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	183	10	1	194		158	69	154	381		5	15	93	113		9	17	6	32		720
07:30 AM	233	12	4	249		121	46	142	309		9	9	81	99		12	23	7	42		699
07:45 AM	174	15	4	193		109	86	160	355		5	16	50	71		5	21	5	31		650
08:00 AM	167	20	2	189		111	74	135	320		10	13	50	73		7	26	11	44		626
Total Volume	757	57	11	825		499	275	591	1365		29	53	274	356		33	87	29	149		2695
% App. Total	91.8	6.9	1.3			36.6	20.1	43.3			8.1	14.9	77			22.1	58.4	19.5			
PHF	.812	.713	.688	.828		.790	.799	.923	.896		.725	.828	.737	.788		.688	.837	.659	.847		.936

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 07:15 AM

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City of Lake Elsinore
 N/S: Collier Avenue
 E/W: Central Avenue
 Weather: Clear

File Name : 12_LKE_Collier_Central AM
 Site Code : 05118103
 Start Date : 2/8/2018
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City of Lake Elsinore
N/S: Collier Avenue
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Start Date : 2/8/2018
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Start Time	Collier Avenue Southbound				Central Avenue Westbound				Collier Avenue Northbound				Central Avenue Eastbound			
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																
Peak Hour for Each Approach Begins at:																
	07:15 AM				07:00 AM				07:00 AM				08:00 AM			
+0 mins.	183	10	1	194	104	54	172	330	4	8	61	73	7	26	11	44
+15 mins.	233	12	4	249	158	69	154	381	5	15	93	113	16	31	13	60
+30 mins.	174	15	4	193	121	46	142	309	9	9	81	99	20	30	7	57
+45 mins.	167	20	2	189	109	86	160	355	5	16	50	71	19	36	5	60
Total Volume	757	57	11	825	492	255	628	1375	23	48	285	356	62	123	36	221
% App. Total	91.8	6.9	1.3		35.8	18.5	45.7		6.5	13.5	80.1		28.1	55.7	16.3	
PHF	.812	.713	.688	.828	.778	.741	.913	.902	.639	.750	.766	.788	.775	.854	.692	.921

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City of Lake Elsinore
N/S: Collier Avenue
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Weather: Clear

File Name : 12_LKE_Collier_Central PM
Site Code : 05118103
Start Date : 2/8/2018
Page No : 1

Groups Printed- Total Volume

Start Time	Collier Avenue Southbound					Central Avenue Westbound					Collier Avenue Northbound					Central Avenue Eastbound					Exclu. Total	Indu. Total	Int. Total
	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total			
04:00 PM	248	30	4	3	282	54	43	162	116	259	20	24	89	59	133	60	62	11	1	133	179	807	986
04:15 PM	219	32	3	1	254	61	51	184	124	296	14	37	64	43	115	38	55	17	1	110	169	775	944
04:30 PM	215	35	5	2	255	42	55	180	125	277	13	34	115	74	162	43	82	9	2	134	203	828	1031
04:45 PM	224	29	15	8	268	62	43	178	126	283	10	23	63	45	96	58	82	12	0	152	179	799	978
Total	906	126	27	14	1059	219	192	704	491	1115	57	118	331	221	506	199	281	49	4	529	730	3209	3939
05:00 PM	244	36	8	2	288	38	42	170	132	250	12	23	94	59	129	48	96	12	1	156	194	823	1017
05:15 PM	201	20	10	5	231	58	39	168	105	265	4	22	75	48	101	36	74	14	0	124	158	721	879
05:30 PM	220	22	8	6	250	48	54	181	113	283	15	29	86	51	130	50	69	10	4	129	174	792	966
05:45 PM	238	26	5	2	269	43	47	184	121	274	11	23	72	51	106	29	72	12	3	113	177	762	939
Total	903	104	31	15	1038	187	182	703	471	1072	42	97	327	209	466	163	311	48	8	522	703	3098	3801
Grand Total	1809	230	58	29	2097	406	374	1407	962	2187	99	215	658	430	972	362	592	97	12	1051	1433	6307	7740
Approch %	86.3	11	2.8		33.2	18.6	17.1	64.3		34.7	10.2	22.1	67.7		15.4	34.4	56.3	9.2		16.7	18.5	81.5	
Total %	28.7	3.6	0.9			6.4	5.9	22.3			1.6	3.4	10.4			5.7	9.4	1.5					

3.1-92

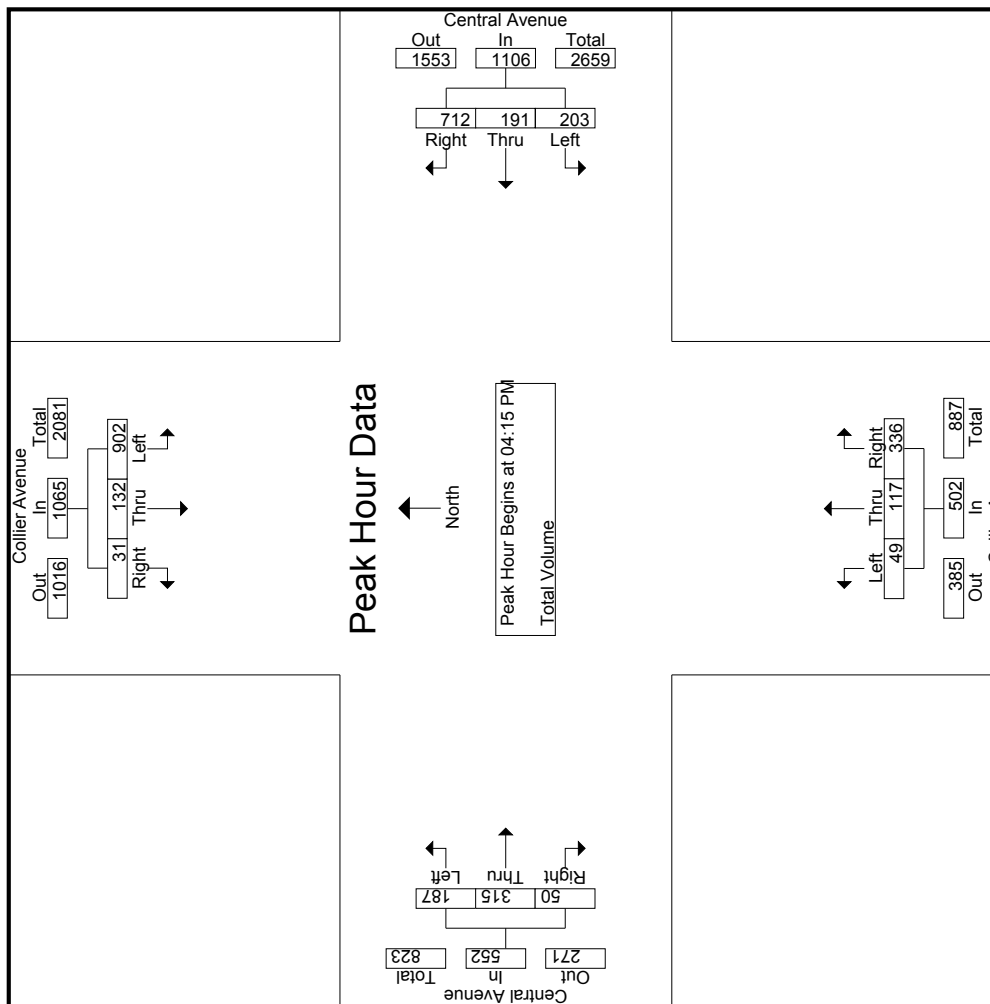
Start Time	Collier Avenue Southbound					Central Avenue Westbound					Collier Avenue Northbound					Central Avenue Eastbound					Exclu. Total	Indu. Total	Int. Total
	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total			
04:15 PM	219	32	3		254	61	51	184		296	14	37	64		115	38	55	17		110			775
04:30 PM	215	35	5		255	42	55	180		277	13	34	115		162	43	82	9		134			828
04:45 PM	224	29	15		268	62	43	178		283	10	23	63		96	58	82	12		152			799
05:00 PM	244	36	8		288	38	42	170		250	12	23	94		129	48	96	12		156			823
Total Volume	902	132	31		1065	203	191	712		1106	49	117	336		502	187	315	50		552			3225
% App. Total	84.7	12.4	2.9			18.4	17.3	64.4			9.8	23.3	66.9			33.9	57.1	9.1					
PHF	.924	.917	.517		.924	.819	.868	.967		.934	.875	.791	.730		.775	.806	.820	.735		.885			.974

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 04:15 PM

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City of Lake Elsinore
N/S: Collier Avenue
E/W: Central Avenue
Weather: Clear

File Name : 12_LKE_Collier_Central PM
Site Code : 05118103
Start Date : 2/8/2018
Page No : 2



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City of Lake Elsinore
N/S: Collier Avenue
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File Name : 12_LKE_Collier_Central PM
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Start Date : 2/8/2018
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Start Time	Collier Avenue Southbound				Central Avenue Westbound				Collier Avenue Northbound				Central Avenue Eastbound			
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																
Peak Hour for Each Approach Begins at:																
	04:15 PM				04:00 PM				04:00 PM				04:30 PM			
+0 mins.	219	32	3	254	54	43	162	259	20	24	89	133	43	82	9	134
+15 mins.	215	35	5	255	61	51	184	296	14	37	64	115	58	82	12	152
+30 mins.	224	29	15	268	42	55	180	277	13	34	115	162	48	96	12	156
+45 mins.	244	36	8	288	62	43	178	283	10	23	63	96	36	74	14	124
Total Volume	902	132	31	1065	219	192	704	1115	57	118	331	506	185	334	47	566
% App. Total	84.7	12.4	2.9		19.6	17.2	63.1		11.3	23.3	65.4		32.7	59	8.3	
PHF	.924	.917	.517	.924	.883	.873	.957	.942	.713	.797	.720	.781	.797	.870	.839	.907

Location: City of Lake Elsinore
 N/S: Collier Avenue
 E/W: Central Avenue



Date: 2/8/2018
 Date: Thursday

PEDESTRIANS

	North Leg Collier Avenue	East Leg Central Avenue	South Leg Collier Avenue	West Leg Central Avenue	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	1	0	0	0	1
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	2	2
7:45 AM	0	0	0	0	0
8:00 AM	1	0	0	1	2
8:15 AM	0	0	0	0	0
8:30 AM	1	0	0	0	1
8:45 AM	2	0	0	1	3
TOTAL VOLUMES:	5	0	0	4	9

	North Leg Collier Avenue	East Leg Central Avenue	South Leg Collier Avenue	West Leg Central Avenue	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	0	1	1
4:15 PM	2	0	0	0	2
4:30 PM	1	0	0	0	1
4:45 PM	0	0	0	0	0
5:00 PM	2	0	0	2	4
5:15 PM	0	0	0	4	4
5:30 PM	0	0	0	0	0
5:45 PM	1	0	0	2	3
TOTAL VOLUMES:	6	0	0	9	15

Location: City of Lake Elsinore
 N/S: Collier Avenue
 E/W: Central Avenue



Date: 2/8/2018
 Date: Thursday

BICYCLES

	Southbound Collier Avenue			Westbound Central Avenue			Northbound Collier Avenue			Eastbound Central Avenue			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	2	0	0	0	0	0	1	0	0	0	0	3
7:15 AM	0	0	0	1	0	0	0	0	0	0	1	0	2
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	1	0	0	1	0	0	1	0	0	0	0	3
8:00 AM	0	0	0	0	0	0	0	0	1	0	0	0	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	3	0	1	1	0	0	2	1	0	1	0	9

	Southbound Collier Avenue			Westbound Central Avenue			Northbound Collier Avenue			Eastbound Central Avenue			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	1	1	0	0	0	0	1	0	3
4:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	1
4:45 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	2	1	0	0	0	0	2	0	5

City of Lake Elsinore
N/S: I-15 Southbound Ramps
E/W: Nichols Road
Weather: Clear

File Name : 04_LKE_15S_Nichols AM
Site Code : 05118103
Start Date : 2/8/2018
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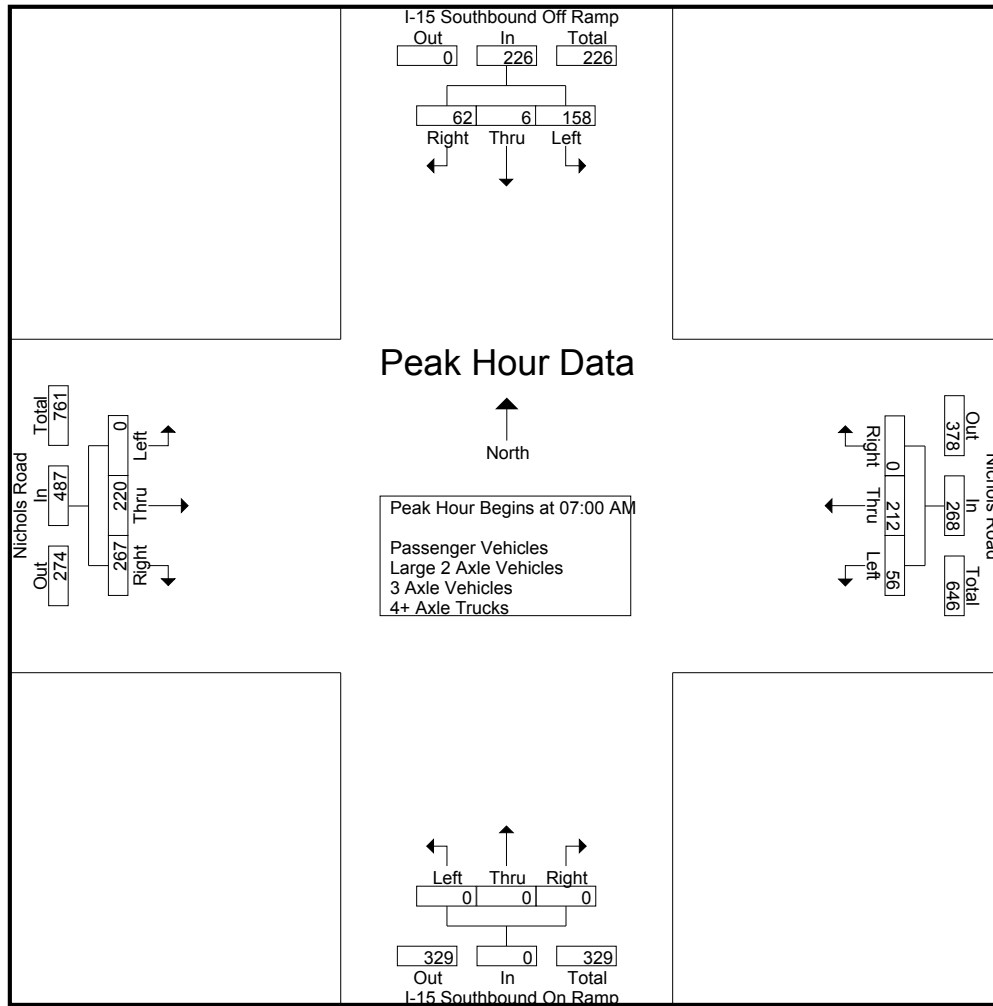
Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	I-15 Southbound Off Ramp Southbound				Nichols Road Westbound				I-15 Southbound On Ramp Northbound				Nichols Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	86	3	11	100	17	63	0	80	0	0	0	0	0	98	48	146	326
07:15 AM	53	2	15	70	14	73	0	87	0	0	0	0	0	63	60	123	280
07:30 AM	9	1	17	27	18	51	0	69	0	0	0	0	0	29	89	118	214
07:45 AM	10	0	19	29	7	25	0	32	0	0	0	0	0	30	70	100	161
Total	158	6	62	226	56	212	0	268	0	0	0	0	0	220	267	487	981
08:00 AM	4	0	12	16	8	35	0	43	0	0	0	0	0	24	53	77	136
08:15 AM	14	0	10	24	8	26	0	34	0	0	0	0	0	25	62	87	145
08:30 AM	8	0	18	26	10	34	0	44	0	0	0	0	0	21	60	81	151
08:45 AM	4	1	18	23	9	40	0	49	0	0	0	0	0	32	58	90	162
Total	30	1	58	89	35	135	0	170	0	0	0	0	0	102	233	335	594
Grand Total	188	7	120	315	91	347	0	438	0	0	0	0	0	322	500	822	1575
Apprch %	59.7	2.2	38.1		20.8	79.2	0		0	0	0		0	39.2	60.8		
Total %	11.9	0.4	7.6	20	5.8	22	0	27.8	0	0	0	0	0	20.4	31.7	52.2	
Passenger Vehicles	166	2	104	272	61	326	0	387	0	0	0	0	0	308	485	793	1452
% Passenger Vehicles	88.3	28.6	86.7	86.3	67	93.9	0	88.4	0	0	0	0	0	95.7	97	96.5	92.2
Large 2 Axle Vehicles	5	0	10	15	6	9	0	15	0	0	0	0	0	5	11	16	46
% Large 2 Axle Vehicles	2.7	0	8.3	4.8	6.6	2.6	0	3.4	0	0	0	0	0	1.6	2.2	1.9	2.9
3 Axle Vehicles	2	0	4	6	1	1	0	2	0	0	0	0	0	0	0	0	8
% 3 Axle Vehicles	1.1	0	3.3	1.9	1.1	0.3	0	0.5	0	0	0	0	0	0	0	0	0.5
4+ Axle Trucks	15	5	2	22	23	11	0	34	0	0	0	0	0	9	4	13	69
% 4+ Axle Trucks	8	71.4	1.7	7	25.3	3.2	0	7.8	0	0	0	0	0	2.8	0.8	1.6	4.4

	I-15 Southbound Off Ramp Southbound				Nichols Road Westbound				I-15 Southbound On Ramp Northbound				Nichols Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	86	3	11	100	17	63	0	80	0	0	0	0	0	98	48	146	326
07:15 AM	53	2	15	70	14	73	0	87	0	0	0	0	0	63	60	123	280
07:30 AM	9	1	17	27	18	51	0	69	0	0	0	0	0	29	89	118	214
07:45 AM	10	0	19	29	7	25	0	32	0	0	0	0	0	30	70	100	161
Total Volume	158	6	62	226	56	212	0	268	0	0	0	0	0	220	267	487	981
% App. Total	69.9	2.7	27.4		20.9	79.1	0		0	0	0		0	45.2	54.8		
PHF	.459	.500	.816	.565	.778	.726	.000	.770	.000	.000	.000	.000	.000	.561	.750	.834	.752

City of Lake Elsinore
N/S: I-15 Southbound Ramps
E/W: Nichols Road
Weather: Clear

File Name : 04_LKE_15S_Nichols AM
Site Code : 05118103
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Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM				07:00 AM				07:00 AM				07:00 AM			
+0 mins.	86	3	11	100	17	63	0	80	0	0	0	0	0	98	48	146
+15 mins.	53	2	15	70	14	73	0	87	0	0	0	0	0	63	60	123
+30 mins.	9	1	17	27	18	51	0	69	0	0	0	0	0	29	89	118
+45 mins.	10	0	19	29	7	25	0	32	0	0	0	0	0	30	70	100
Total Volume	158	6	62	226	56	212	0	268	0	0	0	0	0	220	267	487
% App. Total	69.9	2.7	27.4		20.9	79.1	0		0	0	0		0	45.2	54.8	
PHF	.459	.500	.816	.565	.778	.726	.000	.770	.000	.000	.000	.000	.000	.561	.750	.834

City of Lake Elsinore
N/S: I-15 Southbound Ramps
E/W: Nichols Road
Weather: Clear

File Name : 04_LKE_15S_Nichols AM
Site Code : 05118103
Start Date : 2/8/2018
Page No : 1

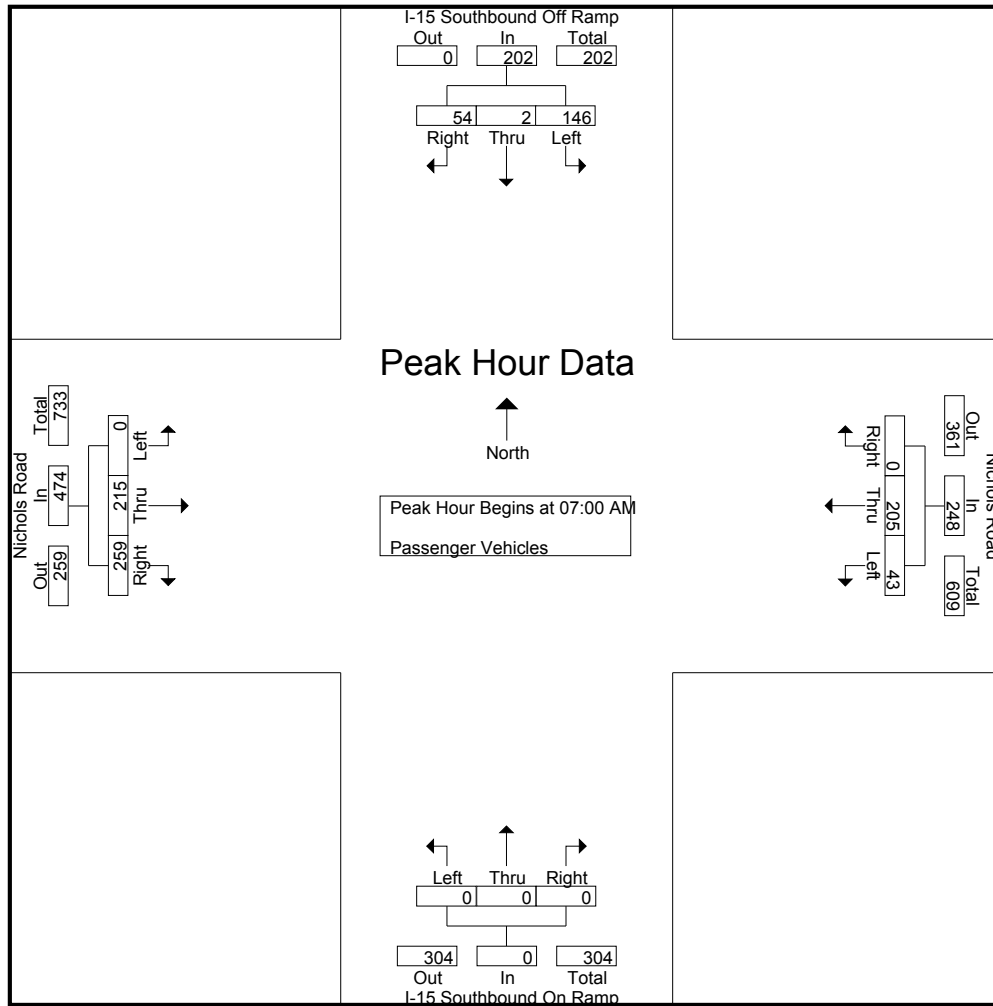
Groups Printed- Passenger Vehicles

	I-15 Southbound Off Ramp Southbound				Nichols Road Westbound				I-15 Southbound On Ramp Northbound				Nichols Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	81	2	7	90	15	60	0	75	0	0	0	0	0	95	46	141	306
07:15 AM	52	0	14	66	12	73	0	85	0	0	0	0	0	62	60	122	273
07:30 AM	8	0	15	23	13	50	0	63	0	0	0	0	0	28	87	115	201
07:45 AM	5	0	18	23	3	22	0	25	0	0	0	0	0	30	66	96	144
Total	146	2	54	202	43	205	0	248	0	0	0	0	0	215	259	474	924
08:00 AM	3	0	11	14	7	31	0	38	0	0	0	0	0	22	53	75	127
08:15 AM	10	0	8	18	2	23	0	25	0	0	0	0	0	20	60	80	123
08:30 AM	5	0	15	20	4	31	0	35	0	0	0	0	0	21	56	77	132
08:45 AM	2	0	16	18	5	36	0	41	0	0	0	0	0	30	57	87	146
Total	20	0	50	70	18	121	0	139	0	0	0	0	0	93	226	319	528
Grand Total	166	2	104	272	61	326	0	387	0	0	0	0	0	308	485	793	1452
Apprch %	61	0.7	38.2		15.8	84.2	0		0	0	0		0	38.8	61.2		
Total %	11.4	0.1	7.2	18.7	4.2	22.5	0	26.7	0	0	0	0	0	21.2	33.4	54.6	

	I-15 Southbound Off Ramp Southbound				Nichols Road Westbound				I-15 Southbound On Ramp Northbound				Nichols Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	81	2	7	90	15	60	0	75	0	0	0	0	0	95	46	141	306
07:15 AM	52	0	14	66	12	73	0	85	0	0	0	0	0	62	60	122	273
07:30 AM	8	0	15	23	13	50	0	63	0	0	0	0	0	28	87	115	201
07:45 AM	5	0	18	23	3	22	0	25	0	0	0	0	0	30	66	96	144
Total Volume	146	2	54	202	43	205	0	248	0	0	0	0	0	215	259	474	924
% App. Total	72.3	1	26.7		17.3	82.7	0		0	0	0		0	45.4	54.6		
PHF	.451	.250	.750	.561	.717	.702	.000	.729	.000	.000	.000	.000	.000	.566	.744	.840	.755

City of Lake Elsinore
N/S: I-15 Southbound Ramps
E/W: Nichols Road
Weather: Clear

File Name : 04_LKE_15S_Nichols AM
Site Code : 05118103
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Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM				07:00 AM				07:00 AM				07:00 AM			
+0 mins.	81	2	7	90	15	60	0	75	0	0	0	0	0	95	46	141
+15 mins.	52	0	14	66	12	73	0	85	0	0	0	0	0	62	60	122
+30 mins.	8	0	15	23	13	50	0	63	0	0	0	0	0	28	87	115
+45 mins.	5	0	18	23	3	22	0	25	0	0	0	0	0	30	66	96
Total Volume	146	2	54	202	43	205	0	248	0	0	0	0	0	215	259	474
% App. Total	72.3	1	26.7		17.3	82.7	0		0	0	0		0	45.4	54.6	
PHF	.451	.250	.750	.561	.717	.702	.000	.729	.000	.000	.000	.000	.000	.566	.744	.840

City of Lake Elsinore
N/S: I-15 Southbound Ramps
E/W: Nichols Road
Weather: Clear

File Name : 04_LKE_15S_Nichols AM
Site Code : 05118103
Start Date : 2/8/2018
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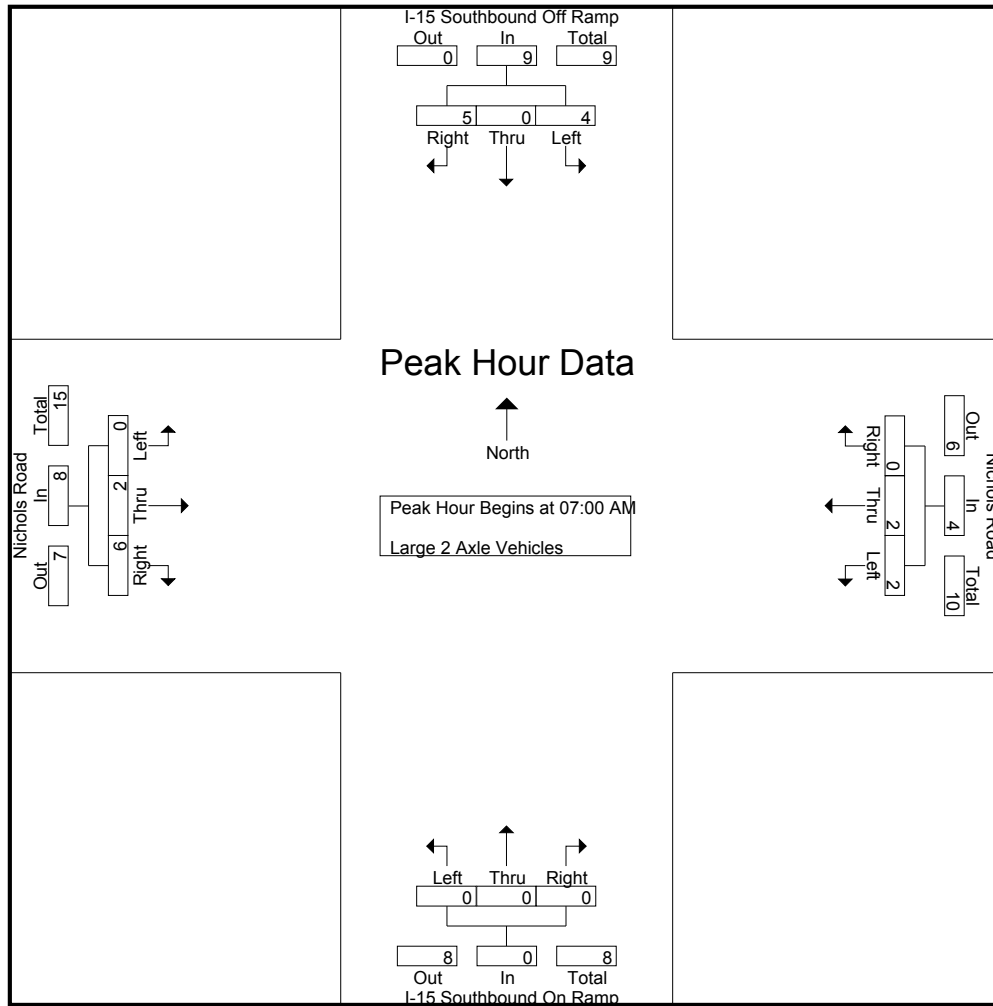
Groups Printed- Large 2 Axle Vehicles

	I-15 Southbound Off Ramp Southbound				Nichols Road Westbound				I-15 Southbound On Ramp Northbound				Nichols Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	3	3	0	1	0	1	0	0	0	0	0	2	2	4	8
07:15 AM	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1
07:30 AM	0	0	1	1	1	0	0	1	0	0	0	0	0	0	2	2	4
07:45 AM	4	0	1	5	0	1	0	1	0	0	0	0	0	0	2	2	8
Total	4	0	5	9	2	2	0	4	0	0	0	0	0	2	6	8	21
08:00 AM	0	0	1	1	1	3	0	4	0	0	0	0	0	0	0	0	5
08:15 AM	0	0	1	1	2	1	0	3	0	0	0	0	0	2	1	3	7
08:30 AM	1	0	2	3	0	2	0	2	0	0	0	0	0	0	3	3	8
08:45 AM	0	0	1	1	1	1	0	2	0	0	0	0	0	1	1	2	5
Total	1	0	5	6	4	7	0	11	0	0	0	0	0	3	5	8	25
Grand Total	5	0	10	15	6	9	0	15	0	0	0	0	0	5	11	16	46
Apprch %	33.3	0	66.7		40	60	0		0	0	0		0	31.2	68.8		
Total %	10.9	0	21.7	32.6	13	19.6	0	32.6	0	0	0	0	0	10.9	23.9	34.8	

	I-15 Southbound Off Ramp Southbound				Nichols Road Westbound				I-15 Southbound On Ramp Northbound				Nichols Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	3	3	0	1	0	1	0	0	0	0	0	2	2	4	8
07:15 AM	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1
07:30 AM	0	0	1	1	1	0	0	1	0	0	0	0	0	0	2	2	4
07:45 AM	4	0	1	5	0	1	0	1	0	0	0	0	0	0	2	2	8
Total Volume	4	0	5	9	2	2	0	4	0	0	0	0	0	2	6	8	21
% App. Total	44.4	0	55.6		50	50	0		0	0	0		0	25	75		
PHF	.250	.000	.417	.450	.500	.500	.000	1.00	.000	.000	.000	.000	.000	.250	.750	.500	.656

City of Lake Elsinore
N/S: I-15 Southbound Ramps
E/W: Nichols Road
Weather: Clear

File Name : 04_LKE_15S_Nichols AM
Site Code : 05118103
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Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM				07:00 AM				07:00 AM				07:00 AM			
+0 mins.	0	0	3	3	0	1	0	1	0	0	0	0	0	2	2	4
+15 mins.	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0
+30 mins.	0	0	1	1	1	0	0	1	0	0	0	0	0	0	2	2
+45 mins.	4	0	1	5	0	1	0	1	0	0	0	0	0	0	2	2
Total Volume	4	0	5	9	2	2	0	4	0	0	0	0	0	2	6	8
% App. Total	44.4	0	55.6		50	50	0		0	0	0		0	25	75	
PHF	.250	.000	.417	.450	.500	.500	.000	1.000	.000	.000	.000	.000	.000	.250	.750	.500

City of Lake Elsinore
N/S: I-15 Southbound Ramps
E/W: Nichols Road
Weather: Clear

File Name : 04_LKE_15S_Nichols AM
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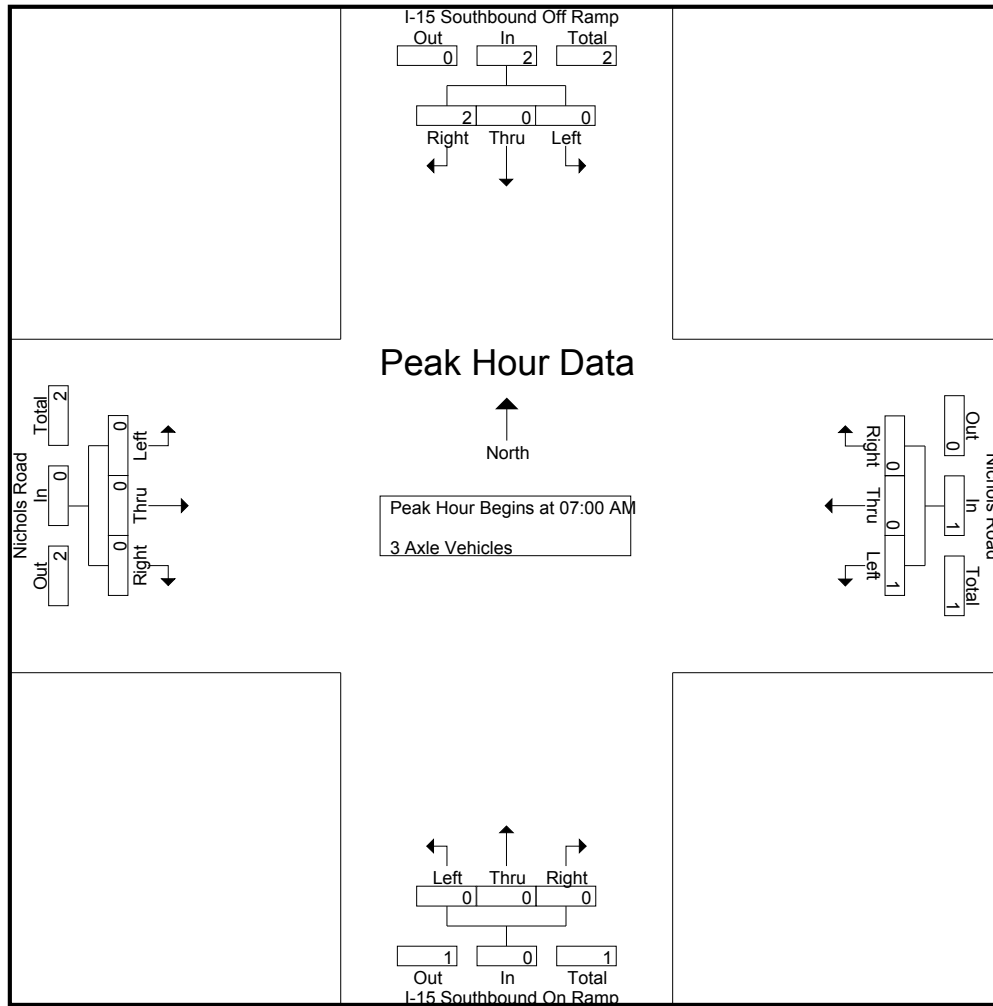
Groups Printed- 3 Axle Vehicles

	I-15 Southbound Off Ramp Southbound				Nichols Road Westbound				I-15 Southbound On Ramp Northbound				Nichols Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1
07:15 AM	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1
Total	0	0	2	2	1	0	0	1	0	0	0	0	0	0	0	0	3
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	1	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	2
08:30 AM	1	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0	2
08:45 AM	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	2	0	2	4	0	1	0	1	0	0	0	0	0	0	0	0	5
Grand Total	2	0	4	6	1	1	0	2	0	0	0	0	0	0	0	0	8
Apprch %	33.3	0	66.7		50	50	0		0	0	0		0	0	0		
Total %	25	0	50	75	12.5	12.5	0	25	0	0	0	0	0	0	0	0	

	I-15 Southbound Off Ramp Southbound				Nichols Road Westbound				I-15 Southbound On Ramp Northbound				Nichols Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1
07:15 AM	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1
Total Volume	0	0	2	2	1	0	0	1	0	0	0	0	0	0	0	0	3
% App. Total	0	0	100		100	0	0		0	0	0		0	0	0		
PHF	.000	.000	.500	.500	.250	.000	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.750

City of Lake Elsinore
N/S: I-15 Southbound Ramps
E/W: Nichols Road
Weather: Clear

File Name : 04_LKE_15S_Nichols AM
Site Code : 05118103
Start Date : 2/8/2018
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Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM				07:00 AM				07:00 AM				07:00 AM			
+0 mins.	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0
Total Volume	0	0	2	2	1	0	0	1	0	0	0	0	0	0	0	0
% App. Total	0	0	100		100	0	0		0	0	0		0	0	0	
PHF	.000	.000	.500	.500	.250	.000	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000

City of Lake Elsinore
N/S: I-15 Southbound Ramps
E/W: Nichols Road
Weather: Clear

File Name : 04_LKE_15S_Nichols AM
Site Code : 05118103
Start Date : 2/8/2018
Page No : 1

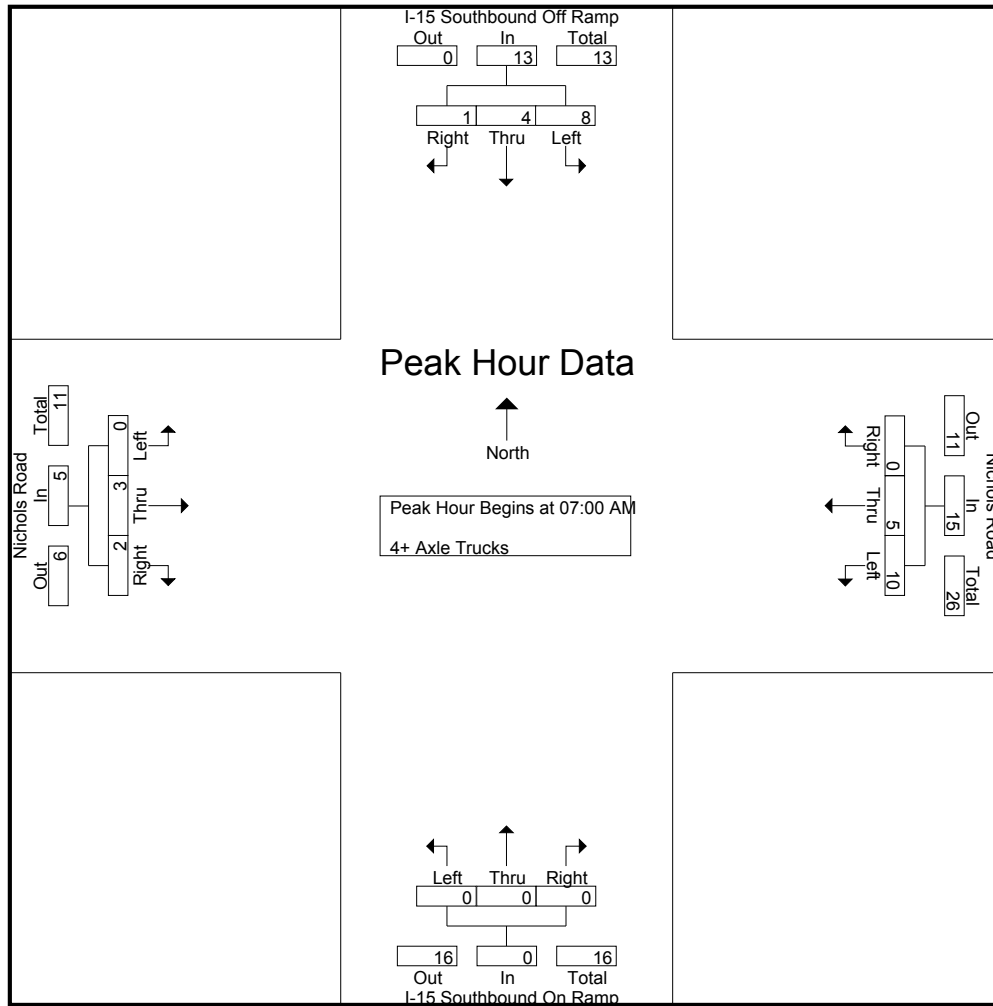
Groups Printed- 4+ Axle Trucks

	I-15 Southbound Off Ramp Southbound				Nichols Road Westbound				I-15 Southbound On Ramp Northbound				Nichols Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	5	1	0	6	2	2	0	4	0	0	0	0	0	1	0	1	11
07:15 AM	1	2	0	3	1	0	0	1	0	0	0	0	0	1	0	1	5
07:30 AM	1	1	1	3	4	1	0	5	0	0	0	0	0	1	0	1	9
07:45 AM	1	0	0	1	3	2	0	5	0	0	0	0	0	0	2	2	8
Total	8	4	1	13	10	5	0	15	0	0	0	0	0	3	2	5	33
08:00 AM	1	0	0	1	0	1	0	1	0	0	0	0	0	2	0	2	4
08:15 AM	3	0	0	3	4	2	0	6	0	0	0	0	0	3	1	4	13
08:30 AM	1	0	1	2	6	0	0	6	0	0	0	0	0	0	1	1	9
08:45 AM	2	1	0	3	3	3	0	6	0	0	0	0	0	1	0	1	10
Total	7	1	1	9	13	6	0	19	0	0	0	0	0	6	2	8	36
Grand Total	15	5	2	22	23	11	0	34	0	0	0	0	0	9	4	13	69
Apprch %	68.2	22.7	9.1		67.6	32.4	0		0	0	0		0	69.2	30.8		
Total %	21.7	7.2	2.9	31.9	33.3	15.9	0	49.3	0	0	0	0	0	13	5.8	18.8	

	I-15 Southbound Off Ramp Southbound				Nichols Road Westbound				I-15 Southbound On Ramp Northbound				Nichols Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	5	1	0	6	2	2	0	4	0	0	0	0	0	1	0	1	11
07:15 AM	1	2	0	3	1	0	0	1	0	0	0	0	0	1	0	1	5
07:30 AM	1	1	1	3	4	1	0	5	0	0	0	0	0	1	0	1	9
07:45 AM	1	0	0	1	3	2	0	5	0	0	0	0	0	0	2	2	8
Total Volume	8	4	1	13	10	5	0	15	0	0	0	0	0	3	2	5	33
% App. Total	61.5	30.8	7.7		66.7	33.3	0		0	0	0		0	60	40		
PHF	.400	.500	.250	.542	.625	.625	.000	.750	.000	.000	.000	.000	.000	.750	.250	.625	.750

City of Lake Elsinore
N/S: I-15 Southbound Ramps
E/W: Nichols Road
Weather: Clear

File Name : 04_LKE_15S_Nichols AM
Site Code : 05118103
Start Date : 2/8/2018
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Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM				07:00 AM				07:00 AM				07:00 AM			
+0 mins.	5	1	0	6	2	2	0	4	0	0	0	0	0	1	0	1
+15 mins.	1	2	0	3	1	0	0	1	0	0	0	0	0	1	0	1
+30 mins.	1	1	1	3	4	1	0	5	0	0	0	0	0	1	0	1
+45 mins.	1	0	0	1	3	2	0	5	0	0	0	0	0	0	2	2
Total Volume	8	4	1	13	10	5	0	15	0	0	0	0	0	3	2	5
% App. Total	61.5	30.8	7.7		66.7	33.3	0		0	0	0		0	60	40	
PHF	.400	.500	.250	.542	.625	.625	.000	.750	.000	.000	.000	.000	.000	.750	.250	.625

City of Lake Elsinore
N/S: I-15 Southbound Ramps
E/W: Nichols Road
Weather: Clear

File Name : 04_LKE_15S_Nichols PM
Site Code : 05118103
Start Date : 2/8/2018
Page No : 1

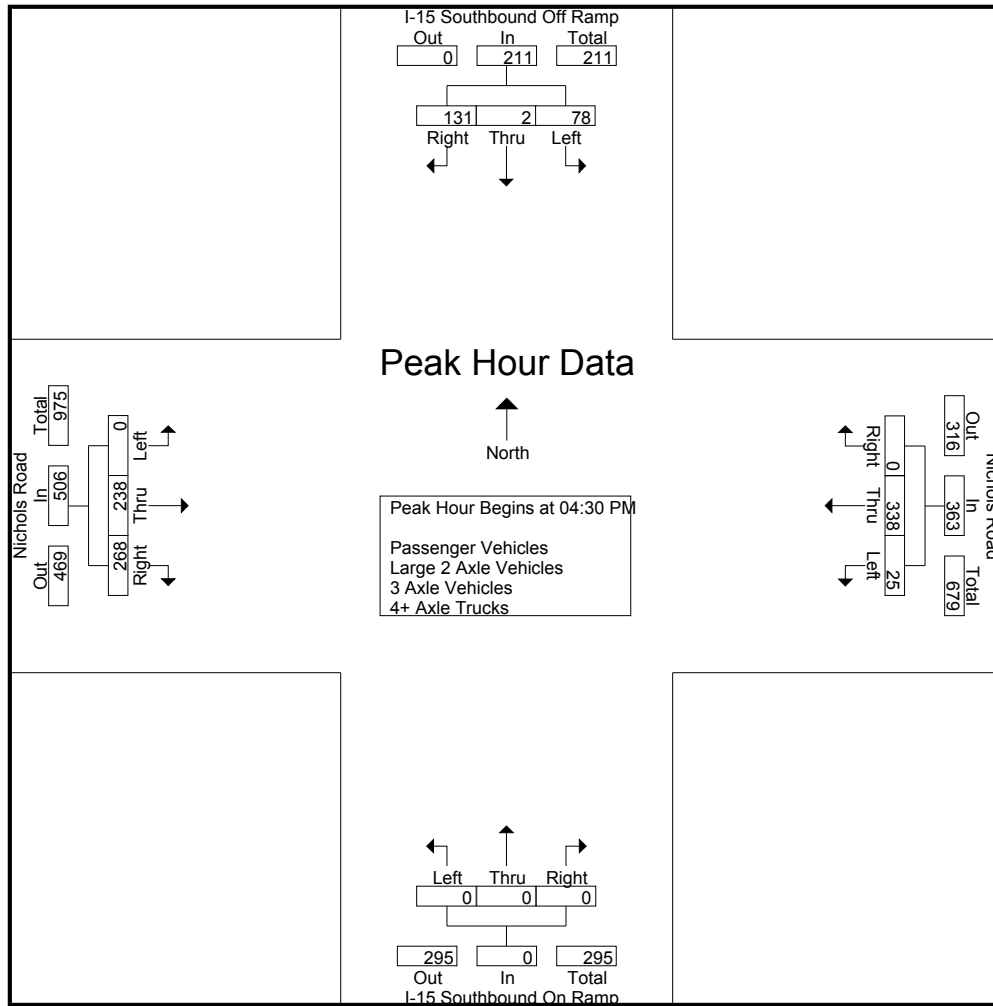
Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	I-15 Southbound Off Ramp Southbound				Nichols Road Westbound				I-15 Southbound On Ramp Northbound				Nichols Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	17	0	27	44	2	85	0	87	0	0	0	0	0	61	48	109	240
04:15 PM	18	0	20	38	10	85	0	95	0	0	0	0	0	55	48	103	236
04:30 PM	18	0	36	54	6	83	0	89	0	0	0	0	0	50	65	115	258
04:45 PM	22	2	39	63	5	92	0	97	0	0	0	0	0	63	65	128	288
Total	75	2	122	199	23	345	0	368	0	0	0	0	0	229	226	455	1022
05:00 PM	21	0	28	49	3	72	0	75	0	0	0	0	0	74	69	143	267
05:15 PM	17	0	28	45	11	91	0	102	0	0	0	0	0	51	69	120	267
05:30 PM	11	0	27	38	1	94	0	95	0	0	0	0	0	43	79	122	255
05:45 PM	17	0	34	51	5	95	0	100	0	0	0	0	0	49	50	99	250
Total	66	0	117	183	20	352	0	372	0	0	0	0	0	217	267	484	1039
Grand Total	141	2	239	382	43	697	0	740	0	0	0	0	0	446	493	939	2061
Apprch %	36.9	0.5	62.6		5.8	94.2	0		0	0	0		0	47.5	52.5		
Total %	6.8	0.1	11.6	18.5	2.1	33.8	0	35.9	0	0	0	0	0	21.6	23.9	45.6	
Passenger Vehicles	136	1	232	369	40	688	0	728	0	0	0	0	0	429	473	902	1999
% Passenger Vehicles	96.5	50	97.1	96.6	93	98.7	0	98.4	0	0	0	0	0	96.2	95.9	96.1	97
Large 2 Axle Vehicles	4	0	7	11	1	6	0	7	0	0	0	0	0	10	16	26	44
% Large 2 Axle Vehicles	2.8	0	2.9	2.9	2.3	0.9	0	0.9	0	0	0	0	0	2.2	3.2	2.8	2.1
3 Axle Vehicles	1	0	0	1	0	1	0	1	0	0	0	0	0	3	2	5	7
% 3 Axle Vehicles	0.7	0	0	0.3	0	0.1	0	0.1	0	0	0	0	0	0.7	0.4	0.5	0.3
4+ Axle Trucks	0	1	0	1	2	2	0	4	0	0	0	0	0	4	2	6	11
% 4+ Axle Trucks	0	50	0	0.3	4.7	0.3	0	0.5	0	0	0	0	0	0.9	0.4	0.6	0.5

	I-15 Southbound Off Ramp Southbound				Nichols Road Westbound				I-15 Southbound On Ramp Northbound				Nichols Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	18	0	36	54	6	83	0	89	0	0	0	0	0	50	65	115	258
04:45 PM	22	2	39	63	5	92	0	97	0	0	0	0	0	63	65	128	288
05:00 PM	21	0	28	49	3	72	0	75	0	0	0	0	0	74	69	143	267
05:15 PM	17	0	28	45	11	91	0	102	0	0	0	0	0	51	69	120	267
Total Volume	78	2	131	211	25	338	0	363	0	0	0	0	0	238	268	506	1080
% App. Total	37	0.9	62.1		6.9	93.1	0		0	0	0		0	47	53		
PHF	.886	.250	.840	.837	.568	.918	.000	.890	.000	.000	.000	.000	.000	.804	.971	.885	.938

City of Lake Elsinore
N/S: I-15 Southbound Ramps
E/W: Nichols Road
Weather: Clear

File Name : 04_LKE_15S_Nichols PM
Site Code : 05118103
Start Date : 2/8/2018
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Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM				05:00 PM				04:00 PM				04:45 PM			
+0 mins.	18	0	36	54	3	72	0	75	0	0	0	0	0	63	65	128
+15 mins.	22	2	39	63	11	91	0	102	0	0	0	0	0	74	69	143
+30 mins.	21	0	28	49	1	94	0	95	0	0	0	0	0	51	69	120
+45 mins.	17	0	28	45	5	95	0	100	0	0	0	0	0	43	79	122
Total Volume	78	2	131	211	20	352	0	372	0	0	0	0	0	231	282	513
% App. Total	37	0.9	62.1		5.4	94.6	0		0	0	0	0	0	45	55	
PHF	.886	.250	.840	.837	.455	.926	.000	.912	.000	.000	.000	.000	.000	.780	.892	.897

City of Lake Elsinore
N/S: I-15 Southbound Ramps
E/W: Nichols Road
Weather: Clear

File Name : 04_LKE_15S_Nichols PM
Site Code : 05118103
Start Date : 2/8/2018
Page No : 1

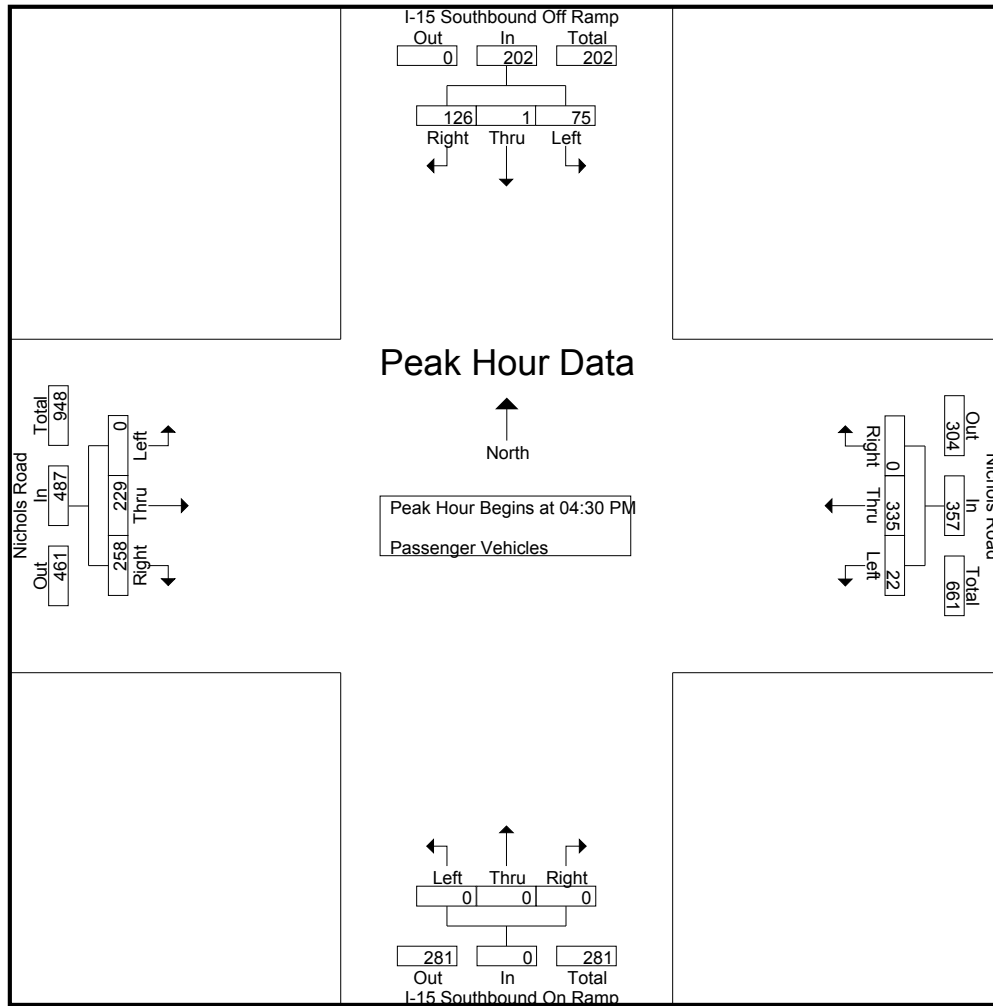
Groups Printed- Passenger Vehicles

	I-15 Southbound Off Ramp Southbound				Nichols Road Westbound				I-15 Southbound On Ramp Northbound				Nichols Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	17	0	27	44	2	83	0	85	0	0	0	0	0	55	46	101	230
04:15 PM	17	0	20	37	10	82	0	92	0	0	0	0	0	55	46	101	230
04:30 PM	17	0	34	51	3	83	0	86	0	0	0	0	0	47	60	107	244
04:45 PM	21	1	37	59	5	91	0	96	0	0	0	0	0	59	63	122	277
Total	72	1	118	191	20	339	0	359	0	0	0	0	0	216	215	431	981
05:00 PM	20	0	28	48	3	71	0	74	0	0	0	0	0	73	66	139	261
05:15 PM	17	0	27	44	11	90	0	101	0	0	0	0	0	50	69	119	264
05:30 PM	10	0	27	37	1	94	0	95	0	0	0	0	0	43	77	120	252
05:45 PM	17	0	32	49	5	94	0	99	0	0	0	0	0	47	46	93	241
Total	64	0	114	178	20	349	0	369	0	0	0	0	0	213	258	471	1018
Grand Total	136	1	232	369	40	688	0	728	0	0	0	0	0	429	473	902	1999
Apprch %	36.9	0.3	62.9		5.5	94.5	0		0	0	0		0	47.6	52.4		
Total %	6.8	0.1	11.6	18.5	2	34.4	0	36.4	0	0	0	0	0	21.5	23.7	45.1	

	I-15 Southbound Off Ramp Southbound				Nichols Road Westbound				I-15 Southbound On Ramp Northbound				Nichols Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	17	0	34	51	3	83	0	86	0	0	0	0	0	47	60	107	244
04:45 PM	21	1	37	59	5	91	0	96	0	0	0	0	0	59	63	122	277
05:00 PM	20	0	28	48	3	71	0	74	0	0	0	0	0	73	66	139	261
05:15 PM	17	0	27	44	11	90	0	101	0	0	0	0	0	50	69	119	264
Total Volume	75	1	126	202	22	335	0	357	0	0	0	0	0	229	258	487	1046
% App. Total	37.1	0.5	62.4		6.2	93.8	0		0	0	0		0	47	53		
PHF	.893	.250	.851	.856	.500	.920	.000	.884	.000	.000	.000	.000	.000	.784	.935	.876	.944

City of Lake Elsinore
N/S: I-15 Southbound Ramps
E/W: Nichols Road
Weather: Clear

File Name : 04_LKE_15S_Nichols PM
Site Code : 05118103
Start Date : 2/8/2018
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Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM				04:30 PM				04:30 PM				04:30 PM			
+0 mins.	17	0	34	51	3	83	0	86	0	0	0	0	0	47	60	107
+15 mins.	21	1	37	59	5	91	0	96	0	0	0	0	0	59	63	122
+30 mins.	20	0	28	48	3	71	0	74	0	0	0	0	0	73	66	139
+45 mins.	17	0	27	44	11	90	0	101	0	0	0	0	0	50	69	119
Total Volume	75	1	126	202	22	335	0	357	0	0	0	0	0	229	258	487
% App. Total	37.1	0.5	62.4		6.2	93.8	0		0	0	0	0	0	47	53	
PHF	.893	.250	.851	.856	.500	.920	.000	.884	.000	.000	.000	.000	.000	.784	.935	.876

City of Lake Elsinore
N/S: I-15 Southbound Ramps
E/W: Nichols Road
Weather: Clear

File Name : 04_LKE_15S_Nichols PM
Site Code : 05118103
Start Date : 2/8/2018
Page No : 1

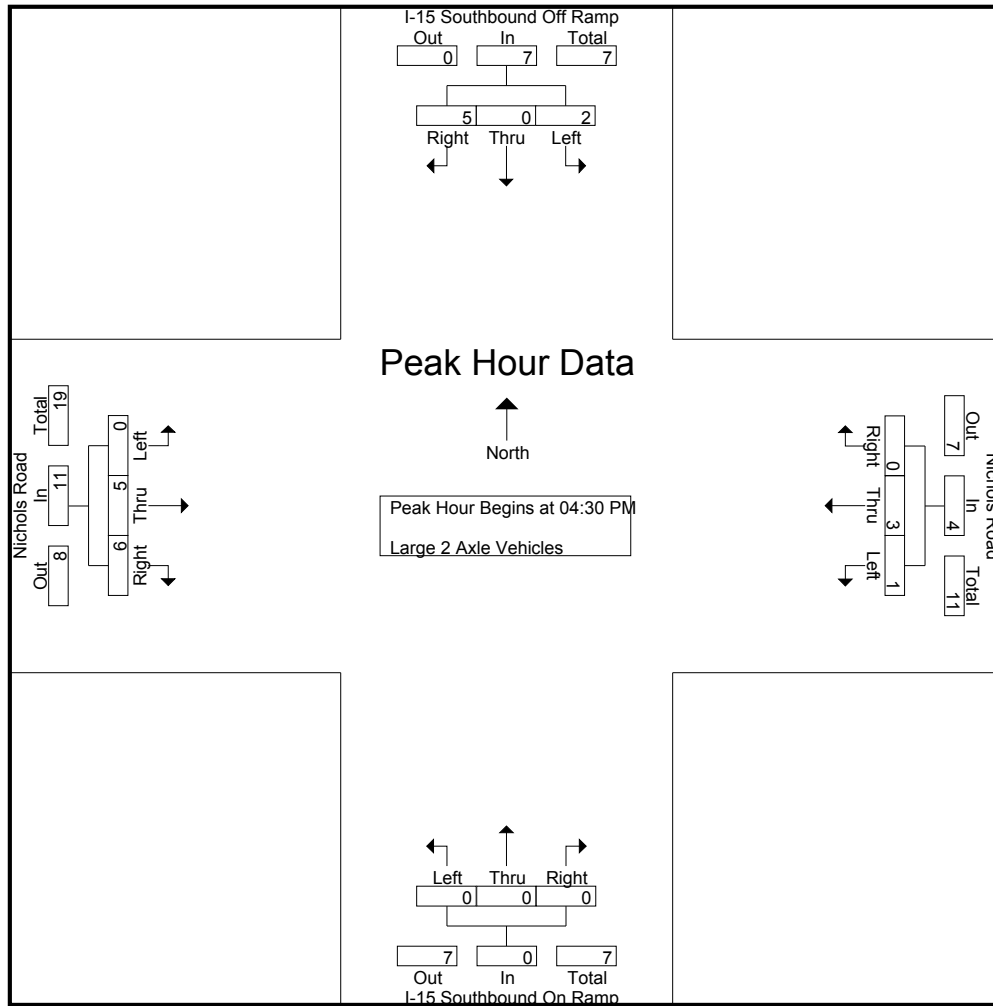
Groups Printed- Large 2 Axle Vehicles

	I-15 Southbound Off Ramp Southbound				Nichols Road Westbound				I-15 Southbound On Ramp Northbound				Nichols Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	2	0	2	0	0	0	0	0	4	2	6	8
04:15 PM	1	0	0	1	0	1	0	1	0	0	0	0	0	0	2	2	4
04:30 PM	1	0	2	3	1	0	0	1	0	0	0	0	0	2	2	4	8
04:45 PM	0	0	2	2	0	1	0	1	0	0	0	0	0	1	2	3	6
Total	2	0	4	6	1	4	0	5	0	0	0	0	0	7	8	15	26
05:00 PM	1	0	0	1	0	1	0	1	0	0	0	0	0	1	2	3	5
05:15 PM	0	0	1	1	0	1	0	1	0	0	0	0	0	1	0	1	3
05:30 PM	1	0	0	1	0	0	0	0	0	0	0	0	0	0	2	2	3
05:45 PM	0	0	2	2	0	0	0	0	0	0	0	0	0	1	4	5	7
Total	2	0	3	5	0	2	0	2	0	0	0	0	0	3	8	11	18
Grand Total	4	0	7	11	1	6	0	7	0	0	0	0	0	10	16	26	44
Apprch %	36.4	0	63.6		14.3	85.7	0		0	0	0		0	38.5	61.5		
Total %	9.1	0	15.9	25	2.3	13.6	0	15.9	0	0	0	0	0	22.7	36.4	59.1	

	I-15 Southbound Off Ramp Southbound				Nichols Road Westbound				I-15 Southbound On Ramp Northbound				Nichols Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	1	0	2	3	1	0	0	1	0	0	0	0	0	2	2	4	8
04:45 PM	0	0	2	2	0	1	0	1	0	0	0	0	0	1	2	3	6
05:00 PM	1	0	0	1	0	1	0	1	0	0	0	0	0	1	2	3	5
05:15 PM	0	0	1	1	0	1	0	1	0	0	0	0	0	1	0	1	3
Total Volume	2	0	5	7	1	3	0	4	0	0	0	0	0	5	6	11	22
% App. Total	28.6	0	71.4		25	75	0		0	0	0		0	45.5	54.5		
PHF	.500	.000	.625	.583	.250	.750	.000	1.00	.000	.000	.000	.000	.000	.625	.750	.688	.688

City of Lake Elsinore
N/S: I-15 Southbound Ramps
E/W: Nichols Road
Weather: Clear

File Name : 04_LKE_15S_Nichols PM
Site Code : 05118103
Start Date : 2/8/2018
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Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM				04:30 PM				04:30 PM				04:30 PM			
+0 mins.	1	0	2	3	1	0	0	1	0	0	0	0	0	2	2	4
+15 mins.	0	0	2	2	0	1	0	1	0	0	0	0	0	1	2	3
+30 mins.	1	0	0	1	0	1	0	1	0	0	0	0	0	1	2	3
+45 mins.	0	0	1	1	0	1	0	1	0	0	0	0	0	1	0	1
Total Volume	2	0	5	7	1	3	0	4	0	0	0	0	0	5	6	11
% App. Total	28.6	0	71.4		25	75	0		0	0	0		0	45.5	54.5	
PHF	.500	.000	.625	.583	.250	.750	.000	1.000	.000	.000	.000	.000	.000	.625	.750	.688

City of Lake Elsinore
N/S: I-15 Southbound Ramps
E/W: Nichols Road
Weather: Clear

File Name : 04_LKE_15S_Nichols PM
Site Code : 05118103
Start Date : 2/8/2018
Page No : 1

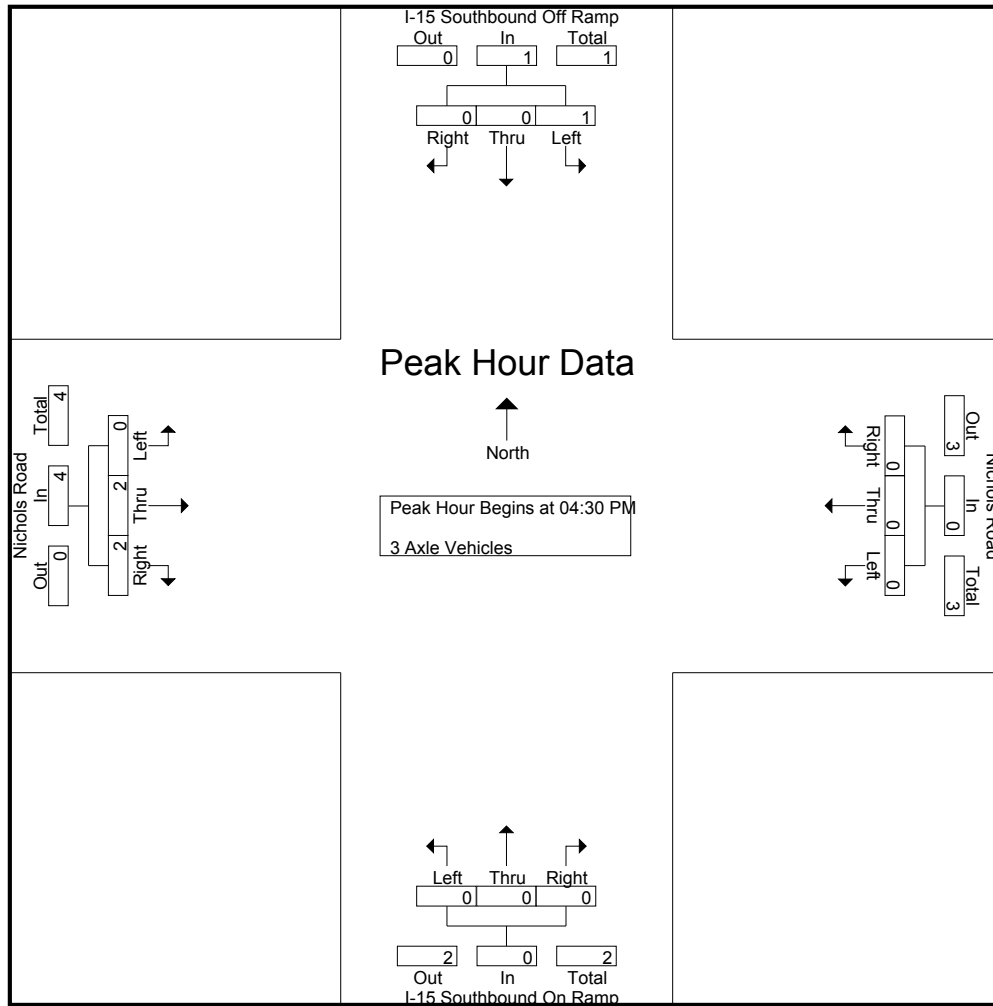
Groups Printed- 3 Axle Vehicles

	I-15 Southbound Off Ramp Southbound				Nichols Road Westbound				I-15 Southbound On Ramp Northbound				Nichols Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
04:15 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	2
04:45 PM	1	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1	2
Total	1	0	0	1	0	1	0	1	0	0	0	0	0	3	1	4	6
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
Grand Total	1	0	0	1	0	1	0	1	0	0	0	0	0	3	2	5	7
Apprch %	100	0	0		0	100	0		0	0	0		0	60	40		
Total %	14.3	0	0	14.3	0	14.3	0	14.3	0	0	0	0	0	42.9	28.6	71.4	

	I-15 Southbound Off Ramp Southbound				Nichols Road Westbound				I-15 Southbound On Ramp Northbound				Nichols Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	2
04:45 PM	1	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1	2
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	1	0	0	1	0	0	0	0	0	0	0	0	0	2	2	4	5
% App. Total	100	0	0		0	0	0		0	0	0		0	50	50		
PHF	.250	.000	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.500	.500	.500	.625

City of Lake Elsinore
N/S: I-15 Southbound Ramps
E/W: Nichols Road
Weather: Clear

File Name : 04_LKE_15S_Nichols PM
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Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM				04:30 PM				04:30 PM				04:30 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2
+15 mins.	1	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	1	0	0	1	0	0	0	0	0	0	0	0	0	2	2	4
% App. Total	100	0	0		0	0	0		0	0	0		0	50	50	
PHF	.250	.000	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.500	.500	.500

City of Lake Elsinore
N/S: I-15 Southbound Ramps
E/W: Nichols Road
Weather: Clear

File Name : 04_LKE_15S_Nichols PM
Site Code : 05118103
Start Date : 2/8/2018
Page No : 1

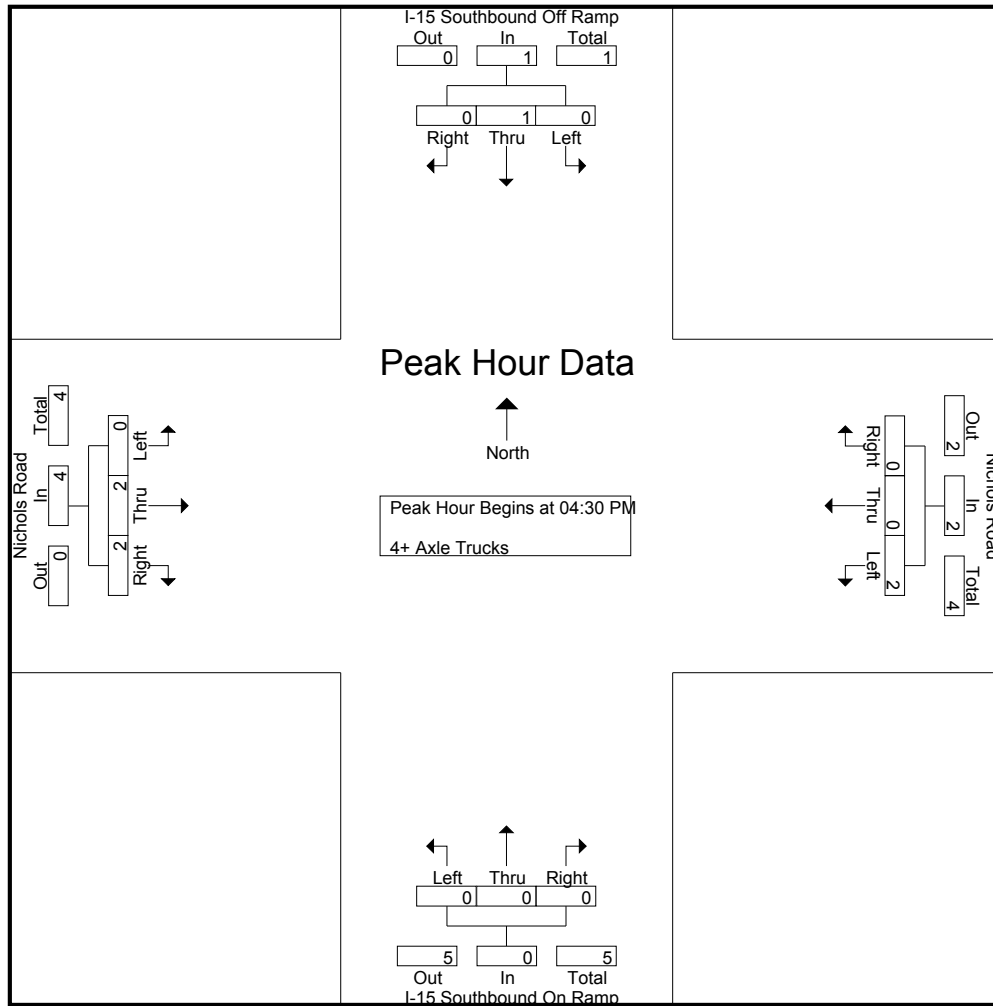
Groups Printed- 4+ Axle Trucks

	I-15 Southbound Off Ramp Southbound				Nichols Road Westbound				I-15 Southbound On Ramp Northbound				Nichols Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
04:15 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
04:30 PM	0	0	0	0	2	0	0	2	0	0	0	0	0	0	2	2	4
04:45 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	2	0	2	3
Total	0	1	0	1	2	1	0	3	0	0	0	0	0	3	2	5	9
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	2
Total	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	2
Grand Total	0	1	0	1	2	2	0	4	0	0	0	0	0	4	2	6	11
Apprch %	0	100	0		50	50	0		0	0	0		0	66.7	33.3		
Total %	0	9.1	0	9.1	18.2	18.2	0	36.4	0	0	0	0	0	36.4	18.2	54.5	

	I-15 Southbound Off Ramp Southbound				Nichols Road Westbound				I-15 Southbound On Ramp Northbound				Nichols Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	0	0	0	2	0	0	2	0	0	0	0	0	0	2	2	4
04:45 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	2	0	2	3
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	0	1	2	0	0	2	0	0	0	0	0	2	2	4	7
% App. Total	0	100	0		100	0	0		0	0	0		0	50	50		
PHF	.000	.250	.000	.250	.250	.000	.000	.250	.000	.000	.000	.000	.000	.250	.250	.500	.438

City of Lake Elsinore
N/S: I-15 Southbound Ramps
E/W: Nichols Road
Weather: Clear

File Name : 04_LKE_15S_Nichols PM
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Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM				04:30 PM				04:30 PM				04:30 PM			
+0 mins.	0	0	0	0	2	0	0	2	0	0	0	0	0	0	2	2
+15 mins.	0	1	0	1	0	0	0	0	0	0	0	0	0	2	0	2
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	0	1	2	0	0	2	0	0	0	0	0	2	2	4
% App. Total	0	100	0		100	0	0		0	0	0		0	50	50	
PHF	.000	.250	.000	.250	.250	.000	.000	.250	.000	.000	.000	.000	.000	.250	.250	.500

Location: Lake Elsinore
 N/S: I-15 Southbound Ramps
 E/W: Nichols Road



Date: 2/8/2018
 Date: Thursday

PEDESTRIANS

	North Leg I-15 Southbound Ramps	East Leg Nichols Road	South Leg I-15 Southbound Ramps	West Leg Nichols Road	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0

	North Leg I-15 Southbound Ramps	East Leg Nichols Road	South Leg I-15 Southbound Ramps	West Leg Nichols Road	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0

Location: Lake Elsinore
 N/S: I-15 Southbound
 E/W: Nichols Road



Date: 2/8/2018
 Date: Thursday

BICYCLES

	Southbound I-15 Southbound Ramps			Westbound Nichols Road			Northbound I-15 Southbound Ramps			Eastbound Nichols Road			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	1	0	0	0	0	0	0	0	1

	Southbound I-15 Southbound Ramps			Westbound Nichols Road			Northbound I-15 Southbound Ramps			Eastbound Nichols Road			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	1
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	0	0	0	1	0	1

City of Lake Elsinore
N/S: I-15 Northbound Ramps
E/W: Nichols Road
Weather: Clear

File Name : 05_LKE_15N_Nichols AM
Site Code : 05118103
Start Date : 2/8/2018
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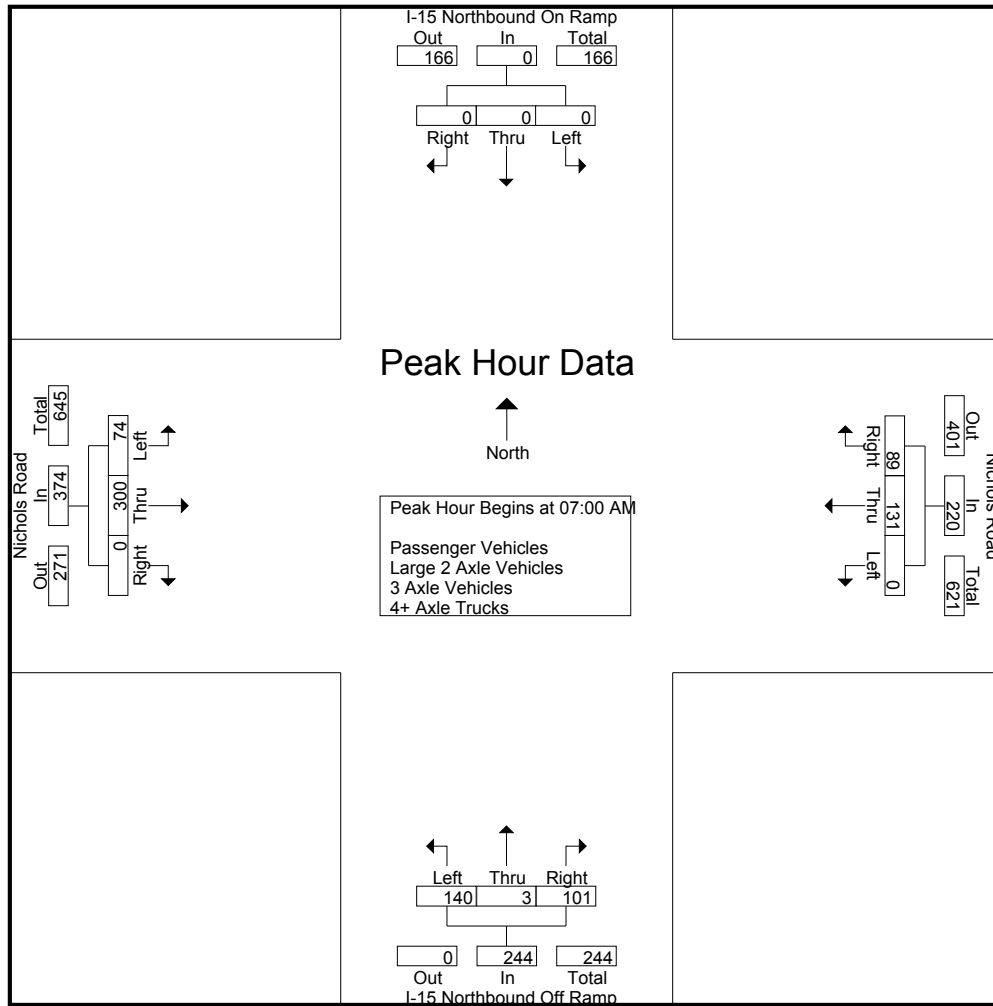
Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	I-15 Northbound On Ramp Southbound				Nichols Road Westbound				I-15 Northbound Off Ramp Northbound				Nichols Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	41	20	61	40	0	59	99	21	158	0	179	339
07:15 AM	0	0	0	0	0	35	36	71	52	2	25	79	16	104	0	120	270
07:30 AM	0	0	0	0	0	42	30	72	29	1	10	40	17	21	0	38	150
07:45 AM	0	0	0	0	0	13	3	16	19	0	7	26	20	17	0	37	79
Total	0	0	0	0	0	131	89	220	140	3	101	244	74	300	0	374	838
08:00 AM	0	0	0	0	0	12	3	15	32	0	5	37	15	13	0	28	80
08:15 AM	0	0	0	0	0	12	6	18	23	1	10	34	18	23	0	41	93
08:30 AM	0	0	0	0	0	15	4	19	27	0	1	28	17	13	0	30	77
08:45 AM	0	0	0	0	0	15	9	24	39	1	7	47	22	15	0	37	108
Total	0	0	0	0	0	54	22	76	121	2	23	146	72	64	0	136	358
Grand Total	0	0	0	0	0	185	111	296	261	5	124	390	146	364	0	510	1196
Apprch %	0	0	0		0	62.5	37.5		66.9	1.3	31.8		28.6	71.4	0		
Total %	0	0	0	0	0	15.5	9.3	24.7	21.8	0.4	10.4	32.6	12.2	30.4	0	42.6	
Passenger Vehicles	0	0	0	0	0	154	100	254	242	4	102	348	133	339	0	472	1074
% Passenger Vehicles	0	0	0	0	0	83.2	90.1	85.8	92.7	80	82.3	89.2	91.1	93.1	0	92.5	89.8
Large 2 Axle Vehicles	0	0	0	0	0	5	1	6	8	1	2	11	5	7	0	12	29
% Large 2 Axle Vehicles	0	0	0	0	0	2.7	0.9	2	3.1	20	1.6	2.8	3.4	1.9	0	2.4	2.4
3 Axle Vehicles	0	0	0	0	0	1	2	3	1	0	1	2	0	2	0	2	7
% 3 Axle Vehicles	0	0	0	0	0	0.5	1.8	1	0.4	0	0.8	0.5	0	0.5	0	0.4	0.6
4+ Axle Trucks	0	0	0	0	0	25	8	33	10	0	19	29	8	16	0	24	86
% 4+ Axle Trucks	0	0	0	0	0	13.5	7.2	11.1	3.8	0	15.3	7.4	5.5	4.4	0	4.7	7.2

	I-15 Northbound On Ramp Southbound				Nichols Road Westbound				I-15 Northbound Off Ramp Northbound				Nichols Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	0	0	0	41	20	61	40	0	59	99	21	158	0	179	339
07:15 AM	0	0	0	0	0	35	36	71	52	2	25	79	16	104	0	120	270
07:30 AM	0	0	0	0	0	42	30	72	29	1	10	40	17	21	0	38	150
07:45 AM	0	0	0	0	0	13	3	16	19	0	7	26	20	17	0	37	79
Total Volume	0	0	0	0	0	131	89	220	140	3	101	244	74	300	0	374	838
% App. Total	0	0	0		0	59.5	40.5		57.4	1.2	41.4		19.8	80.2	0		
PHF	.000	.000	.000	.000	.000	.780	.618	.764	.673	.375	.428	.616	.881	.475	.000	.522	.618

City of Lake Elsinore
N/S: I-15 Northbound Ramps
E/W: Nichols Road
Weather: Clear

File Name : 05_LKE_15N_Nichols AM
Site Code : 05118103
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Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	07:00 AM				07:00 AM				07:00 AM				07:00 AM			
+0 mins.	0	0	0	0	0	41	20	61	40	0	59	99	21	158	0	179
+15 mins.	0	0	0	0	0	35	36	71	52	2	25	79	16	104	0	120
+30 mins.	0	0	0	0	0	42	30	72	29	1	10	40	17	21	0	38
+45 mins.	0	0	0	0	0	13	3	16	19	0	7	26	20	17	0	37
Total Volume	0	0	0	0	0	131	89	220	140	3	101	244	74	300	0	374
% App. Total	0	0	0	0	0	59.5	40.5		57.4	1.2	41.4		19.8	80.2	0	
PHF	.000	.000	.000	.000	.000	.780	.618	.764	.673	.375	.428	.616	.881	.475	.000	.522

City of Lake Elsinore
N/S: I-15 Northbound Ramps
E/W: Nichols Road
Weather: Clear

File Name : 05_LKE_15N_Nichols AM
Site Code : 05118103
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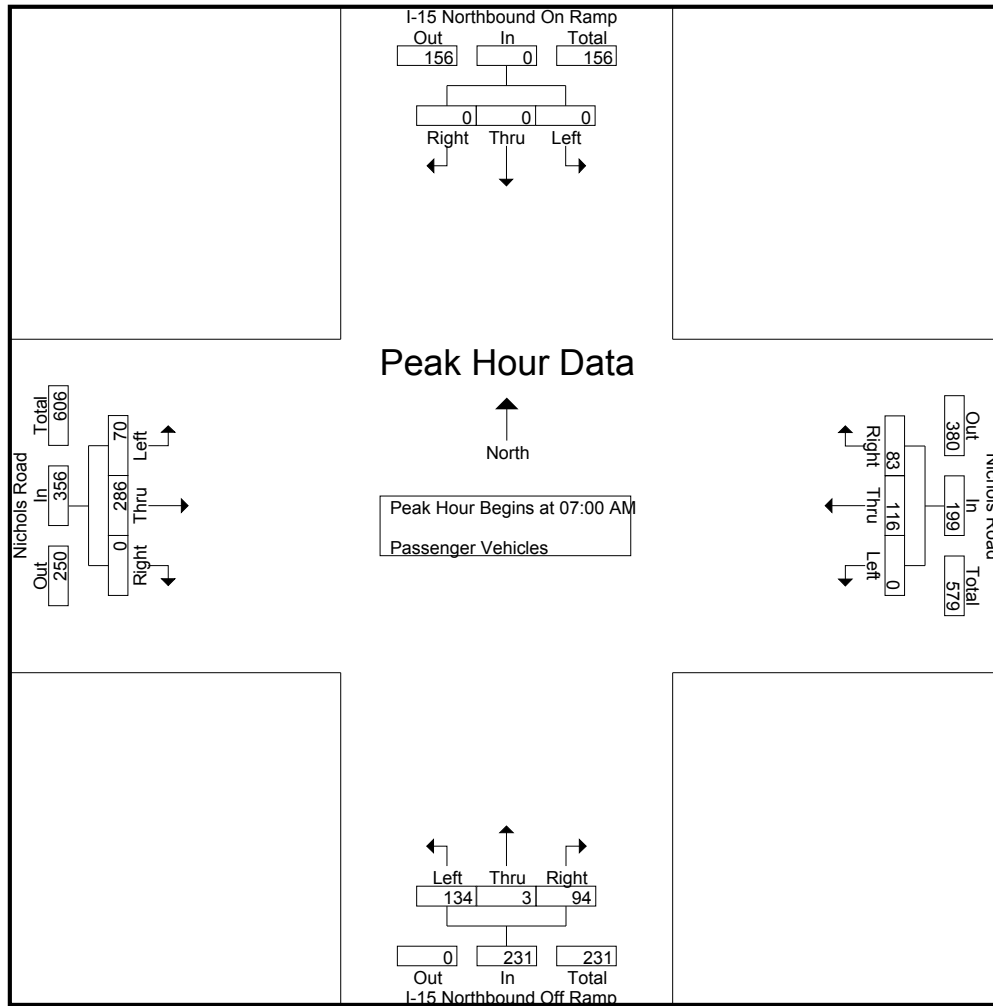
Groups Printed- Passenger Vehicles

	I-15 Northbound On Ramp Southbound				Nichols Road Westbound				I-15 Northbound Off Ramp Northbound				Nichols Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	37	19	56	39	0	57	96	20	150	0	170	322
07:15 AM	0	0	0	0	0	34	34	68	51	2	24	77	15	103	0	118	263
07:30 AM	0	0	0	0	0	36	28	64	28	1	8	37	15	20	0	35	136
07:45 AM	0	0	0	0	0	9	2	11	16	0	5	21	20	13	0	33	65
Total	0	0	0	0	0	116	83	199	134	3	94	231	70	286	0	356	786
08:00 AM	0	0	0	0	0	9	3	12	30	0	2	32	13	11	0	24	68
08:15 AM	0	0	0	0	0	8	3	11	20	1	2	23	12	20	0	32	66
08:30 AM	0	0	0	0	0	9	2	11	24	0	1	25	17	10	0	27	63
08:45 AM	0	0	0	0	0	12	9	21	34	0	3	37	21	12	0	33	91
Total	0	0	0	0	0	38	17	55	108	1	8	117	63	53	0	116	288
Grand Total	0	0	0	0	0	154	100	254	242	4	102	348	133	339	0	472	1074
Apprch %	0	0	0		0	60.6	39.4		69.5	1.1	29.3		28.2	71.8	0		
Total %	0	0	0	0	0	14.3	9.3	23.6	22.5	0.4	9.5	32.4	12.4	31.6	0	43.9	

	I-15 Northbound On Ramp Southbound				Nichols Road Westbound				I-15 Northbound Off Ramp Northbound				Nichols Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	0	0	0	37	19	56	39	0	57	96	20	150	0	170	322
07:15 AM	0	0	0	0	0	34	34	68	51	2	24	77	15	103	0	118	263
07:30 AM	0	0	0	0	0	36	28	64	28	1	8	37	15	20	0	35	136
07:45 AM	0	0	0	0	0	9	2	11	16	0	5	21	20	13	0	33	65
Total Volume	0	0	0	0	0	116	83	199	134	3	94	231	70	286	0	356	786
% App. Total	0	0	0		0	58.3	41.7		58	1.3	40.7		19.7	80.3	0		
PHF	.000	.000	.000	.000	.000	.784	.610	.732	.657	.375	.412	.602	.875	.477	.000	.524	.610

City of Lake Elsinore
N/S: I-15 Northbound Ramps
E/W: Nichols Road
Weather: Clear

File Name : 05_LKE_15N_Nichols AM
Site Code : 05118103
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Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM				07:00 AM				07:00 AM				07:00 AM			
+0 mins.	0	0	0	0	0	37	19	56	39	0	57	96	20	150	0	170
+15 mins.	0	0	0	0	0	34	34	68	51	2	24	77	15	103	0	118
+30 mins.	0	0	0	0	0	36	28	64	28	1	8	37	15	20	0	35
+45 mins.	0	0	0	0	0	9	2	11	16	0	5	21	20	13	0	33
Total Volume	0	0	0	0	0	116	83	199	134	3	94	231	70	286	0	356
% App. Total	0	0	0	0	0	58.3	41.7		58	1.3	40.7		19.7	80.3	0	
PHF	.000	.000	.000	.000	.000	.784	.610	.732	.657	.375	.412	.602	.875	.477	.000	.524

City of Lake Elsinore
N/S: I-15 Northbound Ramps
E/W: Nichols Road
Weather: Clear

File Name : 05_LKE_15N_Nichols AM
Site Code : 05118103
Start Date : 2/8/2018
Page No : 1

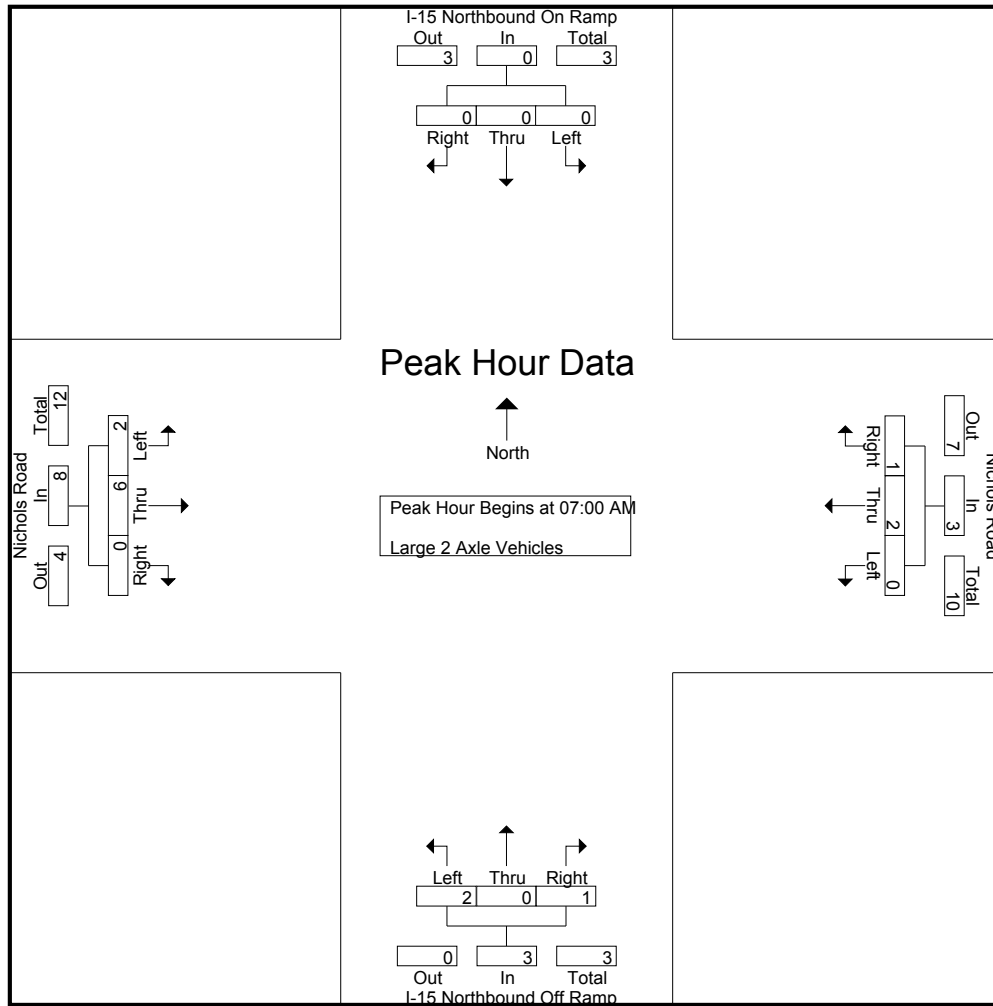
Groups Printed- Large 2 Axle Vehicles

	I-15 Northbound On Ramp Southbound				Nichols Road Westbound				I-15 Northbound Off Ramp Northbound				Nichols Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	1	0	1	0	0	0	0	1	2	0	3	4
07:15 AM	0	0	0	0	0	0	1	1	1	0	0	1	1	0	0	1	3
07:30 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
07:45 AM	0	0	0	0	0	0	0	0	1	0	1	2	0	4	0	4	6
Total	0	0	0	0	0	2	1	3	2	0	1	3	2	6	0	8	14
08:00 AM	0	0	0	0	0	3	0	3	1	0	0	1	0	0	0	0	4
08:15 AM	0	0	0	0	0	0	0	0	2	0	0	2	3	0	0	3	5
08:30 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
08:45 AM	0	0	0	0	0	0	0	0	2	1	1	4	0	1	0	1	5
Total	0	0	0	0	0	3	0	3	6	1	1	8	3	1	0	4	15
Grand Total	0	0	0	0	0	5	1	6	8	1	2	11	5	7	0	12	29
Apprch %	0	0	0		0	83.3	16.7		72.7	9.1	18.2		41.7	58.3	0		
Total %	0	0	0		0	17.2	3.4	20.7	27.6	3.4	6.9	37.9	17.2	24.1	0	41.4	

	I-15 Northbound On Ramp Southbound				Nichols Road Westbound				I-15 Northbound Off Ramp Northbound				Nichols Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	0	0	0	1	0	1	0	0	0	0	1	2	0	3	4
07:15 AM	0	0	0	0	0	0	1	1	1	0	0	1	1	0	0	1	3
07:30 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
07:45 AM	0	0	0	0	0	0	0	0	1	0	1	2	0	4	0	4	6
Total Volume	0	0	0	0	0	2	1	3	2	0	1	3	2	6	0	8	14
% App. Total	0	0	0		0	66.7	33.3		66.7	0	33.3		25	75	0		
PHF	.000	.000	.000	.000	.000	.500	.250	.750	.500	.000	.250	.375	.500	.375	.000	.500	.583

City of Lake Elsinore
N/S: I-15 Northbound Ramps
E/W: Nichols Road
Weather: Clear

File Name : 05_LKE_15N_Nichols AM
Site Code : 05118103
Start Date : 2/8/2018
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Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM				07:00 AM				07:00 AM				07:00 AM			
+0 mins.	0	0	0	0	0	1	0	1	0	0	0	0	1	2	0	3
+15 mins.	0	0	0	0	0	0	1	1	1	0	0	1	1	0	0	1
+30 mins.	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	1	0	1	2	0	4	0	4
Total Volume	0	0	0	0	0	2	1	3	2	0	1	3	2	6	0	8
% App. Total	0	0	0	0	0	66.7	33.3		66.7	0	33.3		25	75	0	
PHF	.000	.000	.000	.000	.000	.500	.250	.750	.500	.000	.250	.375	.500	.375	.000	.500

City of Lake Elsinore
N/S: I-15 Northbound Ramps
E/W: Nichols Road
Weather: Clear

File Name : 05_LKE_15N_Nichols AM
Site Code : 05118103
Start Date : 2/8/2018
Page No : 1

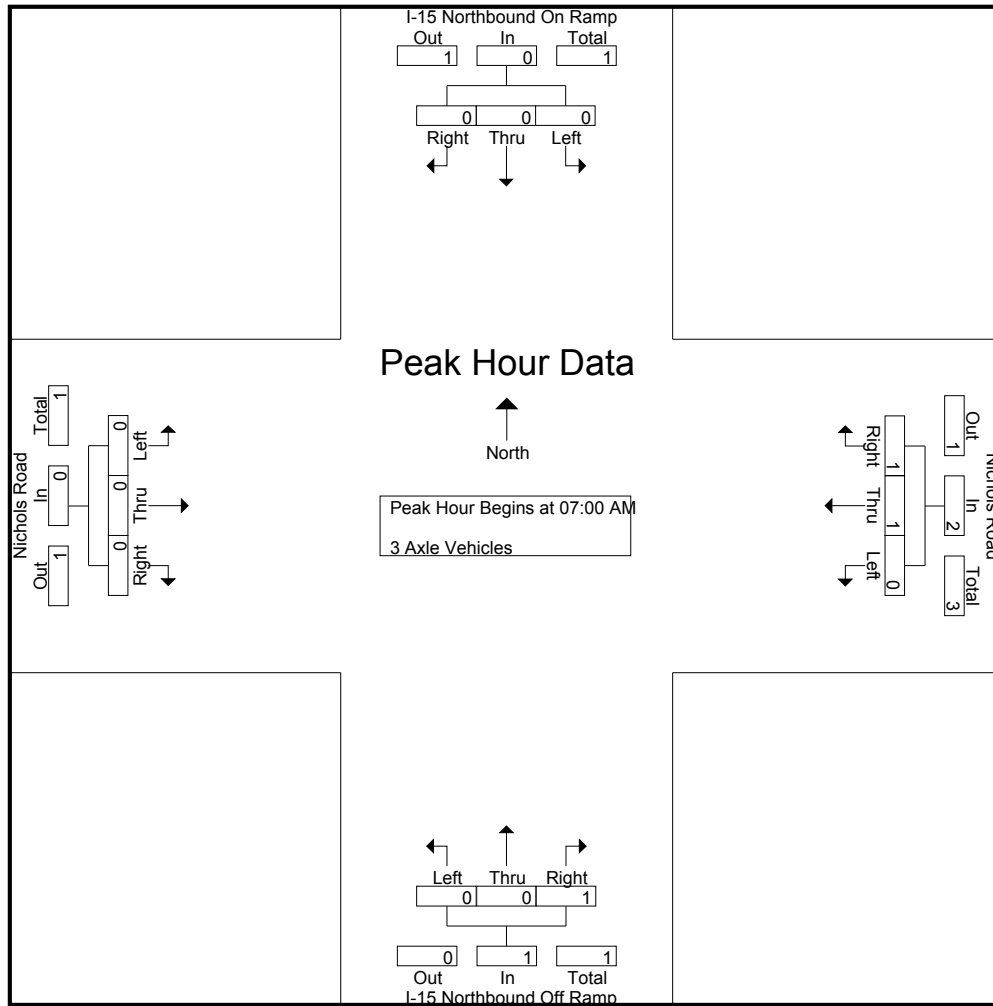
Groups Printed- 3 Axle Vehicles

	I-15 Northbound On Ramp Southbound				Nichols Road Westbound				I-15 Northbound Off Ramp Northbound				Nichols Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1
07:45 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	0	1	1	2	0	0	1	1	0	0	0	0	3
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	1	1	1	0	0	1	0	2	0	2	4
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	1	1	1	0	0	1	0	2	0	2	4
Grand Total	0	0	0	0	0	1	2	3	1	0	1	2	0	2	0	2	7
Apprch %	0	0	0		0	33.3	66.7		50	0	50		0	100	0		
Total %	0	0	0		0	14.3	28.6	42.9	14.3	0	14.3	28.6	0	28.6	0	28.6	

	I-15 Northbound On Ramp Southbound				Nichols Road Westbound				I-15 Northbound Off Ramp Northbound				Nichols Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1
07:45 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
Total Volume	0	0	0	0	0	1	1	2	0	0	1	1	0	0	0	0	3
% App. Total	0	0	0		0	50	50		0	0	100		0	0	0		
PHF	.000	.000	.000	.000	.000	.250	.250	.500	.000	.000	.250	.250	.000	.000	.000	.000	.750

City of Lake Elsinore
N/S: I-15 Northbound Ramps
E/W: Nichols Road
Weather: Clear

File Name : 05_LKE_15N_Nichols AM
Site Code : 05118103
Start Date : 2/8/2018
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Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM				07:00 AM				07:00 AM				07:00 AM			
+0 mins.	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0
+45 mins.	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	1	1	2	0	0	1	1	0	0	0	0
% App. Total	0	0	0	0	0	50	50		0	0	100		0	0	0	
PHF	.000	.000	.000	.000	.000	.250	.250	.500	.000	.000	.250	.250	.000	.000	.000	.000

City of Lake Elsinore
N/S: I-15 Northbound Ramps
E/W: Nichols Road
Weather: Clear

File Name : 05_LKE_15N_Nichols AM
Site Code : 05118103
Start Date : 2/8/2018
Page No : 1

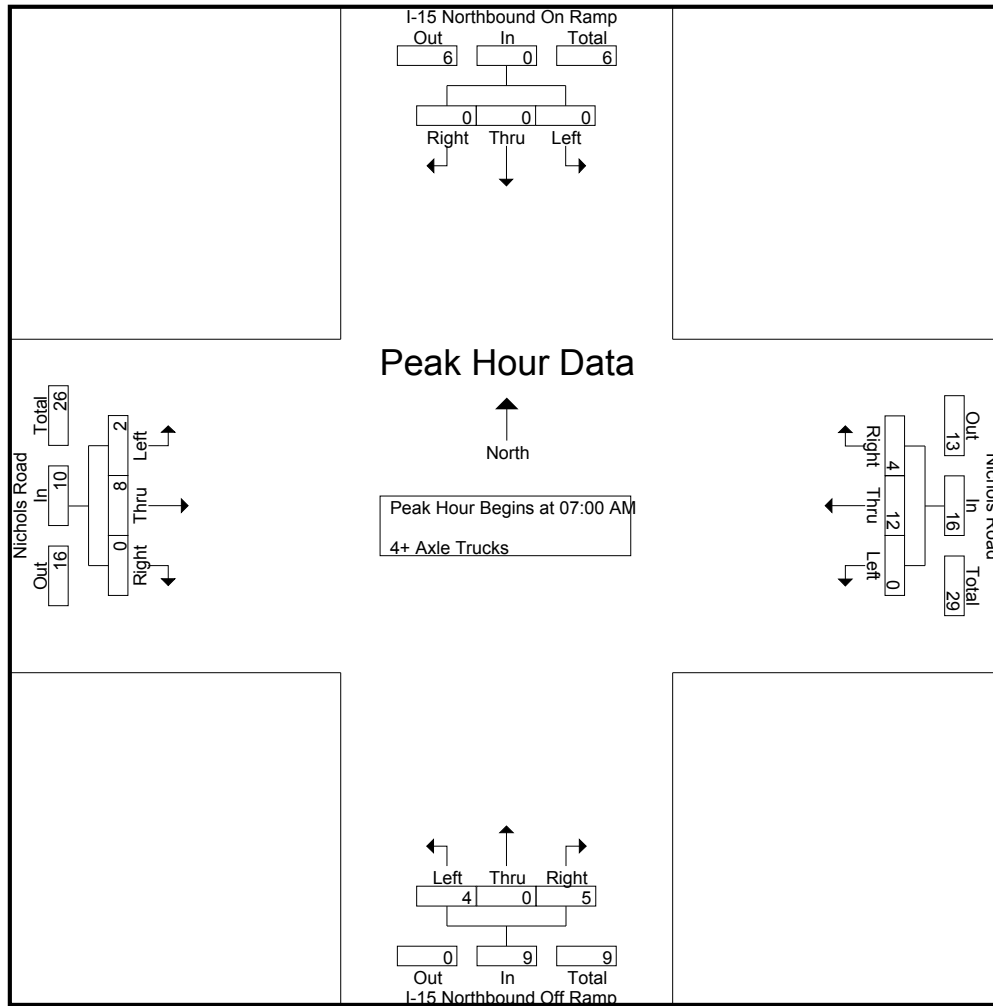
Groups Printed- 4+ Axle Trucks

	I-15 Northbound On Ramp Southbound				Nichols Road Westbound				I-15 Northbound Off Ramp Northbound				Nichols Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	3	0	3	1	0	2	3	0	6	0	6	12
07:15 AM	0	0	0	0	0	1	1	2	0	0	1	1	0	1	0	1	4
07:30 AM	0	0	0	0	0	5	2	7	1	0	1	2	2	1	0	3	12
07:45 AM	0	0	0	0	0	3	1	4	2	0	1	3	0	0	0	0	7
Total	0	0	0	0	0	12	4	16	4	0	5	9	2	8	0	10	35
08:00 AM	0	0	0	0	0	0	0	0	1	0	3	4	2	2	0	4	8
08:15 AM	0	0	0	0	0	4	3	7	1	0	8	9	3	3	0	6	22
08:30 AM	0	0	0	0	0	6	1	7	1	0	0	1	0	1	0	1	9
08:45 AM	0	0	0	0	0	3	0	3	3	0	3	6	1	2	0	3	12
Total	0	0	0	0	0	13	4	17	6	0	14	20	6	8	0	14	51
Grand Total	0	0	0	0	0	25	8	33	10	0	19	29	8	16	0	24	86
Apprch %	0	0	0		0	75.8	24.2		34.5	0	65.5		33.3	66.7	0		
Total %	0	0	0		0	29.1	9.3	38.4	11.6	0	22.1	33.7	9.3	18.6	0	27.9	

	I-15 Northbound On Ramp Southbound				Nichols Road Westbound				I-15 Northbound Off Ramp Northbound				Nichols Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	0	0	0	3	0	3	1	0	2	3	0	6	0	6	12
07:15 AM	0	0	0	0	0	1	1	2	0	0	1	1	0	1	0	1	4
07:30 AM	0	0	0	0	0	5	2	7	1	0	1	2	2	1	0	3	12
07:45 AM	0	0	0	0	0	3	1	4	2	0	1	3	0	0	0	0	7
Total Volume	0	0	0	0	0	12	4	16	4	0	5	9	2	8	0	10	35
% App. Total	0	0	0		0	75	25		44.4	0	55.6		20	80	0		
PHF	.000	.000	.000	.000	.000	.600	.500	.571	.500	.000	.625	.750	.250	.333	.000	.417	.729

City of Lake Elsinore
N/S: I-15 Northbound Ramps
E/W: Nichols Road
Weather: Clear

File Name : 05_LKE_15N_Nichols AM
Site Code : 05118103
Start Date : 2/8/2018
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Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM				07:00 AM				07:00 AM				07:00 AM			
+0 mins.	0	0	0	0	0	3	0	3	1	0	2	3	0	6	0	6
+15 mins.	0	0	0	0	0	1	1	2	0	0	1	1	0	1	0	1
+30 mins.	0	0	0	0	0	5	2	7	1	0	1	2	2	1	0	3
+45 mins.	0	0	0	0	0	3	1	4	2	0	1	3	0	0	0	0
Total Volume	0	0	0	0	0	12	4	16	4	0	5	9	2	8	0	10
% App. Total	0	0	0	0	0	75	25		44.4	0	55.6		20	80	0	
PHF	.000	.000	.000	.000	.000	.600	.500	.571	.500	.000	.625	.750	.250	.333	.000	.417

City of Lake Elsinore
N/S: I-15 Northbound Ramps
E/W: Nichols Road
Weather: Clear

File Name : 05_LKE_15N_Nichols PM
Site Code : 05118103
Start Date : 2/8/2018
Page No : 1

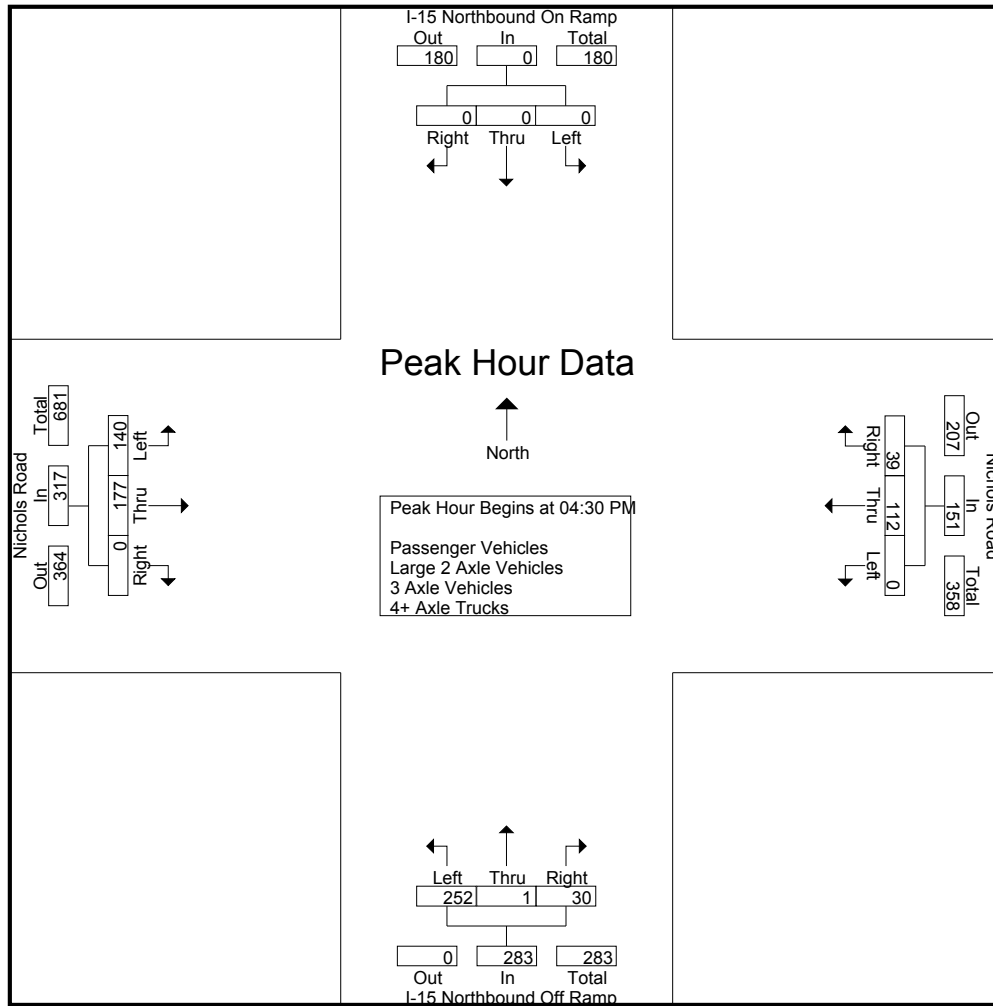
Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	I-15 Northbound On Ramp Southbound				Nichols Road Westbound				I-15 Northbound Off Ramp Northbound				Nichols Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	20	9	29	69	0	5	74	40	44	0	84	187
04:15 PM	0	0	0	0	0	22	12	34	70	1	4	75	33	38	0	71	180
04:30 PM	0	0	0	0	0	27	8	35	61	0	6	67	35	37	0	72	174
04:45 PM	0	0	0	0	0	26	15	41	68	0	7	75	36	43	0	79	195
Total	0	0	0	0	0	95	44	139	268	1	22	291	144	162	0	306	736
05:00 PM	0	0	0	0	0	24	7	31	55	0	7	62	35	59	0	94	187
05:15 PM	0	0	0	0	0	35	9	44	68	1	10	79	34	38	0	72	195
05:30 PM	0	0	0	0	0	15	7	22	77	1	4	82	20	35	0	55	159
05:45 PM	0	0	0	0	0	22	9	31	77	0	5	82	30	35	0	65	178
Total	0	0	0	0	0	96	32	128	277	2	26	305	119	167	0	286	719
Grand Total	0	0	0	0	0	191	76	267	545	3	48	596	263	329	0	592	1455
Apprch %	0	0	0		0	71.5	28.5		91.4	0.5	8.1		44.4	55.6	0		
Total %	0	0	0	0	0	13.1	5.2	18.4	37.5	0.2	3.3	41	18.1	22.6	0	40.7	
Passenger Vehicles	0	0	0	0	0	184	74	258	540	3	47	590	252	322	0	574	1422
% Passenger Vehicles	0	0	0	0	0	96.3	97.4	96.6	99.1	100	97.9	99	95.8	97.9	0	97	97.7
Large 2 Axle Vehicles	0	0	0	0	0	4	1	5	3	0	0	3	6	4	0	10	18
% Large 2 Axle Vehicles	0	0	0	0	0	2.1	1.3	1.9	0.6	0	0	0.5	2.3	1.2	0	1.7	1.2
3 Axle Vehicles	0	0	0	0	0	1	0	1	0	0	0	0	3	1	0	4	5
% 3 Axle Vehicles	0	0	0	0	0	0.5	0	0.4	0	0	0	0	1.1	0.3	0	0.7	0.3
4+ Axle Trucks	0	0	0	0	0	2	1	3	2	0	1	3	2	2	0	4	10
% 4+ Axle Trucks	0	0	0	0	0	1	1.3	1.1	0.4	0	2.1	0.5	0.8	0.6	0	0.7	0.7

	I-15 Northbound On Ramp Southbound				Nichols Road Westbound				I-15 Northbound Off Ramp Northbound				Nichols Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	0	0	0	0	27	8	35	61	0	6	67	35	37	0	72	174
04:45 PM	0	0	0	0	0	26	15	41	68	0	7	75	36	43	0	79	195
05:00 PM	0	0	0	0	0	24	7	31	55	0	7	62	35	59	0	94	187
05:15 PM	0	0	0	0	0	35	9	44	68	1	10	79	34	38	0	72	195
Total Volume	0	0	0	0	0	112	39	151	252	1	30	283	140	177	0	317	751
% App. Total	0	0	0		0	74.2	25.8		89	0.4	10.6		44.2	55.8	0		
PHF	.000	.000	.000	.000	.000	.800	.650	.858	.926	.250	.750	.896	.972	.750	.000	.843	.963

City of Lake Elsinore
N/S: I-15 Northbound Ramps
E/W: Nichols Road
Weather: Clear

File Name : 05_LKE_15N_Nichols PM
Site Code : 05118103
Start Date : 2/8/2018
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Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:30 PM				05:00 PM				04:30 PM			
+0 mins.	0	0	0	0	0	27	8	35	55	0	7	62	35	37	0	72
+15 mins.	0	0	0	0	0	26	15	41	68	1	10	79	36	43	0	79
+30 mins.	0	0	0	0	0	24	7	31	77	1	4	82	35	59	0	94
+45 mins.	0	0	0	0	0	35	9	44	77	0	5	82	34	38	0	72
Total Volume	0	0	0	0	0	112	39	151	277	2	26	305	140	177	0	317
% App. Total	0	0	0	0	0	74.2	25.8		90.8	0.7	8.5		44.2	55.8	0	
PHF	.000	.000	.000	.000	.000	.800	.650	.858	.899	.500	.650	.930	.972	.750	.000	.843

City of Lake Elsinore
N/S: I-15 Northbound Ramps
E/W: Nichols Road
Weather: Clear

File Name : 05_LKE_15N_Nichols PM
Site Code : 05118103
Start Date : 2/8/2018
Page No : 1

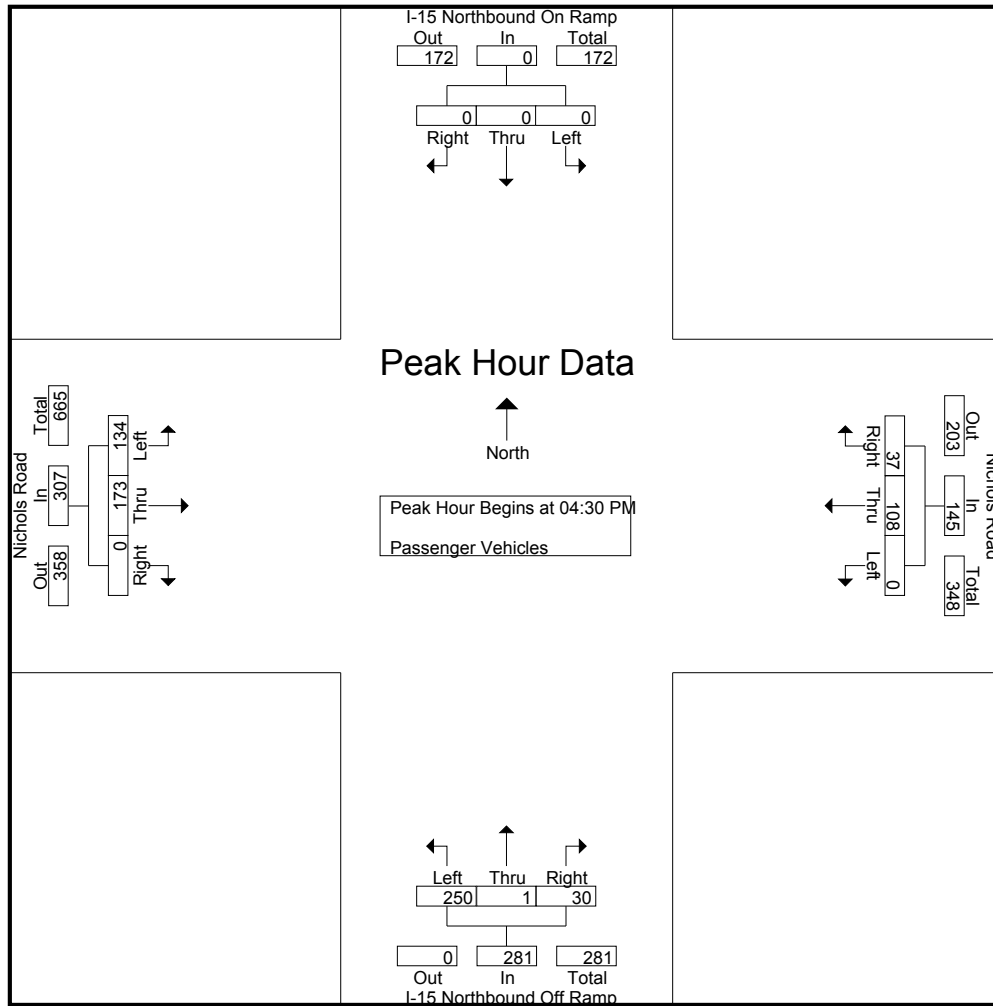
Groups Printed- Passenger Vehicles

	I-15 Northbound On Ramp Southbound				Nichols Road Westbound				I-15 Northbound Off Ramp Northbound				Nichols Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	19	9	28	68	0	4	72	36	43	0	79	179
04:15 PM	0	0	0	0	0	20	12	32	69	1	4	74	33	37	0	70	176
04:30 PM	0	0	0	0	0	24	7	31	61	0	6	67	32	36	0	68	166
04:45 PM	0	0	0	0	0	26	15	41	67	0	7	74	34	40	0	74	189
Total	0	0	0	0	0	89	43	132	265	1	21	287	135	156	0	291	710
05:00 PM	0	0	0	0	0	24	6	30	54	0	7	61	35	59	0	94	185
05:15 PM	0	0	0	0	0	34	9	43	68	1	10	79	33	38	0	71	193
05:30 PM	0	0	0	0	0	15	7	22	77	1	4	82	20	34	0	54	158
05:45 PM	0	0	0	0	0	22	9	31	76	0	5	81	29	35	0	64	176
Total	0	0	0	0	0	95	31	126	275	2	26	303	117	166	0	283	712
Grand Total	0	0	0	0	0	184	74	258	540	3	47	590	252	322	0	574	1422
Apprch %	0	0	0		0	71.3	28.7		91.5	0.5	8		43.9	56.1	0		
Total %	0	0	0		0	12.9	5.2	18.1	38	0.2	3.3	41.5	17.7	22.6	0	40.4	

	I-15 Northbound On Ramp Southbound				Nichols Road Westbound				I-15 Northbound Off Ramp Northbound				Nichols Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	0	0	0	0	24	7	31	61	0	6	67	32	36	0	68	166
04:45 PM	0	0	0	0	0	26	15	41	67	0	7	74	34	40	0	74	189
05:00 PM	0	0	0	0	0	24	6	30	54	0	7	61	35	59	0	94	185
05:15 PM	0	0	0	0	0	34	9	43	68	1	10	79	33	38	0	71	193
Total Volume	0	0	0	0	0	108	37	145	250	1	30	281	134	173	0	307	733
% App. Total	0	0	0		0	74.5	25.5		89	0.4	10.7		43.6	56.4	0		
PHF	.000	.000	.000	.000	.000	.794	.617	.843	.919	.250	.750	.889	.957	.733	.000	.816	.949

City of Lake Elsinore
N/S: I-15 Northbound Ramps
E/W: Nichols Road
Weather: Clear

File Name : 05_LKE_15N_Nichols PM
Site Code : 05118103
Start Date : 2/8/2018
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Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM				04:30 PM				04:30 PM				04:30 PM			
+0 mins.	0	0	0	0	0	24	7	31	61	0	6	67	32	36	0	68
+15 mins.	0	0	0	0	0	26	15	41	67	0	7	74	34	40	0	74
+30 mins.	0	0	0	0	0	24	6	30	54	0	7	61	35	59	0	94
+45 mins.	0	0	0	0	0	34	9	43	68	1	10	79	33	38	0	71
Total Volume	0	0	0	0	0	108	37	145	250	1	30	281	134	173	0	307
% App. Total	0	0	0	0	0	74.5	25.5		89	0.4	10.7		43.6	56.4	0	
PHF	.000	.000	.000	.000	.000	.794	.617	.843	.919	.250	.750	.889	.957	.733	.000	.816

City of Lake Elsinore
N/S: I-15 Northbound Ramps
E/W: Nichols Road
Weather: Clear

File Name : 05_LKE_15N_Nichols PM
Site Code : 05118103
Start Date : 2/8/2018
Page No : 1

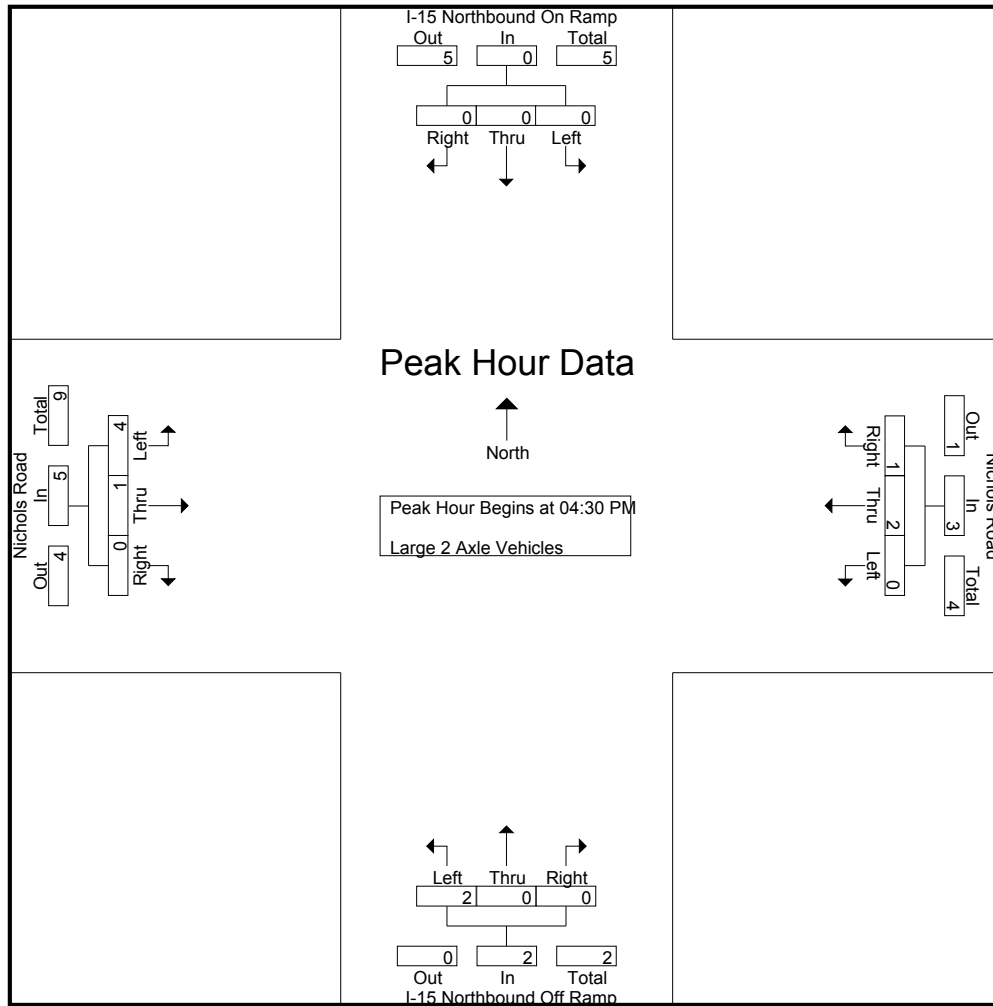
Groups Printed- Large 2 Axle Vehicles

	I-15 Northbound On Ramp Southbound				Nichols Road Westbound				I-15 Northbound Off Ramp Northbound				Nichols Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	1	0	1	1	0	0	1	2	1	0	3	5
04:15 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	2
04:30 PM	0	0	0	0	0	1	1	2	0	0	0	0	2	1	0	3	5
04:45 PM	0	0	0	0	0	0	0	0	1	0	0	1	1	0	0	1	2
Total	0	0	0	0	0	3	1	4	2	0	0	2	5	3	0	8	14
05:00 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
05:15 PM	0	0	0	0	0	1	0	1	0	0	0	0	1	0	0	1	2
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	1	0	1	1	0	0	1	1	1	0	2	4
Grand Total	0	0	0	0	0	4	1	5	3	0	0	3	6	4	0	10	18
Apprch %	0	0	0		0	80	20		100	0	0		60	40	0		
Total %	0	0	0		0	22.2	5.6	27.8	16.7	0	0	16.7	33.3	22.2	0	55.6	

	I-15 Northbound On Ramp Southbound				Nichols Road Westbound				I-15 Northbound Off Ramp Northbound				Nichols Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	0	0	0	0	1	1	2	0	0	0	0	2	1	0	3	5
04:45 PM	0	0	0	0	0	0	0	0	1	0	0	1	1	0	0	1	2
05:00 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
05:15 PM	0	0	0	0	0	1	0	1	0	0	0	0	1	0	0	1	2
Total Volume	0	0	0	0	0	2	1	3	2	0	0	2	4	1	0	5	10
% App. Total	0	0	0		0	66.7	33.3		100	0	0		80	20	0		
PHF	.000	.000	.000	.000	.000	.500	.250	.375	.500	.000	.000	.500	.500	.250	.000	.417	.500

City of Lake Elsinore
N/S: I-15 Northbound Ramps
E/W: Nichols Road
Weather: Clear

File Name : 05_LKE_15N_Nichols PM
Site Code : 05118103
Start Date : 2/8/2018
Page No : 2



Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM				04:30 PM				04:30 PM				04:30 PM			
+0 mins.	0	0	0	0	0	1	1	2	0	0	0	0	2	1	0	3
+15 mins.	0	0	0	0	0	0	0	0	1	0	0	1	1	0	0	1
+30 mins.	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0
+45 mins.	0	0	0	0	0	1	0	1	0	0	0	0	1	0	0	1
Total Volume	0	0	0	0	0	2	1	3	2	0	0	2	4	1	0	5
% App. Total	0	0	0	0	0	66.7	33.3		100	0	0		80	20	0	
PHF	.000	.000	.000	.000	.000	.500	.250	.375	.500	.000	.000	.500	.500	.250	.000	.417

City of Lake Elsinore
N/S: I-15 Northbound Ramps
E/W: Nichols Road
Weather: Clear

File Name : 05_LKE_15N_Nichols PM
Site Code : 05118103
Start Date : 2/8/2018
Page No : 1

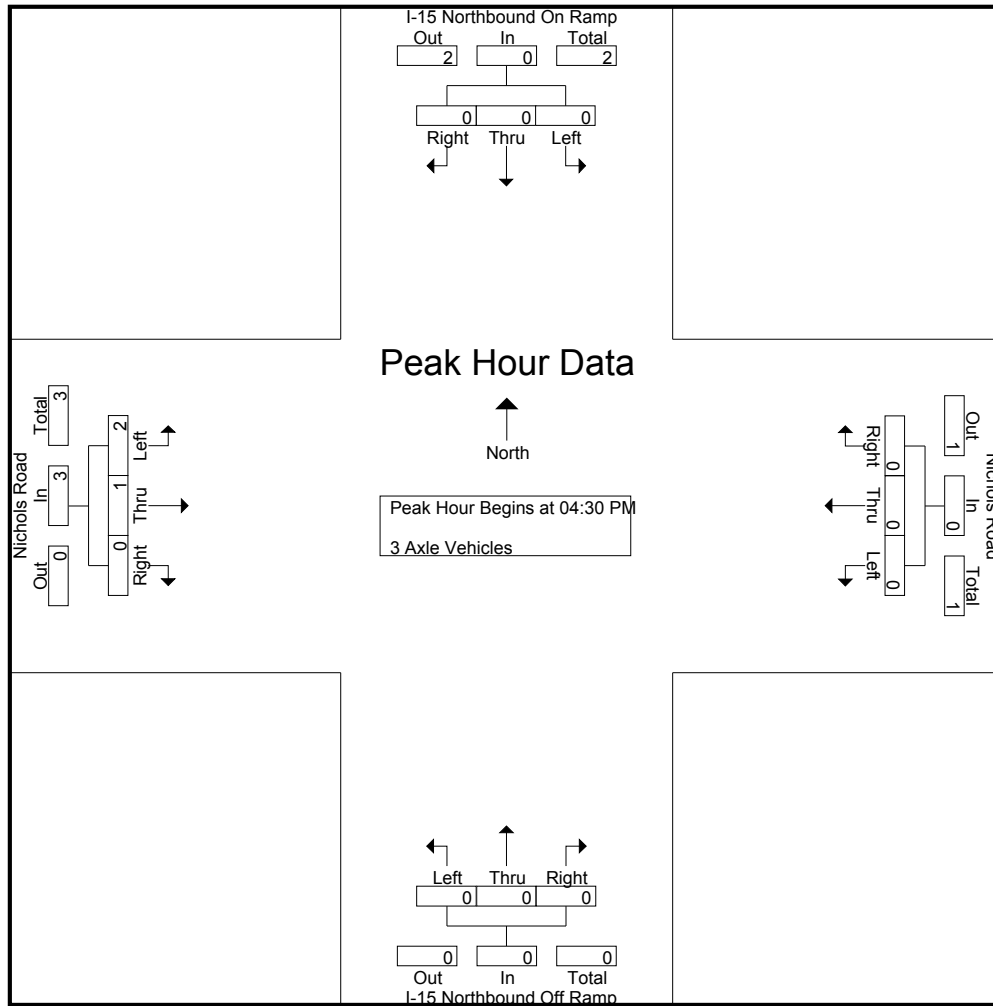
Groups Printed- 3 Axle Vehicles

	I-15 Northbound On Ramp Southbound				Nichols Road Westbound				I-15 Northbound Off Ramp Northbound				Nichols Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
04:15 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	2
Total	0	0	0	0	0	1	0	1	0	0	0	0	3	1	0	4	5
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	1	0	1	0	0	0	0	3	1	0	4	5
Apprch %	0	0	0		0	100	0		0	0	0		75	25	0		
Total %	0	0	0		0	20	0	20	0	0	0		60	20	0	80	

	I-15 Northbound On Ramp Southbound				Nichols Road Westbound				I-15 Northbound Off Ramp Northbound				Nichols Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	2
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	3	3
% App. Total	0	0	0		0	0	0		0	0	0		66.7	33.3	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.500	.250	.000	.375	.375

City of Lake Elsinore
N/S: I-15 Northbound Ramps
E/W: Nichols Road
Weather: Clear

File Name : 05_LKE_15N_Nichols PM
Site Code : 05118103
Start Date : 2/8/2018
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Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM				04:30 PM				04:30 PM				04:30 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	3
% App. Total	0	0	0	0	0	0	0	0	0	0	0	0	66.7	33.3	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.500	.250	.000	.375

City of Lake Elsinore
N/S: I-15 Northbound Ramps
E/W: Nichols Road
Weather: Clear

File Name : 05_LKE_15N_Nichols PM
Site Code : 05118103
Start Date : 2/8/2018
Page No : 1

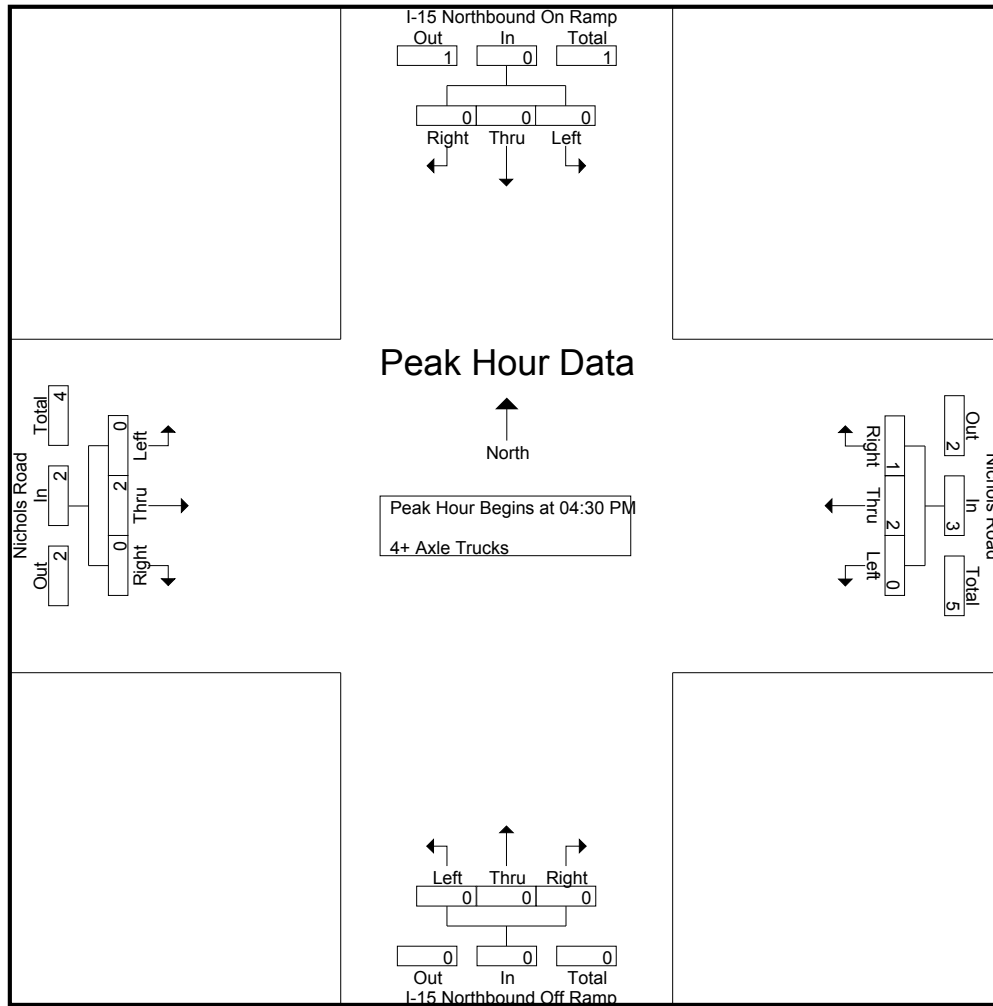
Groups Printed- 4+ Axle Trucks

	I-15 Northbound On Ramp Southbound				Nichols Road Westbound				I-15 Northbound Off Ramp Northbound				Nichols Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	1	2
04:15 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
04:30 PM	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	2
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	2
Total	0	0	0	0	0	2	0	2	1	0	1	2	1	2	0	3	7
05:00 PM	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	1	0	0	1	1	0	0	1	2
Total	0	0	0	0	0	0	1	1	1	0	0	1	1	0	0	1	3
Grand Total	0	0	0	0	0	2	1	3	2	0	1	3	2	2	0	4	10
Apprch %	0	0	0		0	66.7	33.3		66.7	0	33.3		50	50	0		
Total %	0	0	0		0	20	10	30	20	0	10	30	20	20	0	40	

	I-15 Northbound On Ramp Southbound				Nichols Road Westbound				I-15 Northbound Off Ramp Northbound				Nichols Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	2
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	2
05:00 PM	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	2	1	3	0	0	0	0	0	2	0	2	5
% App. Total	0	0	0		0	66.7	33.3		0	0	0		0	100	0		
PHF	.000	.000	.000	.000	.000	.250	.250	.375	.000	.000	.000	.000	.000	.250	.000	.250	.625

City of Lake Elsinore
N/S: I-15 Northbound Ramps
E/W: Nichols Road
Weather: Clear

File Name : 05_LKE_15N_Nichols PM
Site Code : 05118103
Start Date : 2/8/2018
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Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM				04:30 PM				04:30 PM				04:30 PM			
+0 mins.	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2
+30 mins.	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	2	1	3	0	0	0	0	0	2	0	2
% App. Total	0	0	0	0	0	66.7	33.3		0	0	0	0	0	100	0	
PHF	.000	.000	.000	.000	.000	.250	.250	.375	.000	.000	.000	.000	.000	.250	.000	.250

Location: Lake Elsinore
 N/S: I-15 Northbound Ramps
 E/W: Nichols Road



Date: 2/8/2018
 Date: Thursday

PEDESTRIANS

	North Leg I-15 Northbound Ramps	East Leg Nichols Road	South Leg I-15 Northbound Ramps	West Leg Nichols Road	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0

	North Leg I-15 Northbound Ramps	East Leg Nichols Road	South Leg I-15 Northbound Ramps	West Leg Nichols Road	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0

Location: Lake Elsinore
 N/S: I-15 Northbound
 E/W: Nichols Road



Date: 2/8/2018
 Date: Thursday

BICYCLES

	Southbound I-15 Northbound Ramps			Westbound Nichols Road			Northbound I-15 Northbound Ramps			Eastbound Nichols Road			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	1	0	0	0	0	0	0	0	1

	Southbound I-15 Northbound Ramps			Westbound Nichols Road			Northbound I-15 Northbound Ramps			Eastbound Nichols Road			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	1
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	0	0	0	1	0	1

City of Lake Elsinore
N/S: El Toro Road
E/W: Nichols Road
Weather: Clear

File Name : 07_LKE_El Toro_Nichols AM
Site Code : 05118103
Start Date : 2/8/2018
Page No : 1

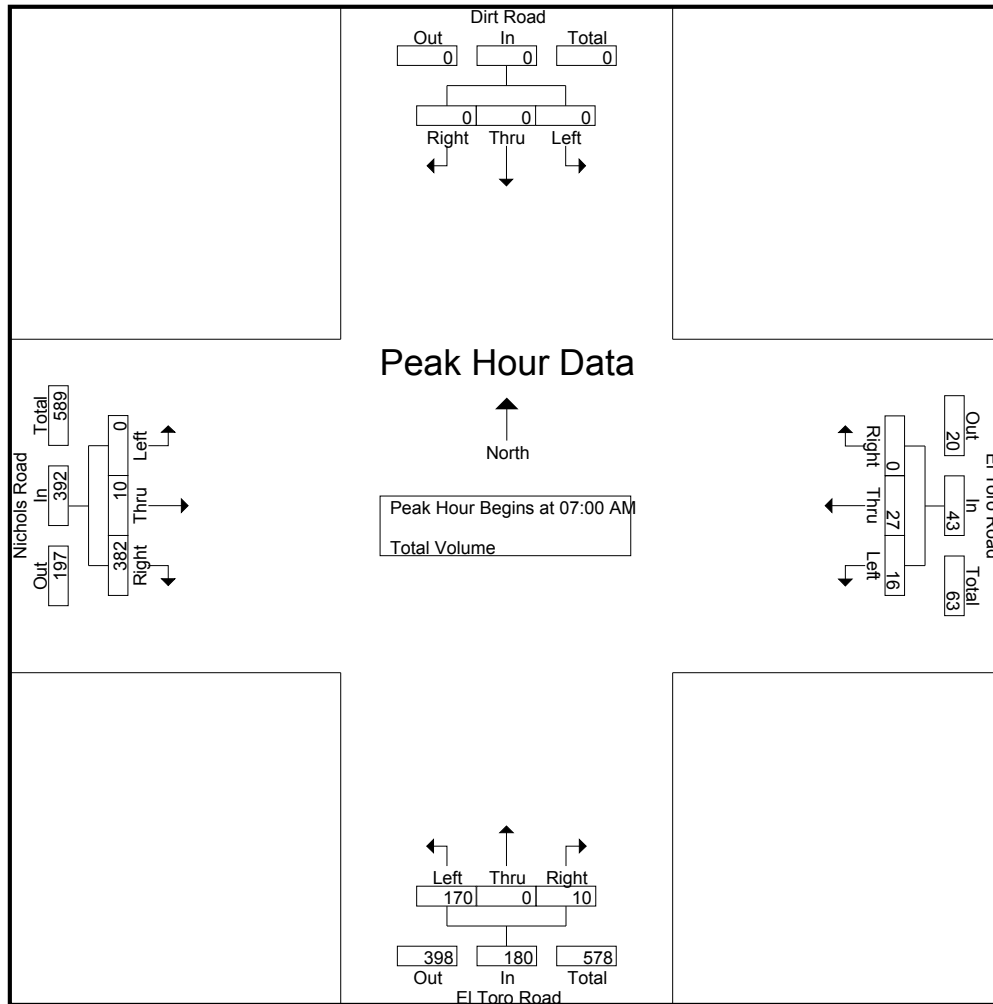
Groups Printed- Total Volume

	Dirt Road Southbound				El Toro Road Westbound				El Toro Road Northbound				Nichols Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	5	9	0	14	52	0	3	55	0	0	179	179	248
07:15 AM	0	0	0	0	3	10	0	13	58	0	1	59	0	1	163	164	236
07:30 AM	0	0	0	0	2	6	0	8	51	0	2	53	0	4	25	29	90
07:45 AM	0	0	0	0	6	2	0	8	9	0	4	13	0	5	15	20	41
Total	0	0	0	0	16	27	0	43	170	0	10	180	0	10	382	392	615
08:00 AM	0	0	0	0	2	8	0	10	7	0	5	12	0	3	12	15	37
08:15 AM	0	0	0	0	2	4	0	6	5	0	1	6	0	3	20	23	35
08:30 AM	0	0	0	0	1	10	0	11	5	0	3	8	0	5	7	12	31
08:45 AM	0	0	0	0	1	4	0	5	13	0	2	15	0	4	9	13	33
Total	0	0	0	0	6	26	0	32	30	0	11	41	0	15	48	63	136
Grand Total	0	0	0	0	22	53	0	75	200	0	21	221	0	25	430	455	751
Apprch %	0	0	0		29.3	70.7	0		90.5	0	9.5		0	5.5	94.5		
Total %	0	0	0	0	2.9	7.1	0	10	26.6	0	2.8	29.4	0	3.3	57.3	60.6	

	Dirt Road Southbound				El Toro Road Westbound				El Toro Road Northbound				Nichols Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	0	0	5	9	0	14	52	0	3	55	0	0	179	179	248
07:15 AM	0	0	0	0	3	10	0	13	58	0	1	59	0	1	163	164	236
07:30 AM	0	0	0	0	2	6	0	8	51	0	2	53	0	4	25	29	90
07:45 AM	0	0	0	0	6	2	0	8	9	0	4	13	0	5	15	20	41
Total Volume	0	0	0	0	16	27	0	43	170	0	10	180	0	10	382	392	615
% App. Total	0	0	0		37.2	62.8	0		94.4	0	5.6		0	2.6	97.4		
PHF	.000	.000	.000	.000	.667	.675	.000	.768	.733	.000	.625	.763	.000	.500	.534	.547	.620

City of Lake Elsinore
N/S: El Toro Road
E/W: Nichols Road
Weather: Clear

File Name : 07_LKE_El Toro_Nichols AM
Site Code : 05118103
Start Date : 2/8/2018
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	07:00 AM				07:00 AM				07:00 AM				07:00 AM			
+0 mins.	0	0	0	0	5	9	0	14	52	0	3	55	0	0	179	179
+15 mins.	0	0	0	0	3	10	0	13	58	0	1	59	0	1	163	164
+30 mins.	0	0	0	0	2	6	0	8	51	0	2	53	0	4	25	29
+45 mins.	0	0	0	0	6	2	0	8	9	0	4	13	0	5	15	20
Total Volume	0	0	0	0	16	27	0	43	170	0	10	180	0	10	382	392
% App. Total	0	0	0	0	37.2	62.8	0		94.4	0	5.6		0	2.6	97.4	
PHF	.000	.000	.000	.000	.667	.675	.000	.768	.733	.000	.625	.763	.000	.500	.534	.547

City of Lake Elsinore
N/S: El Toro Road
E/W: Nichols Road
Weather: Clear

File Name : 07_LKE_El Toro_Nichols PM
Site Code : 05118103
Start Date : 2/8/2018
Page No : 1

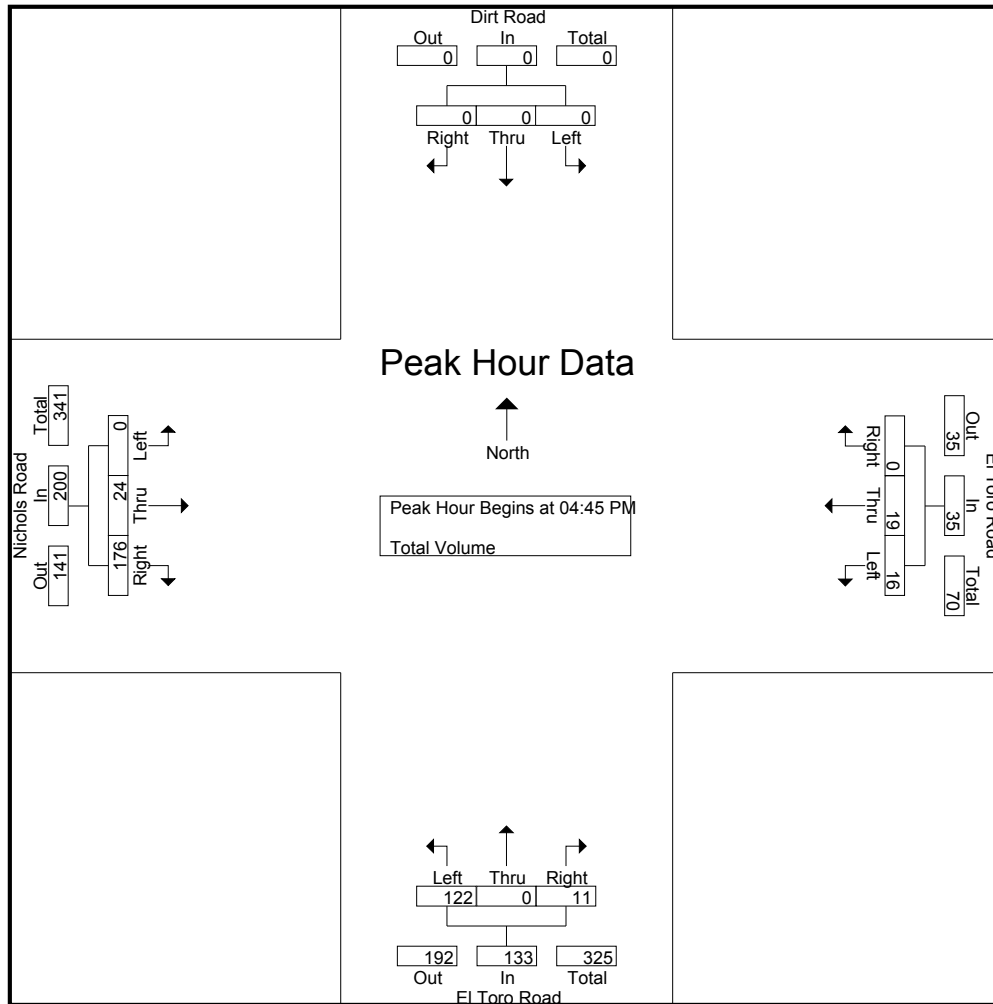
Groups Printed- Total Volume

	Dirt Road Southbound				El Toro Road Westbound				El Toro Road Northbound				Nichols Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	2	1	0	3	22	0	3	25	0	7	37	44	72
04:15 PM	0	0	0	0	3	10	0	13	29	0	6	35	0	9	35	44	92
04:30 PM	0	0	0	0	4	2	0	6	24	0	1	25	0	5	38	43	74
04:45 PM	0	0	0	0	2	6	0	8	37	0	2	39	0	3	42	45	92
Total	0	0	0	0	11	19	0	30	112	0	12	124	0	24	152	176	330
05:00 PM	0	0	0	0	3	3	0	6	32	0	2	34	0	11	56	67	107
05:15 PM	0	0	0	0	5	6	0	11	33	0	1	34	0	6	42	48	93
05:30 PM	0	0	0	0	6	4	0	10	20	0	6	26	0	4	36	40	76
05:45 PM	0	0	0	0	1	7	0	8	18	0	6	24	0	11	27	38	70
Total	0	0	0	0	15	20	0	35	103	0	15	118	0	32	161	193	346
Grand Total	0	0	0	0	26	39	0	65	215	0	27	242	0	56	313	369	676
Apprch %	0	0	0		40	60	0		88.8	0	11.2		0	15.2	84.8		
Total %	0	0	0		3.8	5.8	0	9.6	31.8	0	4	35.8	0	8.3	46.3	54.6	

	Dirt Road Southbound				El Toro Road Westbound				El Toro Road Northbound				Nichols Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	0	0	0	0	2	6	0	8	37	0	2	39	0	3	42	45	92
05:00 PM	0	0	0	0	3	3	0	6	32	0	2	34	0	11	56	67	107
05:15 PM	0	0	0	0	5	6	0	11	33	0	1	34	0	6	42	48	93
05:30 PM	0	0	0	0	6	4	0	10	20	0	6	26	0	4	36	40	76
Total Volume	0	0	0	0	16	19	0	35	122	0	11	133	0	24	176	200	368
% App. Total	0	0	0		45.7	54.3	0		91.7	0	8.3		0	12	88		
PHF	.000	.000	.000	.000	.667	.792	.000	.795	.824	.000	.458	.853	.000	.545	.786	.746	.860

City of Lake Elsinore
N/S: El Toro Road
E/W: Nichols Road
Weather: Clear

File Name : 07_LKE_El Toro_Nichols PM
Site Code : 05118103
Start Date : 2/8/2018
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:45 PM				04:15 PM				04:30 PM			
+0 mins.	0	0	0	0	2	6	0	8	29	0	6	35	0	5	38	43
+15 mins.	0	0	0	0	3	3	0	6	24	0	1	25	0	3	42	45
+30 mins.	0	0	0	0	5	6	0	11	37	0	2	39	0	11	56	67
+45 mins.	0	0	0	0	6	4	0	10	32	0	2	34	0	6	42	48
Total Volume	0	0	0	0	16	19	0	35	122	0	11	133	0	25	178	203
% App. Total	0	0	0	0	45.7	54.3	0		91.7	0	8.3		0	12.3	87.7	
PHF	.000	.000	.000	.000	.667	.792	.000	.795	.824	.000	.458	.853	.000	.568	.795	.757

Location: Lake Elsinore
 N/S: El Toro Road
 E/W: Nichols Road



Date: 2/8/2018
 Date: Thursday

PEDESTRIANS

	North Leg Dirt Road	East Leg El Toro Road	South Leg El Toro Road	West Leg Nichols Road	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	0	0	1	1
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	0	1	0	1
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	1	0	0	1
8:45 AM	0	0	0	1	1
TOTAL VOLUMES:	0	1	1	2	4

	North Leg Dirt Road	East Leg El Toro Road	South Leg El Toro Road	West Leg Nichols Road	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0

Location: Lake Elsinore
 N/S: El Toro Road
 E/W: Nichols Road



Date: 2/8/2018
 Date: Thursday

BICYCLES

		Southbound Dirt Road			Westbound El Toro Road			Northbound El Toro Road			Eastbound Nichols Road			
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	0	0	0	0	1	0	0	0	0	0	1
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:		0	0	0	0	0	0	1	0	0	0	0	0	1

		Southbound Dirt Road			Westbound El Toro Road			Northbound El Toro Road			Eastbound Nichols Road			
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	1	1
	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:		0	0	0	0	0	0	0	0	0	0	0	1	1

City of Lake Elsinore
N/S: Wood Mesa Court/El Toro Road
E/W: El Toro Road
Weather: Clear

File Name : 08_LKE_El Toro_Wood Mesa AM
Site Code : 05118103
Start Date : 2/8/2018
Page No : 1

Groups Printed- Total Volume

	Wood Mesa Court Southbound			El Toro Road Westbound			El Toro Road Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	182	1	183	0	49	49	232
07:15 AM	0	0	0	186	0	186	2	60	62	248
07:30 AM	0	1	1	42	1	43	0	48	48	92
07:45 AM	0	0	0	20	0	20	1	12	13	33
Total	0	1	1	430	2	432	3	169	172	605
08:00 AM	1	0	1	14	1	15	0	11	11	27
08:15 AM	0	0	0	21	0	21	3	6	9	30
08:30 AM	0	0	0	9	0	9	0	6	6	15
08:45 AM	1	2	3	13	0	13	0	10	10	26
Total	2	2	4	57	1	58	3	33	36	98
Grand Total	2	3	5	487	3	490	6	202	208	703
Apprch %	40	60		99.4	0.6		2.9	97.1		
Total %	0.3	0.4	0.7	69.3	0.4	69.7	0.9	28.7	29.6	

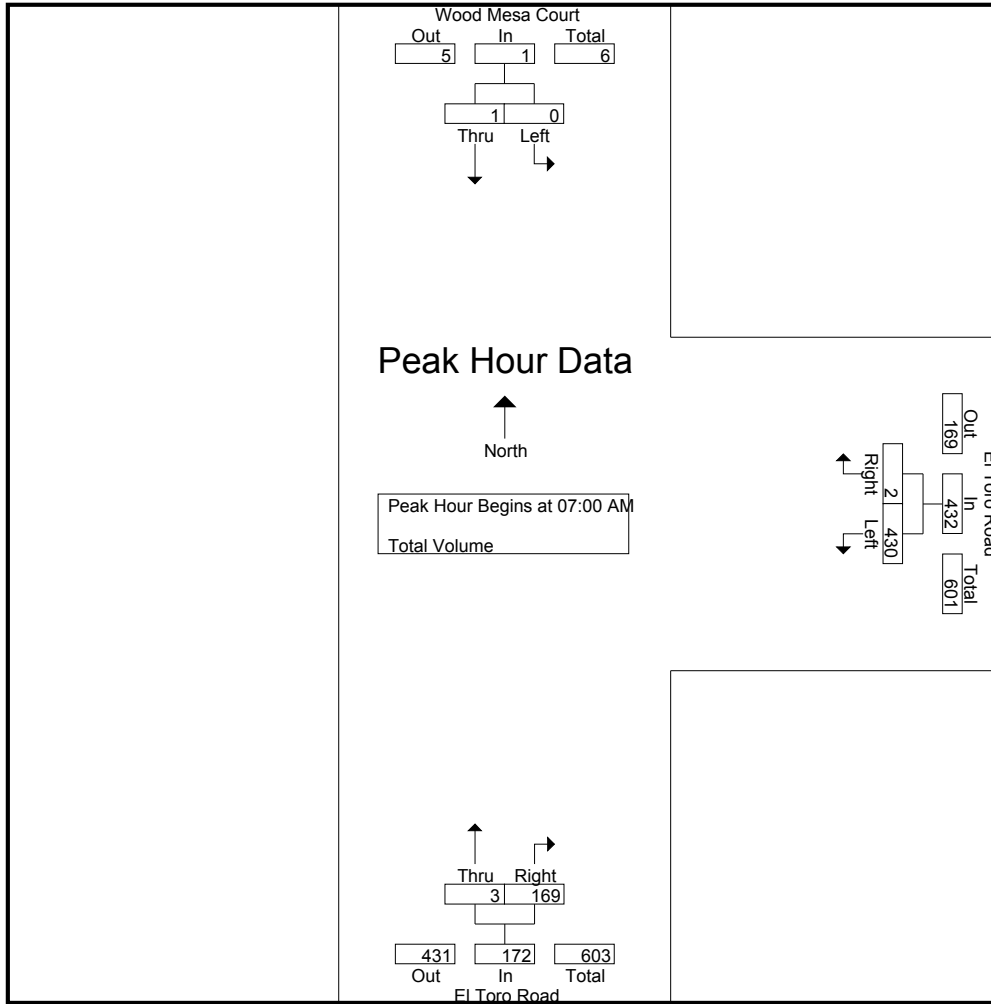
	Wood Mesa Court Southbound			El Toro Road Westbound			El Toro Road Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	182	1	183	0	49	49	232
07:15 AM	0	0	0	186	0	186	2	60	62	248
07:30 AM	0	1	1	42	1	43	0	48	48	92
07:45 AM	0	0	0	20	0	20	1	12	13	33
Total Volume	0	1	1	430	2	432	3	169	172	605
% App. Total	0	100		99.5	0.5		1.7	98.3		
PHF	.000	.250	.250	.578	.500	.581	.375	.704	.694	.610

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 07:00 AM

City of Lake Elsinore
N/S: Wood Mesa Court/El Toro Road
E/W: El Toro Road
Weather: Clear

File Name : 08_LKE_El Toro_Wood Mesa AM
Site Code : 05118103
Start Date : 2/8/2018
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	08:00 AM			07:00 AM			07:00 AM		
+0 mins.	1	0	1	182	1	183	0	49	49
+15 mins.	0	0	0	186	0	186	2	60	62
+30 mins.	0	0	0	42	1	43	0	48	48
+45 mins.	1	2	3	20	0	20	1	12	13
Total Volume	2	2	4	430	2	432	3	169	172
% App. Total	50	50		99.5	0.5		1.7	98.3	
PHF	.500	.250	.333	.578	.500	.581	.375	.704	.694

City of Lake Elsinore
N/S: Wood Mesa Court/El Toro Road
E/W: El Toro Road
Weather: Clear

File Name : 08_LKE_El Toro_Wood Mesa PM
Site Code : 05118103
Start Date : 2/8/2018
Page No : 1

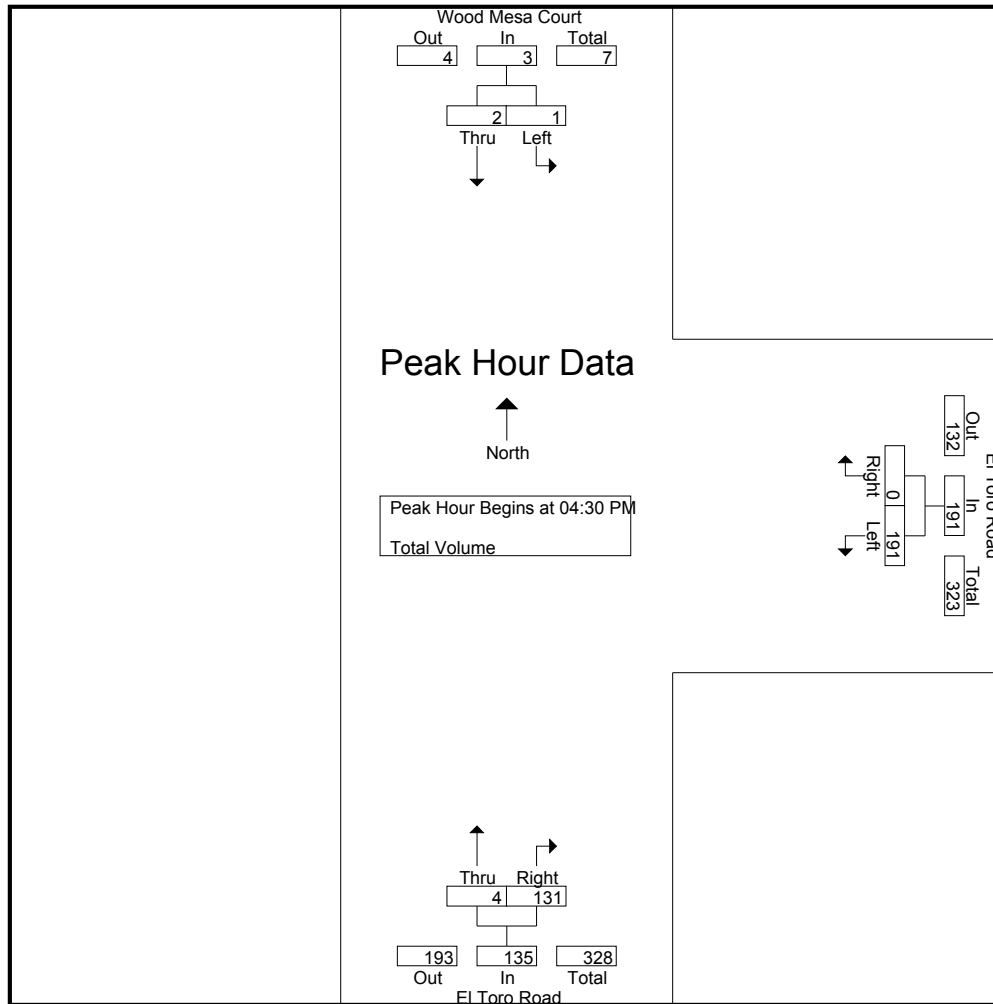
Groups Printed- Total Volume

	Wood Mesa Court Southbound			El Toro Road Westbound			El Toro Road Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
04:00 PM	0	1	1	40	2	42	0	26	26	69
04:15 PM	0	2	2	35	1	36	0	34	34	72
04:30 PM	1	0	1	43	0	43	0	28	28	72
04:45 PM	0	1	1	39	0	39	3	34	37	77
Total	1	4	5	157	3	160	3	122	125	290
05:00 PM	0	0	0	55	0	55	0	31	31	86
05:15 PM	0	1	1	54	0	54	1	38	39	94
05:30 PM	0	0	0	41	1	42	0	29	29	71
05:45 PM	0	1	1	30	0	30	0	24	24	55
Total	0	2	2	180	1	181	1	122	123	306
Grand Total	1	6	7	337	4	341	4	244	248	596
Apprch %	14.3	85.7		98.8	1.2		1.6	98.4		
Total %	0.2	1	1.2	56.5	0.7	57.2	0.7	40.9	41.6	

	Wood Mesa Court Southbound			El Toro Road Westbound			El Toro Road Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:30 PM										
04:30 PM	1	0	1	43	0	43	0	28	28	72
04:45 PM	0	1	1	39	0	39	3	34	37	77
05:00 PM	0	0	0	55	0	55	0	31	31	86
05:15 PM	0	1	1	54	0	54	1	38	39	94
Total Volume	1	2	3	191	0	191	4	131	135	329
% App. Total	33.3	66.7		100	0		3	97		
PHF	.250	.500	.750	.868	.000	.868	.333	.862	.865	.875

City of Lake Elsinore
N/S: Wood Mesa Court/El Toro Road
E/W: El Toro Road
Weather: Clear

File Name : 08_LKE_El Toro_Wood Mesa PM
Site Code : 05118103
Start Date : 2/8/2018
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	04:00 PM			04:30 PM			04:45 PM		
+0 mins.	0	1	1	43	0	43	3	34	37
+15 mins.	0	2	2	39	0	39	0	31	31
+30 mins.	1	0	1	55	0	55	1	38	39
+45 mins.	0	1	1	54	0	54	0	29	29
Total Volume	1	4	5	191	0	191	4	132	136
% App. Total	20	80		100	0		2.9	97.1	
PHF	.250	.500	.625	.868	.000	.868	.333	.868	.872

Location: Lake Elsinore
 N/S: Wood Mesa Court/El Toro Road
 E/W: El Toro Road



Date: 2/8/2018
 Date: Thursday

PEDESTRIANS

	North Leg Wood Mesa Court	East Leg El Toro Road	South Leg El Toro Road	West Leg Dead End	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	0	0	0	0
7:15 AM	0	0	1	0	1
7:30 AM	0	0	0	0	0
7:45 AM	0	1	0	0	1
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	1	0	0	1
TOTAL VOLUMES:	0	2	1	0	3

	North Leg Wood Mesa Court	East Leg El Toro Road	South Leg El Toro Road	West Leg Dead End	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	10	0	0	10
TOTAL VOLUMES:	0	10	0	0	10

Location: Lake Elsinore
 N/S: Wood Mesa Court/El
 E/W: El Toro Road



Date: 2/8/2018
 Date: Thursday

BICYCLES

		Southbound Wood Mesa Court			Westbound El Toro Road			Northbound El Toro Road			Eastbound Dead End			
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	0	0	0	0	0	0	1	0	0	0	1
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:		0	0	0	0	0	0	0	0	1	0	0	0	1

		Southbound Wood Mesa Court			Westbound El Toro Road			Northbound El Toro Road			Eastbound Dead End			
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:15 PM	0	0	0	1	0	0	0	0	0	0	0	0	1
	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:		0	0	0	1	0	0	0	0	0	0	0	0	1

County of Riverside
N/S: El Toro Road
E/W: Tereticornis Avenue
Weather: Clear

File Name : 09_CRV_El Toro_Tereticornis AM
Site Code : 05118103
Start Date : 2/8/2018
Page No : 1

Groups Printed- Total Volume

	El Toro Road Southbound			Tereticornis Avenue Westbound			El Toro Road Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
07:00 AM	1	161	162	62	7	69	49	14	63	294
07:15 AM	4	155	159	65	6	71	53	26	79	309
07:30 AM	8	58	66	32	5	37	40	20	60	163
07:45 AM	5	20	25	7	5	12	8	5	13	50
Total	18	394	412	166	23	189	150	65	215	816
08:00 AM	5	11	16	2	5	7	7	1	8	31
08:15 AM	3	14	17	6	2	8	7	3	10	35
08:30 AM	0	8	8	2	3	5	3	3	6	19
08:45 AM	2	11	13	1	1	2	9	2	11	26
Total	10	44	54	11	11	22	26	9	35	111
Grand Total	28	438	466	177	34	211	176	74	250	927
Apprch %	6	94		83.9	16.1		70.4	29.6		
Total %	3	47.2	50.3	19.1	3.7	22.8	19	8	27	

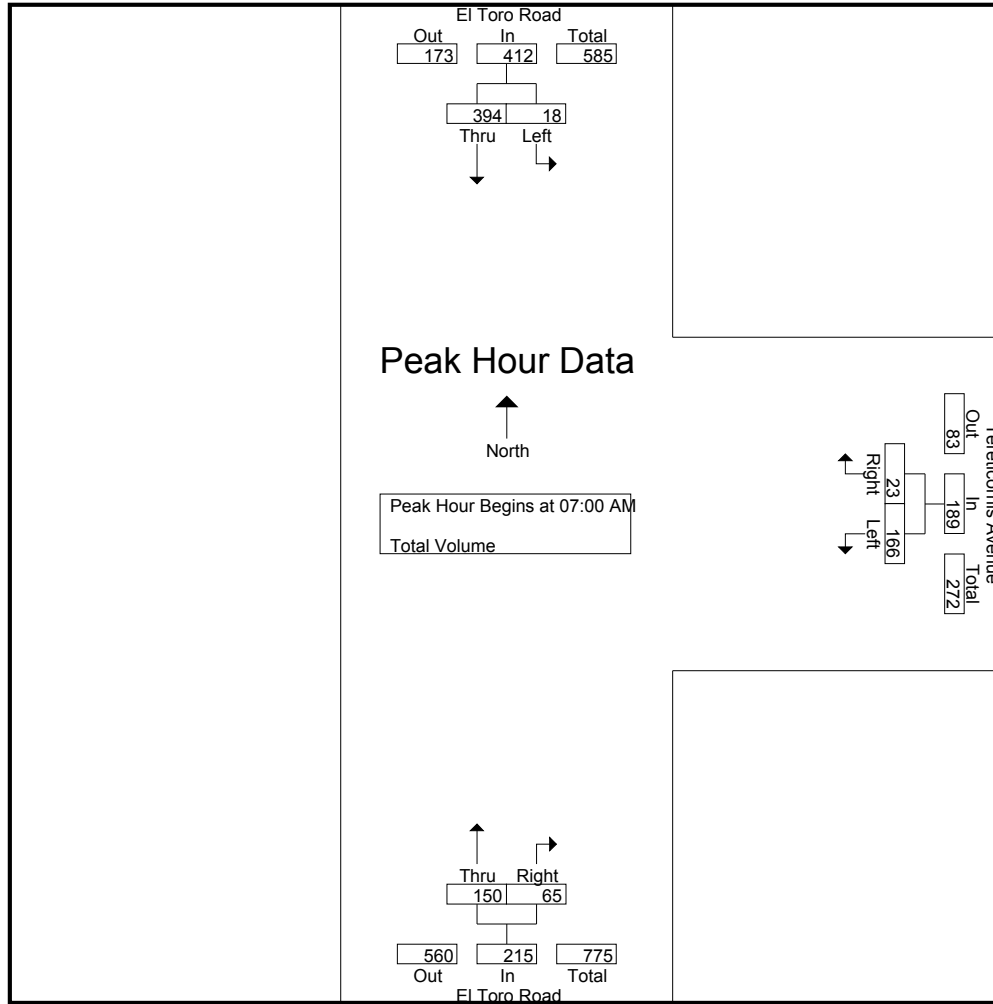
	El Toro Road Southbound			Tereticornis Avenue Westbound			El Toro Road Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
07:00 AM	1	161	162	62	7	69	49	14	63	294
07:15 AM	4	155	159	65	6	71	53	26	79	309
07:30 AM	8	58	66	32	5	37	40	20	60	163
07:45 AM	5	20	25	7	5	12	8	5	13	50
Total Volume	18	394	412	166	23	189	150	65	215	816
% App. Total	4.4	95.6		87.8	12.2		69.8	30.2		
PHF	.563	.612	.636	.638	.821	.665	.708	.625	.680	.660

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 07:00 AM

County of Riverside
N/S: El Toro Road
E/W: Tereticornis Avenue
Weather: Clear

File Name : 09_CRV_El Toro_Tereticornis AM
Site Code : 05118103
Start Date : 2/8/2018
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM			07:00 AM			07:00 AM		
+0 mins.	1	161	162	62	7	69	49	14	63
+15 mins.	4	155	159	65	6	71	53	26	79
+30 mins.	8	58	66	32	5	37	40	20	60
+45 mins.	5	20	25	7	5	12	8	5	13
Total Volume	18	394	412	166	23	189	150	65	215
% App. Total	4.4	95.6		87.8	12.2		69.8	30.2	
PHF	.563	.612	.636	.638	.821	.665	.708	.625	.680

County of Riverside
N/S: El Toro Road
E/W: Tereticornis Avenue
Weather: Clear

File Name : 09_CRV_El Toro_Tereticornis PM
Site Code : 05118103
Start Date : 2/8/2018
Page No : 1

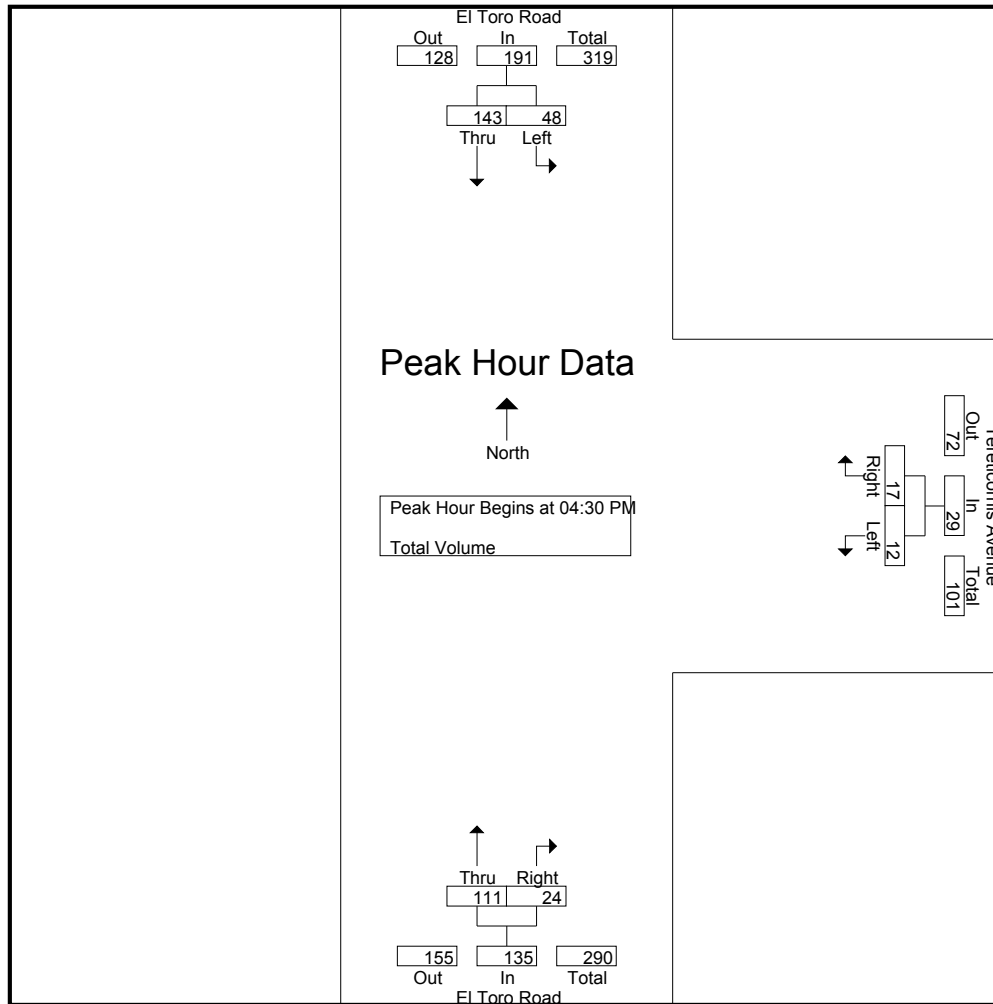
Groups Printed- Total Volume

	El Toro Road Southbound			Tereticornis Avenue Westbound			El Toro Road Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
04:00 PM	18	27	45	5	4	9	22	3	25	79
04:15 PM	7	29	36	4	13	17	24	5	29	82
04:30 PM	7	35	42	2	3	5	23	5	28	75
04:45 PM	10	34	44	8	4	12	34	4	38	94
Total	42	125	167	19	24	43	103	17	120	330
05:00 PM	20	30	50	1	5	6	24	10	34	90
05:15 PM	11	44	55	1	5	6	30	5	35	96
05:30 PM	7	34	41	1	5	6	24	1	25	72
05:45 PM	10	20	30	2	2	4	21	3	24	58
Total	48	128	176	5	17	22	99	19	118	316
Grand Total	90	253	343	24	41	65	202	36	238	646
Apprch %	26.2	73.8		36.9	63.1		84.9	15.1		
Total %	13.9	39.2	53.1	3.7	6.3	10.1	31.3	5.6	36.8	

	El Toro Road Southbound			Tereticornis Avenue Westbound			El Toro Road Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:30 PM										
04:30 PM	7	35	42	2	3	5	23	5	28	75
04:45 PM	10	34	44	8	4	12	34	4	38	94
05:00 PM	20	30	50	1	5	6	24	10	34	90
05:15 PM	11	44	55	1	5	6	30	5	35	96
Total Volume	48	143	191	12	17	29	111	24	135	355
% App. Total	25.1	74.9		41.4	58.6		82.2	17.8		
PHF	.600	.813	.868	.375	.850	.604	.816	.600	.888	.924

County of Riverside
N/S: El Toro Road
E/W: Tereticornis Avenue
Weather: Clear

File Name : 09_CRV_El Toro_Tereticornis PM
Site Code : 05118103
Start Date : 2/8/2018
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM			04:00 PM			04:30 PM		
+0 mins.	7	35	42	5	4	9	23	5	28
+15 mins.	10	34	44	4	13	17	34	4	38
+30 mins.	20	30	50	2	3	5	24	10	34
+45 mins.	11	44	55	8	4	12	30	5	35
Total Volume	48	143	191	19	24	43	111	24	135
% App. Total	25.1	74.9		44.2	55.8		82.2	17.8	
PHF	.600	.813	.868	.594	.462	.632	.816	.600	.888

Location: County of Riverside
 N/S: El Toro Road
 E/W: Tereticornis Avenue



Date: 2/8/2018
 Date: Thursday

PEDESTRIANS

	North Leg El Toro Road	East Leg Tereticornis Avenue	South Leg El Toro Road	West Leg Dead End	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	2	8	0	10
7:15 AM	0	0	14	0	14
7:30 AM	0	1	20	0	21
7:45 AM	0	0	2	0	2
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	0	3	44	0	47

	North Leg El Toro Road	East Leg Tereticornis Avenue	South Leg El Toro Road	West Leg Dead End	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0

Location: County of Riverside
 N/S: El Toro Road
 E/W: Tereticornis Avenue



Date: 2/8/2018
 Date: Thursday

BICYCLES

		Southbound El Toro Road			Westbound Tereticornis Avenue			Northbound El Toro Road			Eastbound Dead End			
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
	7:00 AM	0	0	0	1	0	0	0	1	0	0	0	0	2
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	1	0	0	0	0	0	0	0	0	1
	7:45 AM	0	0	0	0	0	1	0	0	0	0	0	0	1
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:		0	0	0	2	0	1	0	1	0	0	0	0	4

		Southbound El Toro Road			Westbound Tereticornis Avenue			Northbound El Toro Road			Eastbound Dead End			
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:		0	0	0	0	0	0	0	0	0	0	0	0	0

County of Riverside
N/S: El Toro Road
E/W: Carmela Court
Weather: Clear

File Name : 10_CRV_El Toro_Carmela Ct AM
Site Code : 05118103
Start Date : 2/8/2018
Page No : 1

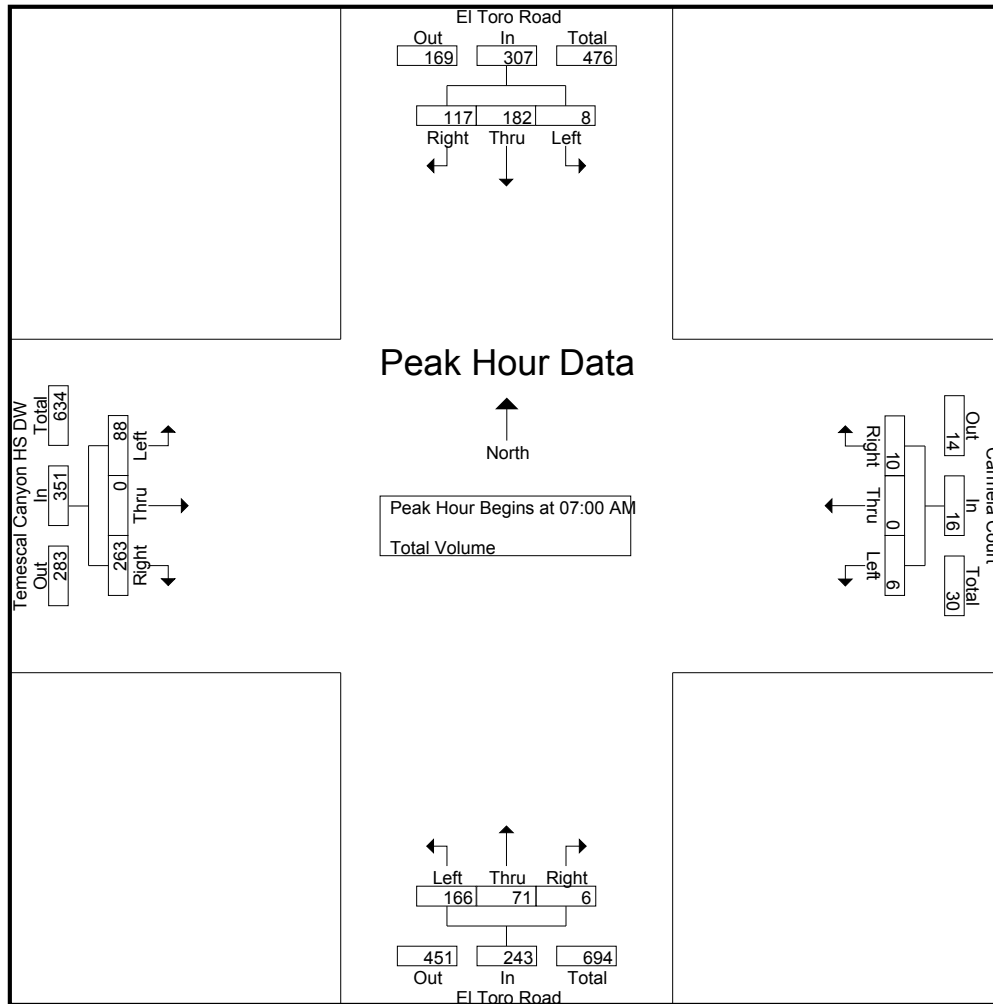
Groups Printed- Total Volume

	El Toro Road Southbound				Carmela Court Westbound				El Toro Road Northbound				Temescal Canyon HS DW Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	3	48	38	89	0	0	4	4	61	31	0	92	24	0	94	118	303
07:15 AM	1	81	39	121	3	0	1	4	58	19	2	79	34	0	95	129	333
07:30 AM	3	44	30	77	3	0	3	6	29	12	4	45	26	0	59	85	213
07:45 AM	1	9	10	20	0	0	2	2	18	9	0	27	4	0	15	19	68
Total	8	182	117	307	6	0	10	16	166	71	6	243	88	0	263	351	917
08:00 AM	0	8	6	14	1	0	0	1	7	5	1	13	4	0	5	9	37
08:15 AM	0	7	14	21	1	0	0	1	30	9	0	39	3	0	13	16	77
08:30 AM	0	8	6	14	0	0	0	0	11	3	0	14	3	0	10	13	41
08:45 AM	0	6	5	11	0	0	0	0	9	8	0	17	4	0	4	8	36
Total	0	29	31	60	2	0	0	2	57	25	1	83	14	0	32	46	191
Grand Total	8	211	148	367	8	0	10	18	223	96	7	326	102	0	295	397	1108
Apprch %	2.2	57.5	40.3		44.4	0	55.6		68.4	29.4	2.1		25.7	0	74.3		
Total %	0.7	19	13.4	33.1	0.7	0	0.9	1.6	20.1	8.7	0.6	29.4	9.2	0	26.6	35.8	

	El Toro Road Southbound				Carmela Court Westbound				El Toro Road Northbound				Temescal Canyon HS DW Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	3	48	38	89	0	0	4	4	61	31	0	92	24	0	94	118	303
07:15 AM	1	81	39	121	3	0	1	4	58	19	2	79	34	0	95	129	333
07:30 AM	3	44	30	77	3	0	3	6	29	12	4	45	26	0	59	85	213
07:45 AM	1	9	10	20	0	0	2	2	18	9	0	27	4	0	15	19	68
Total Volume	8	182	117	307	6	0	10	16	166	71	6	243	88	0	263	351	917
% App. Total	2.6	59.3	38.1		37.5	0	62.5		68.3	29.2	2.5		25.1	0	74.9		
PHF	.667	.562	.750	.634	.500	.000	.625	.667	.680	.573	.375	.660	.647	.000	.692	.680	.688

County of Riverside
N/S: El Toro Road
E/W: Carmela Court
Weather: Clear

File Name : 10_CRV_El Toro_Carmela Ct AM
Site Code : 05118103
Start Date : 2/8/2018
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM				07:00 AM				07:00 AM				07:00 AM			
+0 mins.	3	48	38	89	0	0	4	4	61	31	0	92	24	0	94	118
+15 mins.	1	81	39	121	3	0	1	4	58	19	2	79	34	0	95	129
+30 mins.	3	44	30	77	3	0	3	6	29	12	4	45	26	0	59	85
+45 mins.	1	9	10	20	0	0	2	2	18	9	0	27	4	0	15	19
Total Volume	8	182	117	307	6	0	10	16	166	71	6	243	88	0	263	351
% App. Total	2.6	59.3	38.1		37.5	0	62.5		68.3	29.2	2.5		25.1	0	74.9	
PHF	.667	.562	.750	.634	.500	.000	.625	.667	.680	.573	.375	.660	.647	.000	.692	.680

County of Riverside
N/S: El Toro Road
E/W: Carmela Court
Weather: Clear

File Name : 10_CRV_El Toro_Carmela Ct PM
Site Code : 05118103
Start Date : 2/8/2018
Page No : 1

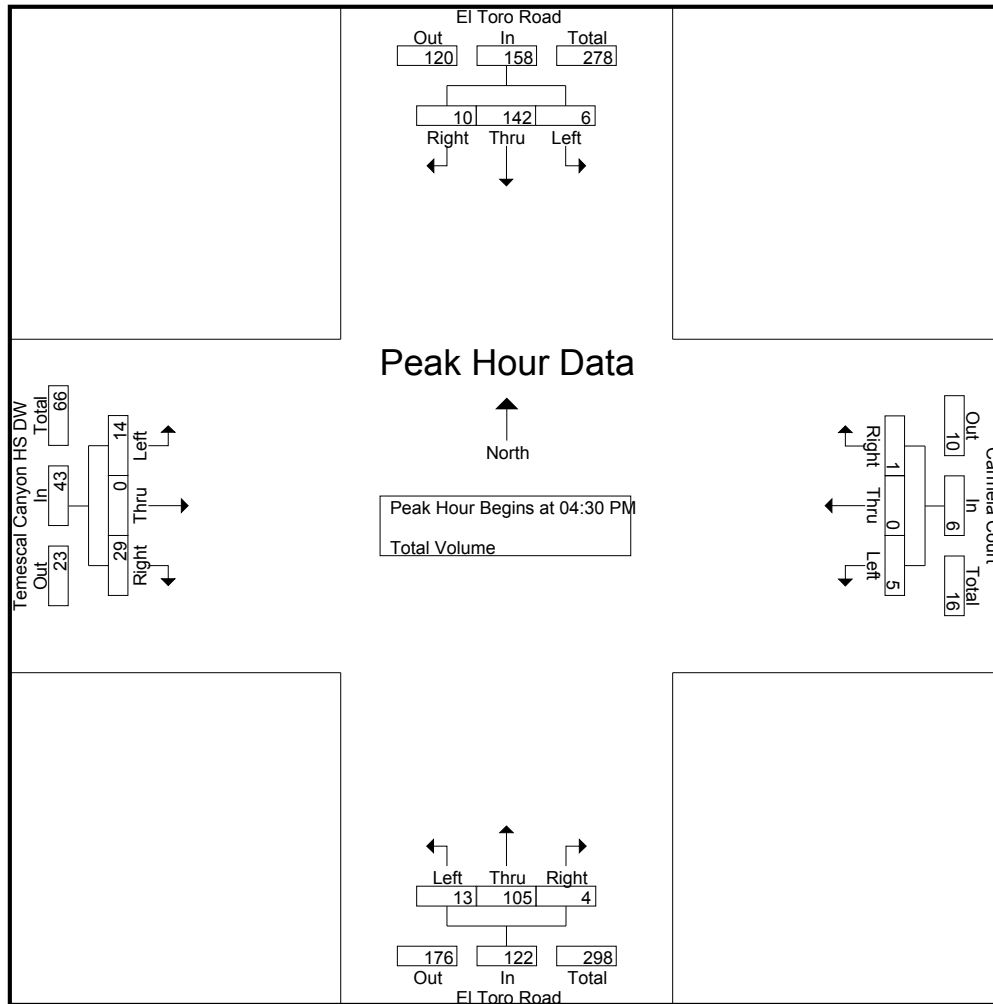
Groups Printed- Total Volume

	El Toro Road Southbound				Carmela Court Westbound				El Toro Road Northbound				Temescal Canyon HS DW Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	23	5	28	1	0	1	2	6	21	1	28	1	0	15	16	74
04:15 PM	1	30	1	32	1	0	0	1	3	28	2	33	1	0	4	5	71
04:30 PM	2	29	4	35	1	0	0	1	4	22	0	26	3	0	10	13	75
04:45 PM	2	39	3	44	1	0	0	1	6	29	2	37	4	0	12	16	98
Total	5	121	13	139	4	0	1	5	19	100	5	124	9	0	41	50	318
05:00 PM	2	33	0	35	2	0	0	2	1	29	0	30	3	0	2	5	72
05:15 PM	0	41	3	44	1	0	1	2	2	25	2	29	4	0	5	9	84
05:30 PM	1	31	1	33	0	0	0	0	4	21	0	25	4	0	11	15	73
05:45 PM	1	24	2	27	0	0	0	0	1	19	0	20	5	0	4	9	56
Total	4	129	6	139	3	0	1	4	8	94	2	104	16	0	22	38	285
Grand Total	9	250	19	278	7	0	2	9	27	194	7	228	25	0	63	88	603
Apprch %	3.2	89.9	6.8		77.8	0	22.2		11.8	85.1	3.1		28.4	0	71.6		
Total %	1.5	41.5	3.2	46.1	1.2	0	0.3	1.5	4.5	32.2	1.2	37.8	4.1	0	10.4	14.6	

	El Toro Road Southbound				Carmela Court Westbound				El Toro Road Northbound				Temescal Canyon HS DW Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	2	29	4	35	1	0	0	1	4	22	0	26	3	0	10	13	75
04:45 PM	2	39	3	44	1	0	0	1	6	29	2	37	4	0	12	16	98
05:00 PM	2	33	0	35	2	0	0	2	1	29	0	30	3	0	2	5	72
05:15 PM	0	41	3	44	1	0	1	2	2	25	2	29	4	0	5	9	84
Total Volume	6	142	10	158	5	0	1	6	13	105	4	122	14	0	29	43	329
% App. Total	3.8	89.9	6.3		83.3	0	16.7		10.7	86.1	3.3		32.6	0	67.4		
PHF	.750	.866	.625	.898	.625	.000	.250	.750	.542	.905	.500	.824	.875	.000	.604	.672	.839

County of Riverside
N/S: El Toro Road
E/W: Carmela Court
Weather: Clear

File Name : 10_CRV_El Toro_Carmela Ct PM
Site Code : 05118103
Start Date : 2/8/2018
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM				04:30 PM				04:15 PM				04:00 PM			
+0 mins.	2	29	4	35	1	0	0	1	3	28	2	33	1	0	15	16
+15 mins.	2	39	3	44	1	0	0	1	4	22	0	26	1	0	4	5
+30 mins.	2	33	0	35	2	0	0	2	6	29	2	37	3	0	10	13
+45 mins.	0	41	3	44	1	0	1	2	1	29	0	30	4	0	12	16
Total Volume	6	142	10	158	5	0	1	6	14	108	4	126	9	0	41	50
% App. Total	3.8	89.9	6.3		83.3	0	16.7		11.1	85.7	3.2		18	0	82	
PHF	.750	.866	.625	.898	.625	.000	.250	.750	.583	.931	.500	.851	.563	.000	.683	.781

Location: County of Riverside
 N/S: El Toro Road
 E/W: Carmela Court



Date: 2/8/2018
 Date: Thursday

PEDESTRIANS

	North Leg El Toro Road	East Leg Carmela Court	South Leg El Toro Road	West Leg Temescal Canyon HS DW	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	7	6	0	0	13
7:15 AM	11	7	0	0	18
7:30 AM	3	1	0	0	4
7:45 AM	0	0	0	1	1
8:00 AM	3	1	0	6	10
8:15 AM	0	2	0	0	2
8:30 AM	1	0	0	0	1
8:45 AM	0	0	0	1	1
TOTAL VOLUMES:	25	17	0	8	50

	North Leg El Toro Road	East Leg Carmela Court	South Leg El Toro Road	West Leg Temescal Canyon HS DW	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	2	0	1	3
4:15 PM	1	1	1	0	3
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	1	1
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	2	2
5:30 PM	0	0	0	1	1
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	1	3	1	5	10

Location: County of Riverside
 N/S: El Toro Road
 E/W: Carmela Court



Date: 2/8/2018
 Date: Thursday

BICYCLES

	Southbound El Toro Road			Westbound Carmela Court			Northbound El Toro Road			Eastbound Temescal Canyon HS DW			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	1
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	1	0	0	0	0	1
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	1	0	0	0	0	0	1	0	0	0	0	2

	Southbound El Toro Road			Westbound Carmela Court			Northbound El Toro Road			Eastbound Temescal Canyon HS DW			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	1	0	0	1
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	1	0	0	0	0	0	0	0	1	0	0	2

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Lake Elsinore
N/S: Dexter Avenue
EW: Central Avenue
Weather: Clear

File Name : 13_LKE_Dexter_Central AM
Site Code : 0518103
Start Date : 2/8/2018
Page No : 1

Groups Printed- Total Volume

	Dexter Avenue Southbound					Central Avenue Westbound					Dexter Avenue Northbound					Central Avenue Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	14	45	113	24	172	27	325	80	16	432	32	110	24	9	166	66	216	27	11	309	60	1079	1139
07:15 AM	19	46	119	7	184	21	364	48	11	433	21	94	14	7	129	61	245	26	11	332	36	1078	1114
07:30 AM	28	42	95	10	165	28	329	31	7	388	20	29	22	9	71	52	238	34	10	324	36	948	984
07:45 AM	7	8	45	10	60	45	355	27	4	427	26	18	27	12	71	48	187	37	7	272	33	830	863
Total	68	141	372	51	581	121	1373	186	38	1680	99	251	87	37	437	227	886	124	39	1237	165	3935	4100
08:00 AM	5	11	52	16	68	33	339	15	2	387	28	13	21	12	62	42	168	40	10	250	40	767	807
08:15 AM	8	3	45	10	56	31	292	21	6	344	35	17	21	7	73	49	154	35	14	238	37	711	748
08:30 AM	5	10	44	15	59	27	267	17	4	311	30	17	19	6	66	45	181	26	3	252	28	688	716
08:45 AM	8	9	43	15	60	21	269	13	2	303	26	16	17	9	59	58	177	35	11	270	37	692	729
Total	26	33	184	56	243	112	1167	66	14	1345	119	63	78	34	260	194	680	136	38	1010	142	2858	3000
Grand Total	94	174	556	107	824	233	2540	252	52	3025	218	314	165	71	697	421	1566	260	77	2247	307	6793	7100
Approch %	11.4	21.1	67.5			7.7	84	8.3			31.3	45.1	23.7			18.7	69.7	11.6					
Total %	1.4	2.6	8.2		12.1	3.4	37.4	3.7		44.5	3.2	4.6	2.4		10.3	6.2	23.1	3.8		33.1	4.3	95.7	

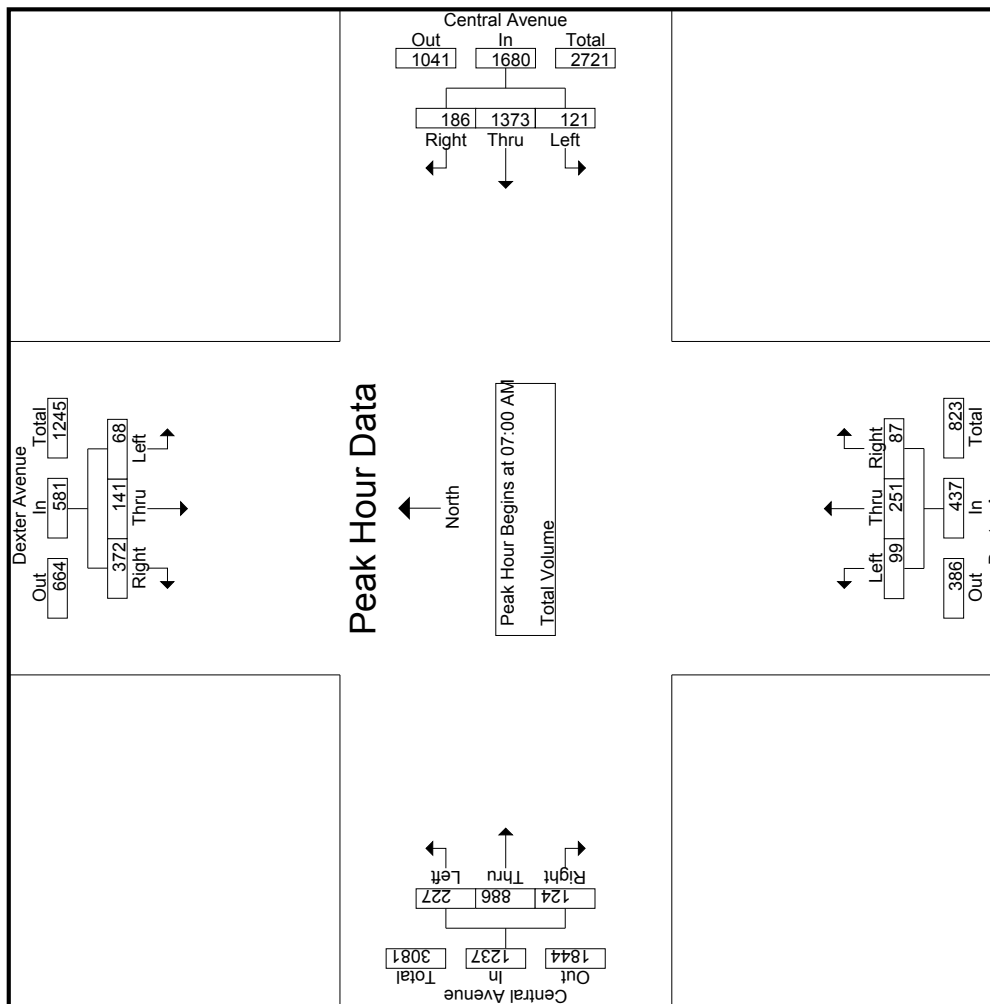
	Dexter Avenue Southbound					Central Avenue Westbound					Dexter Avenue Northbound					Central Avenue Eastbound					
Start Time	Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	14	45	113	172		27	325	80	432		32	110	24	166		66	216	27	309		1079
07:15 AM	19	46	119	184		21	364	48	433		21	94	14	129		61	245	26	332		1078
07:30 AM	28	42	95	165		28	329	31	388		20	29	22	71		52	238	34	324		948
07:45 AM	7	8	45	60		45	355	27	427		26	18	27	71		48	187	37	272		830
Total Volume	68	141	372	581		121	1373	186	1680		99	251	87	437		227	886	124	1237		3935
% App. Total	11.7	24.3	64			7.2	81.7	11.1			22.7	57.4	19.9			18.4	71.6	10			
PHF	.607	.766	.782	.789		.672	.943	.581	.970		.773	.570	.806	.658		.860	.904	.838	.931		.912

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 07:00 AM

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Lake Elsinore
N/S: Dexter Avenue
E/W: Central Avenue
Weather: Clear

File Name : 13_LKE_Dexter_Central AM
Site Code : 05118103
Start Date : 2/8/2018
Page No : 2



Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Lake Elsinore
N/S: Dexter Avenue
EW: Central Avenue
Weather: Clear

File Name : 13_LKE_Dexter_Central AM
Site Code : 05118103
Start Date : 2/8/2018
Page No : 3

Start Time	Dexter Avenue Southbound				Central Avenue Westbound				Dexter Avenue Northbound				Central Avenue Eastbound			
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																
Peak Hour for Each Approach Begins at:																
+0 mins.	14	45	113	172	07:00 AM				07:00 AM				07:00 AM			
+15 mins.	19	46	119	184	27	325	80	432	32	110	24	166	66	216	27	309
+30 mins.	28	42	95	165	21	364	48	433	21	94	14	129	61	245	26	332
+45 mins.	7	8	45	60	28	329	31	388	20	29	22	71	52	238	34	324
Total Volume	68	141	372	581	45	355	27	427	26	18	27	71	48	187	37	272
% App. Total	11.7	24.3	64		121	1373	186	1680	99	251	87	437	227	886	124	1237
PHF	.607	.766	.782	.789	7.2	81.7	11.1	.970	22.7	57.4	19.9	.658	18.4	71.6	10	.931
					.672	.943	.581		.773	.570	.806		.860	.904	.838	

Counts Unlimited
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City of Lake Elsinore
N/S: Dexter Avenue
EW: Central Avenue
Weather: Clear

File Name : 13_LKE_Dexter_Central PM
Site Code : 0518103
Start Date : 2/8/2018
Page No : 1

Groups Printed- Total Volume

	Dexter Avenue Southbound					Central Avenue Westbound					Dexter Avenue Northbound					Central Avenue Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Indu. Total	Int. Total
04:00 PM	19	21	84	23	124	33	255	21	3	309	36	36	39	11	111	82	364	42	11	488	48	1032	1080
04:15 PM	15	23	73	17	111	42	300	16	5	358	23	33	44	16	100	76	357	36	8	469	46	1038	1084
04:30 PM	7	15	87	26	109	45	290	13	7	348	32	24	40	17	96	76	349	39	13	464	63	1017	1080
04:45 PM	19	35	80	18	134	35	284	18	9	337	31	35	44	23	110	90	365	31	5	486	55	1067	1122
Total	60	94	324	84	478	155	1129	68	24	1352	122	128	167	67	417	324	1435	148	37	1907	212	4154	4366
05:00 PM	10	16	67	14	93	45	287	14	2	346	33	31	38	10	102	80	441	40	14	561	40	1102	1142
05:15 PM	21	18	82	9	121	36	253	24	10	313	23	29	47	16	99	79	445	49	14	573	49	1106	1155
05:30 PM	17	22	86	21	125	40	288	11	3	339	32	35	39	10	106	89	366	41	8	496	42	1066	1108
05:45 PM	12	12	82	15	106	37	264	20	2	321	29	31	37	21	97	98	393	38	12	529	50	1053	1103
Total	60	68	317	59	445	158	1092	69	17	1319	117	126	161	57	404	346	1645	168	48	2159	181	4327	4508
Grand Total	120	162	641	143	923	313	2221	137	41	2671	239	254	328	124	821	670	3080	316	85	4066	393	8481	8874
Approch %	13	17.6	69.4		10.9	11.7	83.2	5.1		31.5	29.1	30.9	40		9.7	16.5	75.8	7.8		47.9	4.4	95.6	
Total %	1.4	1.9	7.6			3.7	26.2	1.6			2.8	3	3.9			7.9	36.3	3.7					

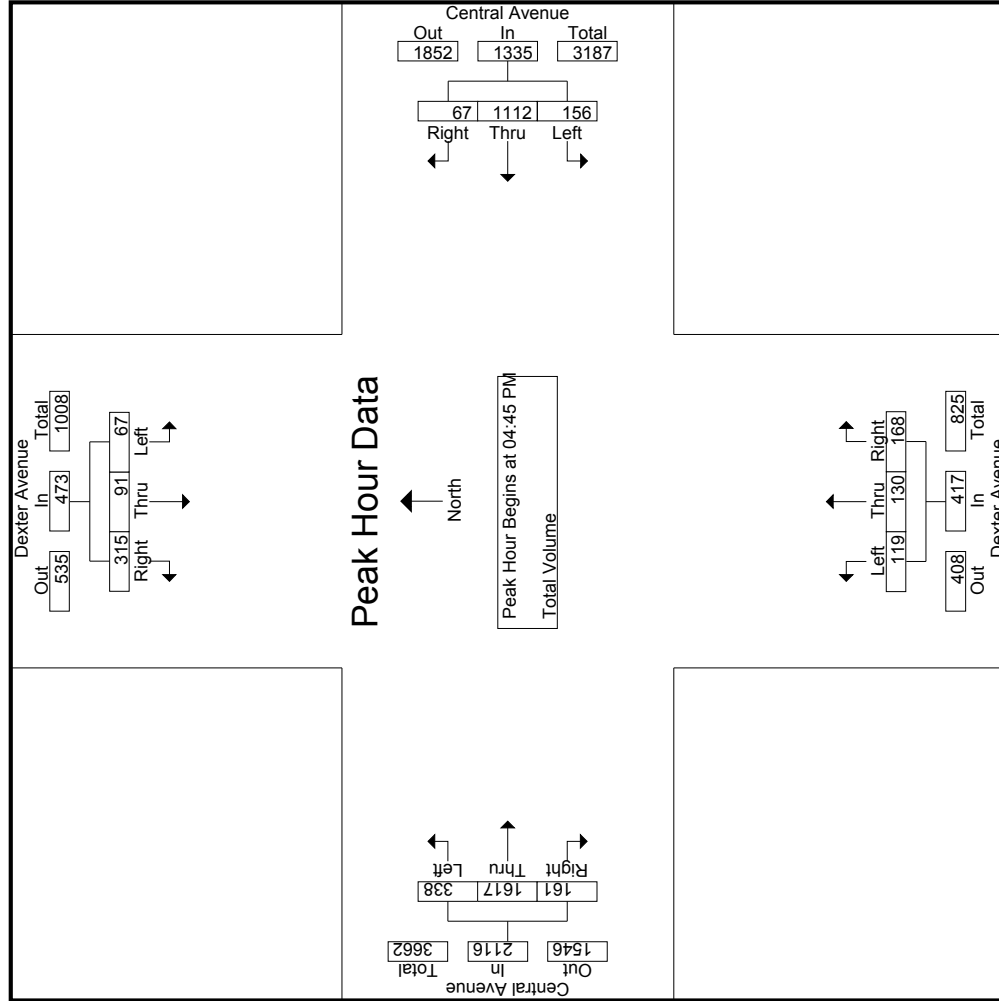
	Dexter Avenue Southbound					Central Avenue Westbound					Dexter Avenue Northbound					Central Avenue Eastbound					
Start Time	Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	19	35	80	134		35	284	18	337		31	35	44	110		90	365	31	486		1067
05:00 PM	10	16	67	93		45	287	14	346		33	31	38	102		80	441	40	561		1102
05:15 PM	21	18	82	121		36	253	24	313		23	29	47	99		79	445	49	573		1106
05:30 PM	17	22	86	125		40	288	11	339		32	35	39	106		89	366	41	496		1066
Total Volume	67	91	315	473		156	1112	67	1335		119	130	168	417		338	1617	161	2116		4341
% App. Total	14.2	19.2	66.6			11.7	83.3	5			28.5	31.2	40.3			16	76.4	7.6			
PHF	.798	.650	.916	.882		.867	.965	.698	.965		.902	.929	.894	.948		.939	.908	.821	.923		.981

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 04:45 PM

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City of Lake Elsinore
N/S: Dexter Avenue
E/W: Central Avenue
Weather: Clear

File Name : 13_LKE_Dexter_Central_PM
Site Code : 05118103
Start Date : 2/8/2018
Page No : 2



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City of Lake Elsinore
N/S: Dexter Avenue
EW: Central Avenue
Weather: Clear

File Name : 13_LKE_Dexter_Central_PM
Site Code : 05118103
Start Date : 2/8/2018
Page No : 3

	Dexter Avenue Southbound				Central Avenue Westbound				Dexter Avenue Northbound				Central Avenue Eastbound			
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																
Peak Hour for Each Approach Begins at:																
	04:00 PM				04:15 PM				04:00 PM				05:00 PM			
+0 mins.	19	21	84	124	42	300	16	358	36	39	441	40	80	441	40	561
+15 mins.	15	23	73	111	45	290	13	348	23	33	445	49	79	445	49	573
+30 mins.	7	15	87	109	35	284	18	337	32	24	366	41	89	366	41	496
+45 mins.	19	35	80	134	45	287	14	346	31	35	393	38	98	393	38	529
Total Volume	60	94	324	478	167	1161	61	1389	122	128	167	168	346	1645	168	2159
% App. Total	12.6	19.7	67.8		12	83.6	4.4		29.3	30.7	40	7.8	16	76.2	7.8	
PHF	.789	.671	.931	.892	.928	.968	.847	.970	.847	.889	.949	.857	.883	.924	.857	.942

Location: City of Lake Elsinore
 N/S: Dexter Avenue
 E/W: Central Avenue



Date: 2/8/2018
 Date: Thursday

PEDESTRIANS

	North Leg Dexter Avenue	East Leg Central Avenue	South Leg Dexter Avenue	West Leg Central Avenue	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	1	0	0	1
8:00 AM	0	0	0	0	0
8:15 AM	0	2	0	0	2
8:30 AM	3	2	0	0	5
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	3	5	0	0	8

	North Leg Dexter Avenue	East Leg Central Avenue	South Leg Dexter Avenue	West Leg Central Avenue	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	1	0	0	0	1
4:15 PM	1	0	0	0	1
4:30 PM	1	3	1	0	5
4:45 PM	0	1	2	0	3
5:00 PM	0	1	0	0	1
5:15 PM	1	2	0	0	3
5:30 PM	0	0	1	0	1
5:45 PM	2	0	0	0	2
TOTAL VOLUMES:	6	7	4	0	17

Location: City of Lake Elsinore
 N/S: Dexter Avenue
 E/W: Central Avenue



Date: 2/8/2018
 Date: Thursday

BICYCLES

		Southbound Dexter Avenue			Westbound Central Avenue			Northbound Dexter Avenue			Eastbound Central Avenue			
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	1	0	0	0	0	0	0	0	0	0	1
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:30 AM	0	0	0	0	0	0	0	1	0	0	1	0	2
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:		0	0	1	0	0	0	0	1	0	0	1	0	3

		Southbound Dexter Avenue			Westbound Central Avenue			Northbound Dexter Avenue			Eastbound Central Avenue			
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
	4:00 PM	1	0	0	0	0	1	0	0	0	0	1	0	3
	4:15 PM	0	0	1	0	0	0	0	0	0	0	0	0	1
	4:30 PM	0	0	0	0	0	0	0	1	0	0	0	0	1
	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:00 PM	0	0	0	0	1	0	0	0	0	0	1	0	2
	5:15 PM	0	2	0	0	0	0	0	1	0	0	0	0	3
	5:30 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
	5:45 PM	0	0	1	0	0	0	0	0	0	0	0	0	1
TOTAL VOLUMES:		1	3	2	0	1	1	0	2	0	0	2	0	12

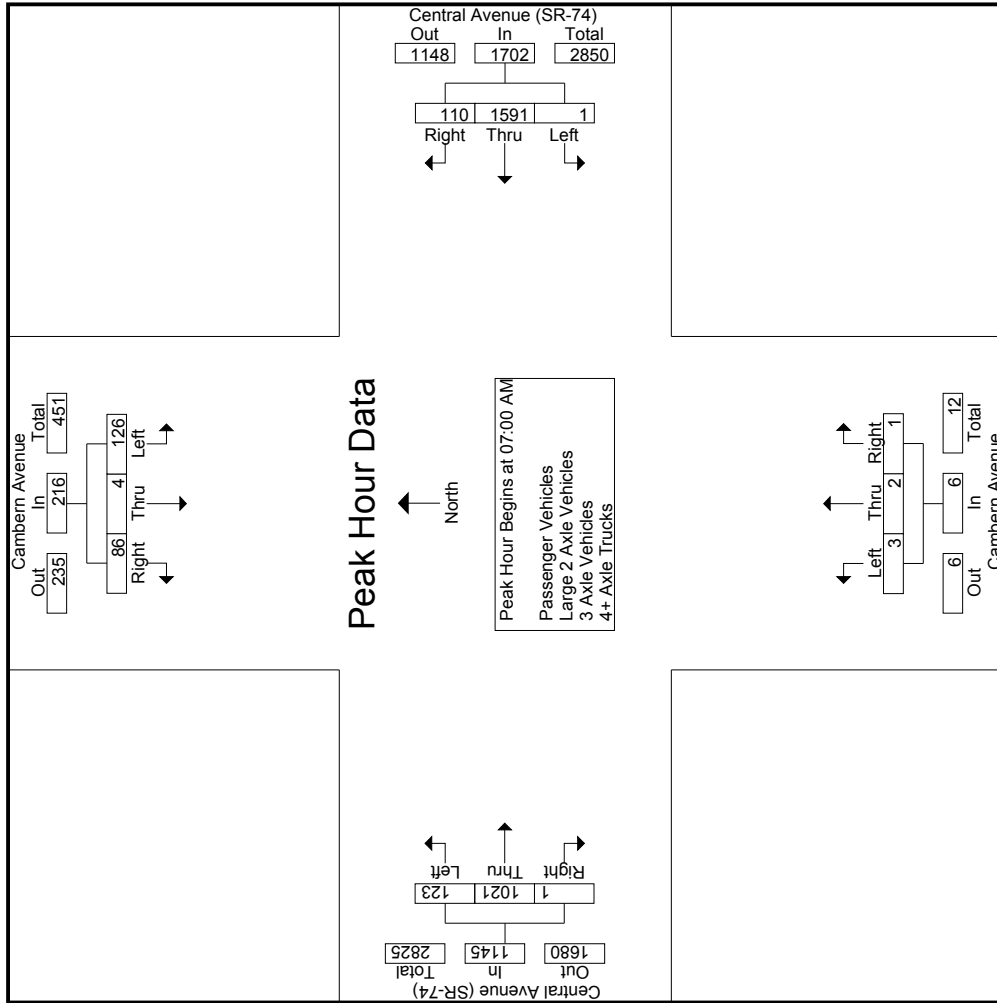
City of Lake Elsinore
N/S: Cambern Avenue
E/W: Central Avenue (SR-74)
Weather: Clear

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Cambern Avenue Southbound				Central Avenue (SR-74) Westbound				Cambern Avenue Northbound				Central Avenue (SR-74) Eastbound			
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																
Peak Hour for Entire Intersection Begins at 07:00 AM																
07:00 AM	29	1	27	57	0	400	32	432	1	0	0	1	29	252	0	281
07:15 AM	37	2	23	62	1	426	40	467	0	2	0	2	43	269	1	313
07:30 AM	43	1	15	59	0	375	11	386	1	0	0	1	27	268	0	295
07:45 AM	17	0	21	38	0	390	27	417	1	0	1	2	24	232	0	256
Total Volume	126	4	86	216	1	1591	110	1702	3	2	1	6	123	1021	1	1145
% App. Total	58.3	1.9	39.8		0.1	93.5	6.5		50	33.3	16.7		10.7	89.2	0.1	
PHF	733	500	796	871	250	934	688	911	750	250	250	750	715	940	250	915

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City of Lake Elsinore
 N/S: Cambern Avenue
 E/W: Central Avenue (SR-74)
 Weather: Clear



Counts Unlimited
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File Name : 03_LKE_Cambern_Central_AM
Site Code : 05118340
Start Date : 4/24/2018
Page No : 3

City of Lake Elsinore
N/S: Cambern Avenue
E/W: Central Avenue (SR-74)
Weather: Clear

Start Time	Cambern Avenue Southbound					Central Avenue (SR-74) Westbound					Cambern Avenue Northbound					Central Avenue (SR-74) Eastbound				
	Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																				
Peak Hour for Each Approach Begins at:																				
+0 mins.	29	1	27	57	07:00 AM	0	400	32	432	07:15 AM	0	2	0	2	29	252	0	281		
+15 mins.	37	2	23	62		1	426	40	467		1	0	0	1	43	269	1	313		
+30 mins.	43	1	15	59		0	375	11	386		1	0	1	2	27	268	0	295		
+45 mins.	17	0	21	38		0	390	27	417		0	0	2	2	24	232	0	256		
Total Volume	126	4	86	216		1	1591	110	1702		2	2	3	7	123	1021	1	1145		
% App. Total	58.3	1.9	39.8			0.1	93.5	6.5			28.6	28.6	42.9		10.7	89.2	0.1			
PHF	.733	.500	.796	.871		.250	.934	.688	.911		.500	.250	.375	.875	.715	.949	.250	.915		

City of Lake Elsinore
N/S: Cambern Avenue
EW: Central Avenue (SR-74)
Weather: Clear

File Name : 03_LKE_Cambarn_Central AM
Site Code : 05118340
Start Date : 4/24/2018
Page No : 1

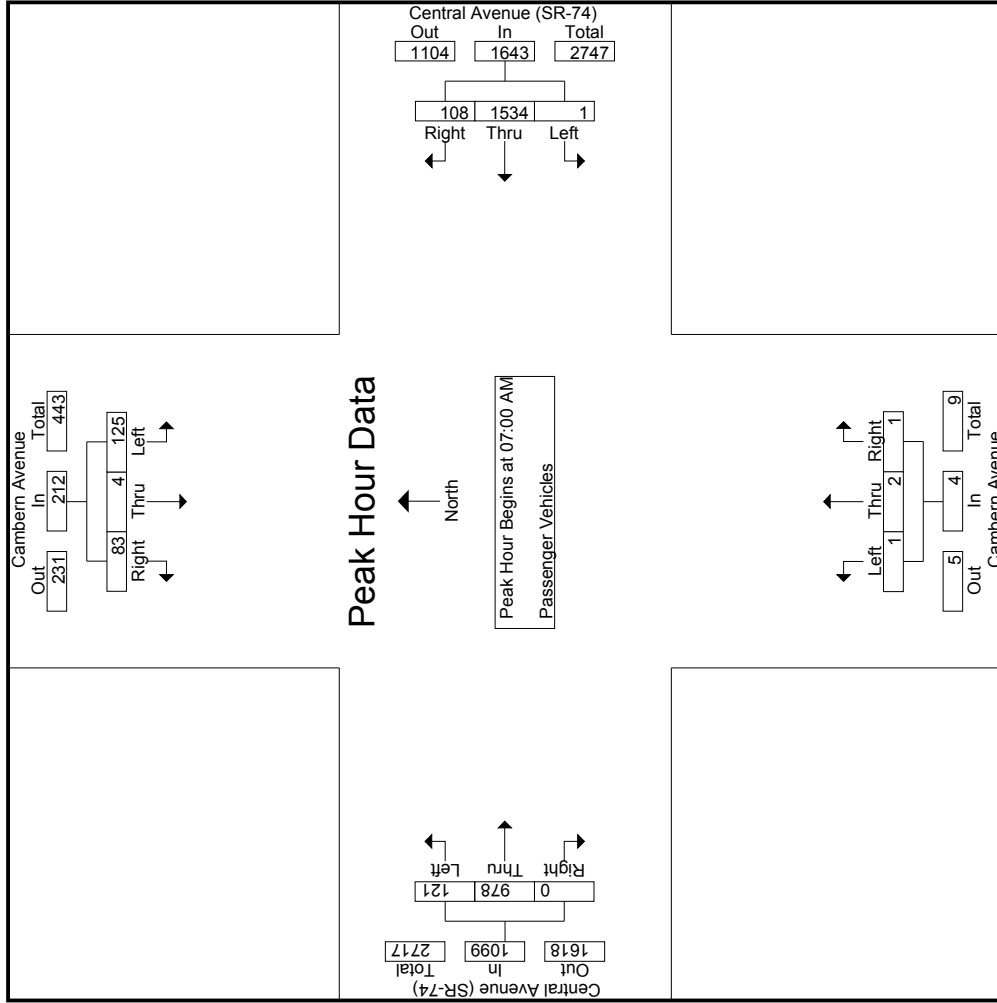
Groups Printed- Passenger Vehicles

Cambarn Avenue Southbound										Central Avenue (SR-74) Westbound						Cambarn Avenue Northbound						Central Avenue (SR-74) Eastbound					
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total				
07:00 AM	28	1	26	10	55	0	388	32	12	420	1	0	0	0	1	28	243	0	0	271	22	747	769				
07:15 AM	37	2	21	12	60	1	404	39	15	444	0	2	0	0	2	43	257	0	0	300	27	806	833				
07:30 AM	43	1	15	6	59	0	368	11	4	379	0	0	0	0	0	27	255	0	0	282	10	720	730				
07:45 AM	17	0	21	12	38	0	374	26	6	400	0	0	1	1	1	23	223	0	0	246	19	685	704				
Total	125	4	83	40	212	1	1534	108	37	1643	1	2	1	1	4	121	978	0	0	1099	78	2958	3036				
08:00 AM	13	0	10	8	23	2	306	24	6	332	0	0	2	2	2	29	187	1	0	217	16	574	590				
08:15 AM	9	0	18	13	27	1	279	14	1	294	0	1	0	0	1	38	177	0	0	215	14	537	551				
08:30 AM	14	0	22	15	36	0	258	22	6	280	0	0	0	0	0	19	177	0	0	196	21	512	533				
08:45 AM	23	1	13	11	37	0	261	27	11	288	2	0	1	1	3	36	160	1	0	197	23	525	548				
Total	59	1	63	47	123	3	1104	87	24	1194	2	1	3	3	6	122	701	2	0	825	74	2148	2222				
Grand Total	184	5	146	87	335	4	2638	195	61	2837	3	3	4	4	10	243	1679	2	0	1924	152	5106	5258				
Apprch %	54.9	1.5	43.6			0.1	93	6.9			30	30	40			12.6	87.3	0.1									
Total %	3.6	0.1	2.9		6.6	0.1	51.7	3.8		55.6	0.1	0.1	0.1		0.2	4.8	32.9	0		37.7	2.9	97.1					

3.1-176

	Cambarn Avenue Southbound						Central Avenue (SR-74) Westbound						Cambarn Avenue Northbound						Central Avenue (SR-74) Eastbound					
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total			
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																								
Peak Hour for Entire Intersection Begins at 07:00 AM																								
07:00 AM	28	1	26	55	0	388	32	420	1	0	0	1	28	243	0	271					747			
07:15 AM	37	2	21	60	1	404	39	444	0	2	0	2	43	257	0	300					806			
07:30 AM	43	1	15	59	0	368	11	379	0	0	0	0	27	255	0	282					720			
07:45 AM	17	0	21	38	0	374	26	400	0	0	1	1	23	223	0	246					685			
Total Volume	125	4	83	212	1	1534	108	1643	1	2	1	4	121	978	0	1099					2958			
% App. Total	59	1.9	39.2		0.1	93.4	6.6		25	50	25		11	89	0									
PHF	.727	.500	.798	.883	.250	.949	.692	.925	.250	.250	.250	.500	.703	.951	.000	.916					.917			

Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 07:00 AM



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File Name : 03_LKE_Cambern_Central AM
Site Code : 05118340
Start Date : 4/24/2018
Page No : 3

City of Lake Elsinore
N/S: Cambern Avenue
E/W: Central Avenue (SR-74)
Weather: Clear

Start Time	Cambern Avenue Southbound					Central Avenue (SR-74) Westbound					Cambern Avenue Northbound					Central Avenue (SR-74) Eastbound				
	Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																				
Peak Hour for Each Approach Begins at:																				
+0 mins.	28	1	26	55	07:00 AM	0	388	32	420	07:00 AM	1	0	0	1	28	243	0	271		
+15 mins.	37	2	21	60		1	404	39	444		0	2	0	2	43	257	0	300		
+30 mins.	43	1	15	59		0	368	11	379		0	0	0	0	27	255	0	282		
+45 mins.	17	0	21	38		0	374	26	400		0	0	1	1	23	223	0	246		
Total Volume	125	4	83	212		1	1534	108	1643		1	2	1	4	121	978	0	1099		
% App. Total	59	1.9	39.2			0.1	93.4	6.6			25	50	25		11	89	0			
PHF	.727	.500	.798	.883		.250	.949	.692	.925		.250	.250	.250	.500	.703	.951	.000	.916		

City of Lake Elsinore
N/S: Cambern Avenue
EW: Central Avenue (SR-74)
Weather: Clear

File Name : 03_LKE_Cambern_Central AM
Site Code : 05118340
Start Date : 4/24/2018
Page No : 1

Groups Printed- Large 2 Axle Vehicles

	Cambern Avenue Southbound						Central Avenue (SR-74) Westbound						Cambern Avenue Northbound						Central Avenue (SR-74) Eastbound					
Start Time	Left	Thru	Right	RTOR	App. Total		Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total					
07:00 AM	1	0	1	0	2		0	7	0	0	7	0	0	0	0	0	7	0	16					
07:15 AM	0	0	1	0	1		0	12	1	1	13	0	0	0	0	0	9	1	23					
07:30 AM	0	0	0	0	0		0	4	0	0	4	0	0	0	0	0	11	0	15					
07:45 AM	0	0	0	0	0		0	6	0	0	6	1	0	0	0	1	5	0	12					
Total	1	0	2	0	3		0	29	1	1	30	1	0	0	0	1	32	1	66					
08:00 AM	0	0	0	0	0		0	8	1	1	9	0	0	0	0	0	6	1	15					
08:15 AM	0	0	1	1	1		0	10	0	0	10	0	0	0	0	0	5	1	16					
08:30 AM	1	0	2	1	3		0	8	2	0	10	0	0	0	0	0	7	1	20					
08:45 AM	1	0	2	0	3		0	9	0	0	9	0	0	0	0	0	5	0	17					
Total	2	0	5	2	7		0	35	3	1	38	0	0	0	0	0	23	3	68					
Grand Total	3	0	7	2	10		0	64	4	2	68	1	0	0	0	1	55	4	134					
Approch %	30	0	70				0	94.1	5.9			100	0	0				7.3						
Total %	2.2	0	5.2		7.5		0	47.8	3		50.7	0.7	0	0		0.7	38.1	0	2.9					

3.1-179

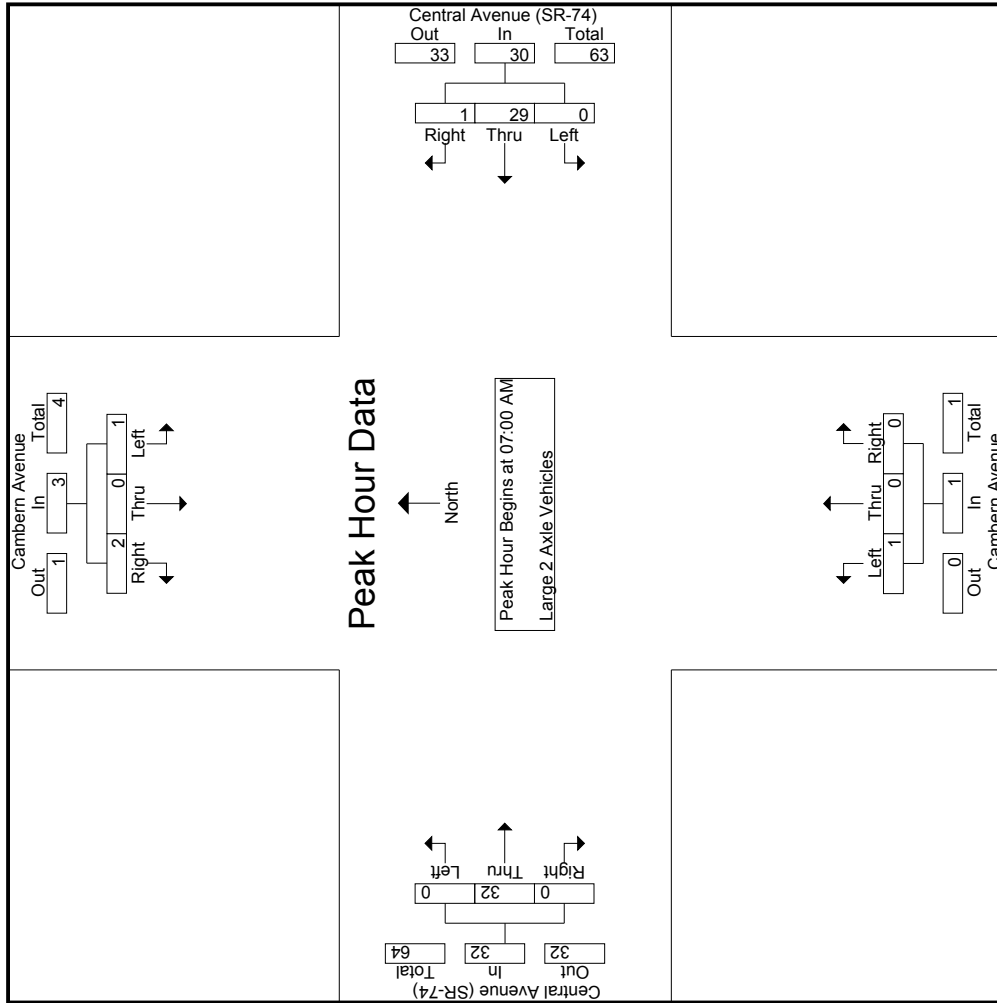
	Cambern Avenue Southbound					Central Avenue (SR-74) Westbound					Cambern Avenue Northbound					Central Avenue (SR-74) Eastbound				
Start Time	Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																				
Peak Hour for Entire Intersection Begins at 07:00 AM																				
07:00 AM	1	0	1	2		0	7	0	7		0	0	0	0		0	7	0	7	16
07:15 AM	0	0	1	1		0	12	1	13		0	0	0	0		0	9	0	9	23
07:30 AM	0	0	0	0		0	4	0	4		0	0	0	0		0	11	0	11	15
07:45 AM	0	0	0	0		0	6	0	6		1	0	0	1		0	5	0	5	12
Total Volume	1	0	2	3		0	29	1	30		1	0	0	1		0	32	0	32	66
% App. Total	33.3	0	66.7			0	96.7	3.3			100	0	0			0	100	0		
PHF	.250	.000	.500	.375		.000	.604	.250	.577		.250	.000	.000	.250		.000	.727	.000	.727	.717

Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 07:00 AM

Counts Unlimited
 PO Box 1178
 Corona, CA 92878
 (951) 268-6268

City of Lake Elsinore
 N/S: Cambern Avenue
 E/W: Central Avenue (SR-74)
 Weather: Clear



Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

File Name : 03_LKE_Cambern_Central_AM
Site Code : 05118340
Start Date : 4/24/2018
Page No : 3

City of Lake Elsinore
N/S: Cambern Avenue
E/W: Central Avenue (SR-74)
Weather: Clear

Start Time	Cambern Avenue Southbound				Central Avenue (SR-74) Westbound				Cambern Avenue Northbound				Central Avenue (SR-74) Eastbound			
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																
Peak Hour for Each Approach Begins at:																
+0 mins.	1	0	1	2	07:00 AM	0	7	0	7	07:00 AM	0	0	0	7	0	7
+15 mins.	0	0	1	1	0	12	1	13	0	0	0	0	0	9	0	9
+30 mins.	0	0	0	0	0	4	0	4	0	0	0	0	0	11	0	11
+45 mins.	0	0	0	0	0	6	0	6	1	0	0	0	1	5	0	5
Total Volume	1	0	2	3	0	29	1	30	1	0	0	0	0	32	0	32
% App. Total	33.3	0	66.7		0	96.7	3.3		100	0	0	0	0	100	0	
PHF	.250	.000	.500	.375	.000	.604	.250	.577	.250	.000	.000	.250	.000	.727	.000	.727

City of Lake Elsinore
N/S: Cambern Avenue
EW: Central Avenue (SR-74)
Weather: Clear

File Name : 03_LKE_Cambarn_Central AM
Site Code : 05118340
Start Date : 4/24/2018
Page No : 1

Groups Printed- 3 Axle Vehicles

Cambarn Avenue Southbound					Central Avenue (SR-74) Westbound					Cambarn Avenue Northbound					Central Avenue (SR-74) Eastbound				
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total	
07:00 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	2	2	
07:15 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1	0	2	2	
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	
07:45 AM	0	0	0	0	0	0	2	1	0	3	0	0	0	0	1	0	4	4	
Total	0	0	0	0	0	0	5	1	0	6	0	0	0	0	3	0	9	9	
08:00 AM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	3	0	6	6	
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	
08:30 AM	0	0	0	0	0	0	0	1	1	2	0	0	0	0	4	1	6	7	
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total	0	0	0	0	0	0	4	1	1	5	0	0	0	0	8	1	13	14	
Grand Total	0	0	0	0	0	0	9	2	1	11	0	0	0	0	11	1	22	23	
Apprch %	0	0	0			0	81.8	18.2			0	0	0		100				
Total %	0	0	0			0	40.9	9.1		50	0	0	0		50	4.3	95.7		

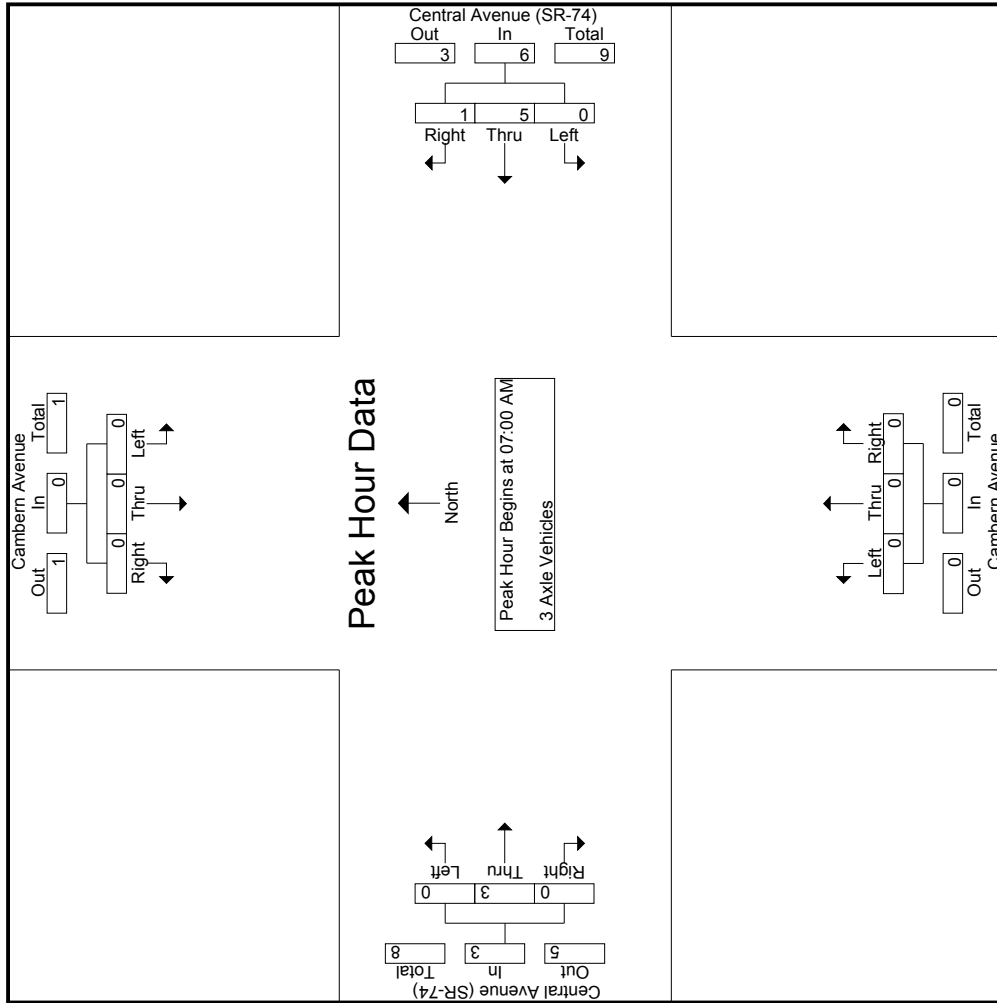
3.1-182

Start Time	Cambren Avenue Southbound					Central Avenue (SR-74) Westbound					Cambren Avenue Northbound					Central Avenue (SR-74) Eastbound					
	Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	0	0	0	0		0	2	0	2		0	0	0	0		0	0	0	0		2
07:15 AM	0	0	0	0		0	1	0	1		0	0	0	0		0	1	0	1		2
07:30 AM	0	0	0	0		0	0	0	0		0	0	0	0		0	1	0	1		1
07:45 AM	0	0	0	0		0	2	1	3		0	0	0	0		0	1	0	1		4
Total Volume	0	0	0	0		0	5	1	6		0	0	0	0		0	3	0	3		9
% App. Total	0	0	0	0		0	83.3	16.7			0	0	0	0		0	100	0			
PHF	.000	.000	.000	.000		.000	.625	.250	.500		.000	.000	.000	.000		.000	.750	.000	.750		.563

Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 07:00 AM

Counts Unlimited
 PO Box 1178
 Corona, CA 92878
 (951) 268-6268

City of Lake Elsinore
 N/S: Cambern Avenue
 E/W: Central Avenue (SR-74)
 Weather: Clear



Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Lake Elsinore
N/S: Cambern Avenue
E/W: Central Avenue (SR-74)
Weather: Clear

File Name : 03_LKE_Cambern_Central_AM
Site Code : 05118340
Start Date : 4/24/2018
Page No : 3

Start Time	Cambern Avenue Southbound				Central Avenue (SR-74) Westbound				Cambern Avenue Northbound				Central Avenue (SR-74) Eastbound			
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																
Peak Hour for Each Approach Begins at:																
+0 mins.	0	0	0	0	07:00 AM	0	2	0	2	07:00 AM	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
+45 mins.	0	0	0	0	0	2	1	3	0	0	0	0	0	1	0	1
Total Volume	0	0	0	0	0	5	1	6	0	0	0	0	0	3	0	3
% App. Total	0	0	0	0	0	83.3	16.7	0	0	0	0	0	0	100	0	0
PHF	.000	.000	.000	.000	.000	.625	.250	.500	.000	.000	.000	.000	.000	.750	.000	.750

City of Lake Elsinore
N/S: Cambern Avenue
EW: Central Avenue (SR-74)
Weather: Clear

File Name : 03_LKE_Cambern_Central AM
Site Code : 05118340
Start Date : 4/24/2018
Page No : 1

Groups Printed- 4+ Axle Trucks

	Cambern Avenue Southbound						Central Avenue (SR-74) Westbound						Cambern Avenue Northbound						Central Avenue (SR-74) Eastbound								
Start Time	Left	Thru	Right	RTOR	App. Total		Left	Thru	Right	RTOR	App. Total		Left	Thru	Right	RTOR	App. Total		Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total	
07:00 AM	0	0	0	0	0		0	0	3	0	3		0	0	0	0	0	0		1	2	0	0	3	0	6	6
07:15 AM	0	0	1	0	1		0	9	0	0	9		0	0	0	0	0	0		0	2	1	0	3	0	13	13
07:30 AM	0	0	0	0	0		0	0	3	0	3		1	0	0	0	1	0		0	1	0	0	1	0	5	5
07:45 AM	0	0	0	0	0		0	0	8	0	8		0	0	0	0	0	0		1	3	0	0	4	0	12	12
Total	0	0	1	0	1		0	23	0	0	23		1	0	0	0	1	0		2	8	1	0	11	0	36	36
08:00 AM	0	0	0	0	0		0	5	0	0	5		0	0	0	0	0	0		0	5	0	0	5	0	10	10
08:15 AM	0	0	1	1	1		0	7	0	0	7		0	0	0	0	0	0		0	6	0	0	6	1	14	15
08:30 AM	0	0	0	0	0		0	4	0	0	4		0	0	0	0	0	0		0	4	0	0	4	0	8	8
08:45 AM	0	0	0	0	0		0	3	1	0	4		0	0	0	0	0	0		0	8	0	0	8	0	12	12
Total	0	0	1	1	1		0	19	1	0	20		0	0	0	0	0	0		0	23	0	0	23	1	44	45
Grand Total	0	0	2	1	2		0	42	1	0	43		1	0	0	0	1	0		2	31	1	0	34	1	80	81
Apprch %	0	0	100				0	97.7	2.3				100	0	0					5.9	91.2	2.9					
Total %	0	0	2.5		2.5		0	52.5	1.2		53.8		1.2	0	0		1.2			2.5	38.8	1.2		42.5	1.2	98.8	

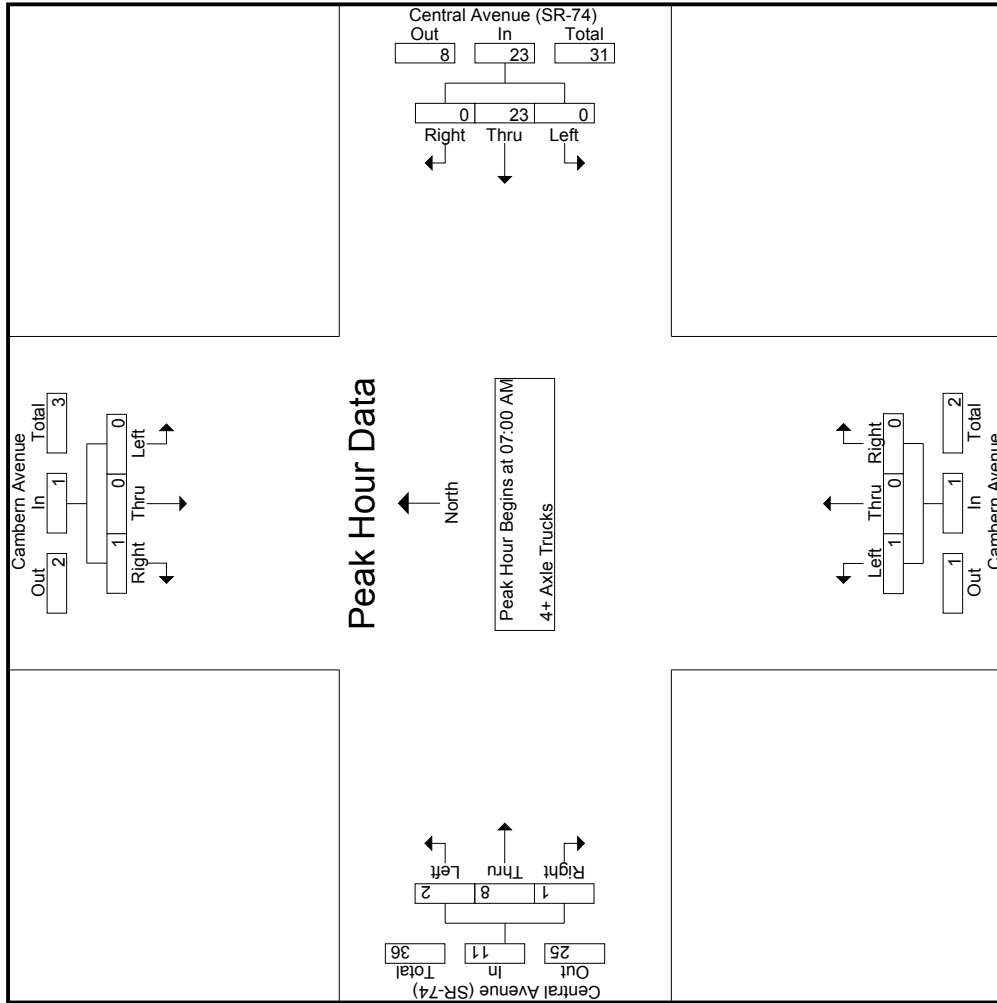
3.1-185

Start Time	Cambern Avenue Southbound					Central Avenue (SR-74) Westbound					Cambern Avenue Northbound					Central Avenue (SR-74) Eastbound					
	Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	0	0	0	0		0	3	0	3		0	0	0	0		1	2	0	3		6
07:15 AM	0	0	1	1		0	9	0	9		0	0	0	0		0	2	1	3		13
07:30 AM	0	0	0	0		0	3	0	3		1	0	0	1		0	1	0	1		5
07:45 AM	0	0	0	0		0	8	0	8		0	0	0	0		1	3	0	4		12
Total Volume	0	0	1	1		0	23	0	23		1	0	0	1		2	8	1	11		36
% App. Total	0	0	100			0	100	0			100	0	0			18.2	72.7	9.1			
PHF	.000	.000	.250	.250		.000	.639	.000	.639		.250	.000	.000	.250		.500	.667	.250	.688		.692

Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 07:00 AM

Counts Unlimited
 PO Box 1178
 Corona, CA 92878
 (951) 268-6268

City of Lake Elsinore
 N/S: Cambern Avenue
 E/W: Central Avenue (SR-74)
 Weather: Clear



Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

File Name : 03_LKE_Cambern_Central_AM
Site Code : 05118340
Start Date : 4/24/2018
Page No : 3

City of Lake Elsinore
N/S: Cambern Avenue
E/W: Central Avenue (SR-74)
Weather: Clear

Start Time	Cambern Avenue Southbound				Central Avenue (SR-74) Westbound				Cambern Avenue Northbound				Central Avenue (SR-74) Eastbound			
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																
Peak Hour for Each Approach Begins at:																
	07:00 AM				07:00 AM				07:00 AM				07:00 AM			
+0 mins.	0	0	0	0	0	3	0	0	3	0	0	0	0	2	0	3
+15 mins.	0	0	1	1	0	9	0	0	9	0	0	0	0	2	1	3
+30 mins.	0	0	0	0	0	3	0	0	3	1	0	0	1	1	0	1
+45 mins.	0	0	0	0	0	8	0	0	8	0	0	0	0	3	0	4
Total Volume	0	0	1	1	0	23	0	23	1	0	0	1	2	8	1	11
% App. Total	0	0	100		0	100	0		100	0	0		18.2	72.7	9.1	
PHF	.000	.000	.250	.250	.000	.639	.000	.639	.250	.000	.000	.250	.500	.667	.250	.688

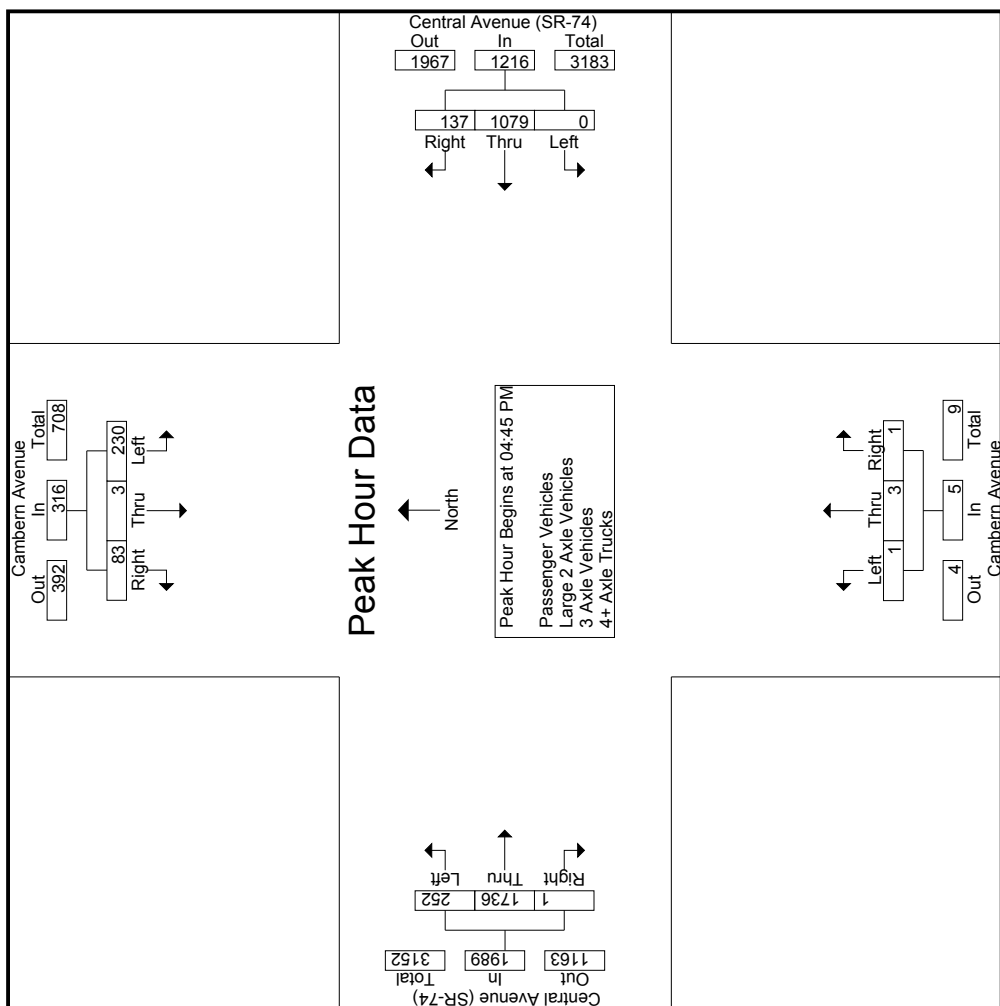
City of Lake Elsinore
N/S: Cambern Avenue
EW: Central Avenue (SR-74)
Weather: Clear

File Name : 03_LKE_Cambarn_Central PM
Site Code : 05118340
Start Date : 4/24/2018
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

Start Time	Cambarn Avenue Southbound						Central Avenue (SR-74) Westbound						Cambarn Avenue Northbound						Central Avenue (SR-74) Eastbound					
	Left	Thru	Right	RTOR	App. Total		Left	Thru	Right	RTOR	App. Total		Left	Thru	Right	RTOR	App. Total		Left	Thru	Right	RTOR	App. Total	
04:00 PM	57	1	29	16	87		0	282	31	12	313		0	0	0	0	0		59	464	0	0	523	
04:15 PM	66	0	28	15	94		0	285	36	10	321		0	0	0	0	0		54	418	0	0	472	
04:30 PM	61	0	26	14	87		0	271	46	17	317		0	1	0	0	1		65	361	0	0	426	
04:45 PM	71	0	20	11	91		0	278	31	9	309		0	1	0	0	1		77	403	0	0	480	
Total	255	1	103	56	359		0	1116	144	48	1260		0	2	0	0	2		255	1646	0	0	1901	
05:00 PM	50	1	27	21	78		0	241	37	11	278		1	0	0	0	1		58	454	0	0	512	
05:15 PM	56	1	19	9	76		0	284	37	14	321		0	1	0	0	2		64	453	1	0	518	
05:30 PM	53	1	17	10	71		0	276	32	16	308		0	1	0	0	1		53	426	0	0	479	
05:45 PM	56	0	18	9	74		0	263	43	14	306		0	1	1	0	2		65	372	1	0	438	
Total	215	3	81	49	299		0	1064	149	55	1213		1	3	2	0	6		240	1705	2	0	1947	
Grand Total	470	4	184	105	658		0	2180	293	103	2473		1	5	2	0	8		495	3351	2	0	3848	
Approch %	71.4	0.6	28				0	88.2	11.8				12.5	62.5	25				12.9	87.1	0.1			
Total %	6.7	0.1	2.6		9.4		0	31.2	4.2		35.4		0	0.1	0		0.1		7.1	48	0		55.1	
Passenger Vehicles	468	4	182		757		0	2117	290		2510		1	5	2		8		490	3228	2		3720	
% Passenger Vehicles	99.6	100	98.9	98.1	99.2		0	97.1	99	100	97.4		100	100	100	0	100		99	96.3	100	0	96.7	
Large 2 Axle Vehicles	2	0	2		6		0	44	2		46		0	0	0		0		4	71	0		75	
% Large 2 Axle Vehicles	0.4	0	1.1	1.9	0.8		0	2	0.7	0	1.8		0	0	0	0	0		0.8	2.1	0	0	1.9	
3 Axle Vehicles	0	0	0		0		0	6	0		6		0	0	0		0		0	22	0		22	
% 3 Axle Vehicles	0	0	0	0	0		0	0.3	0	0	0.2		0	0	0	0	0		0	0.7	0	0	0.6	
4+ Axle Trucks	0	0	0		0		0	13	1		14		0	0	0		0		1	30	0		31	
% 4+ Axle Trucks	0	0	0	0	0		0	0.6	0.3	0	0.5		0	0	0	0	0		0.2	0.9	0	0	0.8	

Start Time	Cambarn Avenue Southbound						Central Avenue (SR-74) Westbound						Cambarn Avenue Northbound						Central Avenue (SR-74) Eastbound					
	Left	Thru	Right	RTOR	App. Total		Left	Thru	Right	RTOR	App. Total		Left	Thru	Right	RTOR	App. Total		Left	Thru	Right	RTOR	App. Total	
04:45 PM	71	0	20		91		0	278	31		309		0	1	0		1		77	403	0		480	
05:00 PM	50	1	27		78		0	241	37		278		1	0	0		1		58	454	0		512	
05:15 PM	56	1	19		76		0	284	37		321		0	1	1		2		64	453	1		518	
05:30 PM	53	1	17		71		0	276	32		308		0	1	0		1		53	426	0		479	
Total Volume	230	3	83		316		0	1079	137		1216		1	3	1		5		252	1736	1		1989	
% App. Total	72.8	0.9	26.3				0	88.7	11.3				20	60	20				12.7	87.3	0.1			
PHF	.810	.750	.769		.868		.000	.950	.926		.947		.250	.750	.250		.625		.818	.956	.250		.960	



Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

File Name : 03_LKE_Cambern_Central PM
Site Code : 05118340
Start Date : 4/24/2018
Page No : 3

City of Lake Elsinore
N/S: Cambern Avenue
E/W: Central Avenue (SR-74)
Weather: Clear

Start Time	Cambern Avenue Southbound				Central Avenue (SR-74) Westbound				Cambern Avenue Northbound				Central Avenue (SR-74) Eastbound			
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																
Peak Hour for Each Approach Begins at:																
	04:00 PM				04:00 PM				05:00 PM				04:45 PM			
+0 mins.	57	1	29	87	0	282	31	313	1	0	0	1	77	403	0	480
+15 mins.	66	0	28	94	0	285	36	321	0	1	1	2	58	454	0	512
+30 mins.	61	0	26	87	0	271	46	317	0	1	0	1	64	453	1	518
+45 mins.	71	0	20	91	0	278	31	309	0	1	1	2	53	426	0	479
Total Volume	255	1	103	359	0	1116	144	1260	1	3	2	6	252	1736	1	1989
% App. Total	71	0.3	28.7		0	88.6	11.4		16.7	50	33.3		12.7	87.3	0.1	
PHF	.898	.250	.888	.955	.000	.979	.783	.981	.250	.750	.500	.750	.818	.956	.250	.960

City of Lake Elsinore
N/S: Cambern Avenue
EW: Central Avenue (SR-74)
Weather: Clear

File Name : 03_LKE_Cambarn_Central PM
Site Code : 05118340
Start Date : 4/24/2018
Page No : 1

Groups Printed- Passenger Vehicles

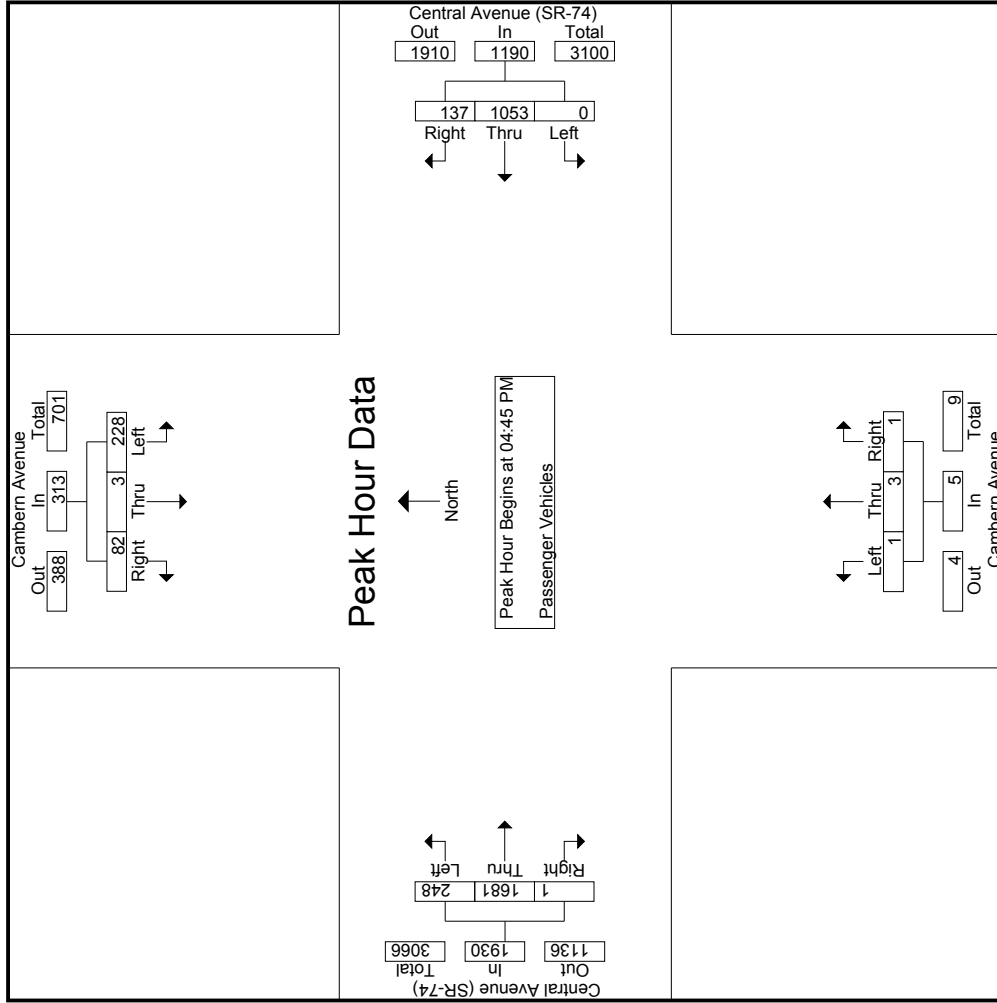
Cambern Avenue Southbound										Central Avenue Westbound										Cambern Avenue Northbound										Central Avenue Eastbound									
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total																
04:00 PM	57	1	29	16	87	0	264	30	12	294	0	0	0	0	0	59	447	0	0	506	28	887	915																
04:15 PM	66	0	28	15	94	0	276	35	10	311	0	0	0	0	0	54	394	0	0	448	25	853	878																
04:30 PM	61	0	25	13	86	0	268	45	17	313	0	1	0	0	1	64	348	0	0	412	30	812	842																
04:45 PM	70	0	20	11	90	0	270	31	9	301	0	1	0	0	1	76	383	0	0	459	20	851	871																
Total	254	1	102	55	357	0	1078	141	48	1219	0	2	0	0	2	253	1572	0	0	1825	103	3403	3506																
05:00 PM	50	1	27	21	78	0	234	37	11	271	1	0	0	0	1	56	443	0	0	499	32	849	881																
05:15 PM	55	1	18	8	74	0	278	37	14	315	0	1	1	0	2	64	445	1	0	510	22	901	923																
05:30 PM	53	1	17	10	71	0	271	32	16	303	0	1	0	0	1	52	410	0	0	462	26	837	863																
05:45 PM	56	0	18	9	74	0	256	43	14	299	0	1	1	0	2	65	358	1	0	424	23	799	822																
Total	214	3	80	48	297	0	1039	149	55	1188	1	3	2	0	6	237	1656	2	0	1895	103	3386	3489																
Grand Total	468	4	182	103	654	0	2117	290	103	2407	1	5	2	0	8	490	3228	2	0	3720	206	6789	6995																
Approch %	71.6	0.6	27.8			0	88	12			12.5	62.5	25			13.2	86.8	0.1																					
Total %	6.9	0.1	2.7		9.6	0	31.2	4.3		35.5	0	0.1	0		0.1	7.2	47.5	0		54.8	2.9	97.1																	
3.1-191																																							

Cambern Avenue Southbound										Central Avenue Westbound										Cambern Avenue Northbound										Central Avenue Eastbound									
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total																
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																																							
Peak Hour for Entire Intersection Begins at 04:45 PM																																							
04:45 PM	70	0	20		90	0	270	31		301	0	1	0		1	76	383	0		459	28	887	915																
05:00 PM	50	1	27		78	0	234	37		271	1	0	0		1	56	443	0		499	25	853	878																
05:15 PM	55	1	18		74	0	278	37		315	0	1	1		2	64	445	1		510	30	812	842																
05:30 PM	53	1	17		71	0	271	32		303	0	1	0		1	52	410	0		462	20	851	871																
Total Volume	228	3	82		313	0	1053	137		1190	1	3	1		5	248	1681	1		1930	103	3403	3506																
% App. Total	72.8	1	26.2			0	88.5	11.5			20	60	20			12.8	87.1	0.1																					
PHF	.814	.750	.759		.869	.000	.947	.926		.944	.250	.750	.250		.625	.816	.944	.250		.946			.954																

3.1-191

	Cambern Avenue Southbound					Central Avenue (SR-74) Westbound					Cambern Avenue Northbound					Central Avenue (SR-74) Eastbound					
Start Time	Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	70	0	20	90		0	270	31	301		0	1	0	1		76	383	0	459		851
05:00 PM	50	1	27	78		0	234	37	271		1	0	0	1		56	443	0	499		849
05:15 PM	55	1	18	74		0	278	37	315		0	1	1	2		64	445	1	510		901
05:30 PM	53	1	17	71		0	271	32	303		0	1	0	1		52	410	0	462		837
Total Volume	228	3	82	313		0	1053	137	1190		1	3	1	5		248	1681	1	1930		3438
% App. Total	72.8	1	26.2			0	88.5	11.5			20	60	20			12.8	87.1	0.1			
PHF	.814	.750	.759	.869		.000	.947	.926	.944		.250	.750	.250	.625		.816	.944	.250	.946		.954

Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 04:45 PM



Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Lake Elsinore
N/S: Cambern Avenue
E/W: Central Avenue (SR-74)
Weather: Clear

File Name : 03_LKE_Cambern_Central PM
Site Code : 05118340
Start Date : 4/24/2018
Page No : 3

Start Time	Cambern Avenue Southbound				Central Avenue (SR-74) Westbound				Cambern Avenue Northbound				Central Avenue (SR-74) Eastbound			
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																
Peak Hour for Each Approach Begins at:																
+0 mins. +15 mins. +30 mins. +45 mins.	04:45 PM				04:45 PM				04:45 PM				04:45 PM			
	70	0	20	90	0	270	31	301	1	0	0	1	76	383	0	459
	50	1	27	78	0	234	37	271	0	0	0	1	56	443	0	499
	55	1	18	74	0	278	37	315	0	1	1	2	64	445	1	510
Total Volume % App. Total	53	1	17	71	0	271	32	303	0	1	0	1	52	410	0	462
	228	3	82	313	0	1053	137	1190	1	3	1	5	248	1681	1	1930
PHF	72.8	1	26.2		0	88.5	11.5		20	60	20		12.8	87.1	0.1	
	.814	.750	.759	.869	.000	.947	.926	.944	.250	.750	.250	.625	.816	.944	.250	.946

City of Lake Elsinore
N/S: Cambarn Avenue
EW: Central Avenue (SR-74)
Weather: Clear

File Name : 03_LKE_Cambarn_Central PM
Site Code : 05118340
Start Date : 4/24/2018
Page No : 1

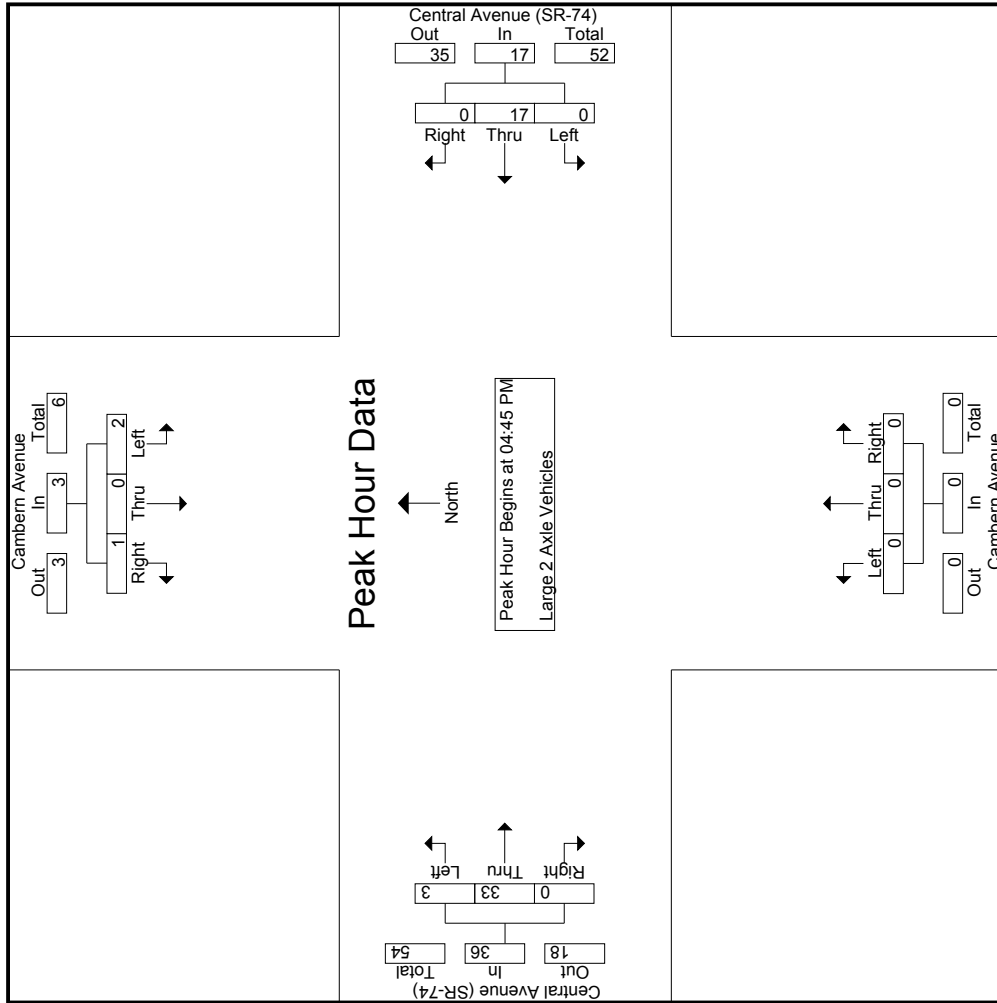
Groups Printed- Large 2 Axle Vehicles

Cambarn Avenue Southbound										Central Avenue Westbound					Cambarn Avenue Northbound					Central Avenue (SR-74) Eastbound				
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total	
04:00 PM	0	0	0	0	0	0	12	1	0	13	0	0	0	0	0	0	9	0	0	9	0	22	22	
04:15 PM	0	0	0	0	0	0	8	0	0	8	0	0	0	0	0	0	12	0	0	12	0	20	20	
04:30 PM	0	0	1	1	1	0	3	1	0	4	0	0	0	0	0	1	7	0	0	8	1	13	14	
04:45 PM	1	0	0	0	1	0	7	0	0	7	0	0	0	0	0	1	10	0	0	11	0	19	19	
Total	1	0	1	1	2	0	30	2	0	32	0	0	0	0	0	2	38	0	0	40	1	74	75	
05:00 PM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	2	6	0	0	8	0	12	12	
05:15 PM	1	0	1	1	2	0	4	0	0	4	0	0	0	0	0	0	7	0	0	7	1	13	14	
05:30 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	10	0	0	10	0	12	12	
05:45 PM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	10	0	0	10	0	14	14	
Total	1	0	1	1	2	0	14	0	0	14	0	0	0	0	0	2	33	0	0	35	1	51	52	
Grand Total	2	0	2	2	4	0	44	2	0	46	0	0	0	0	0	4	71	0	0	75	2	125	127	
Apprch %	50	0	50			0	95.7	4.3			0	0	0			5.3	94.7	0						
Total %	1.6	0	1.6		3.2	0	35.2	1.6		36.8	0	0	0			3.2	56.8	0		60	1.6	98.4		
3.1-194																								

Cambarn Avenue Southbound										Central Avenue (SR-74) Westbound					Cambarn Avenue Northbound					Central Avenue (SR-74) Eastbound				
Start Time	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total	
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																								
Peak Hour for Entire Intersection Begins at 04:45 PM																								
04:45 PM	1	0	0	0	1	0	7	0	0	7	0	0	0	0	0	1	10	0	0	11			19	
05:00 PM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	2	6	0	0	8			12	
05:15 PM	1	0	0	1	2	0	4	0	0	4	0	0	0	0	0	0	7	0	0	7			13	
05:30 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	10	0	0	10			12	
Total Volume	2	0	1	1	3	0	17	0	0	17	0	0	0	0	0	3	33	0	0	36			56	
% App. Total	66.7	0	33.3			0	100	0			0	0	0			8.3	91.7	0						
PHF	.500	.000	.250		.375	.000	.607	.000		.607	.000	.000	.000		.000	.375	.825	.000		.818			.737	

Counts Unlimited
 PO Box 1178
 Corona, CA 92878
 (951) 268-6268

City of Lake Elsinore
 N/S: Cambern Avenue
 E/W: Central Avenue (SR-74)
 Weather: Clear



Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Lake Elsinore
N/S: Cambern Avenue
E/W: Central Avenue (SR-74)
Weather: Clear

File Name : 03_LKE_Cambern_Central PM
Site Code : 05118340
Start Date : 4/24/2018
Page No : 3

Start Time	Cambern Avenue Southbound				Central Avenue (SR-74) Westbound				Cambern Avenue Northbound				Central Avenue (SR-74) Eastbound			
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																
Peak Hour for Each Approach Begins at:																
04:45 PM																
+0 mins.	1	0	0	1	0	7	0	7	0	0	0	0	0	1	10	0
+15 mins.	0	0	0	0	0	4	0	4	0	0	0	0	0	2	6	0
+30 mins.	1	0	1	2	0	4	0	4	0	0	0	0	0	0	7	0
+45 mins.	0	0	0	0	0	2	0	2	0	0	0	0	0	0	10	0
Total Volume	2	0	1	3	0	17	0	17	0	0	0	0	0	3	33	0
% App. Total	66.7	0	33.3		0	100	0		0	0	0	0	0	8.3	91.7	0
PHF	.500	.000	.250	.375	.000	.607	.000	.607	.000	.000	.000	.000	.000	.375	.825	.000
																.818

City of Lake Elsinore
N/S: Cambarn Avenue
EW: Central Avenue (SR-74)
Weather: Clear

File Name : 03_LKE_Cambarn_Central PM
Site Code : 05118340
Start Date : 4/24/2018
Page No : 1

Groups Printed- 3 Axle Vehicles

	Cambarn Avenue Southbound						Central Avenue (SR-74) Westbound						Cambarn Avenue Northbound						Central Avenue (SR-74) Eastbound					
Start Time	Left	Thru	Right	RTOR	App. Total		Left	Thru	Right	RTOR	App. Total		Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total				
04:00 PM	0	0	0	0	0		0	2	0	0	2		0	0	4	0	0	4	0	6	6			
04:15 PM	0	0	0	0	0		0	1	0	0	1		0	0	0	0	0	3	0	4	4			
04:30 PM	0	0	0	0	0		0	0	0	0	0		0	0	1	0	0	1	0	1	1			
04:45 PM	0	0	0	0	0		0	0	0	0	0		0	0	4	0	0	4	0	4	4			
Total	0	0	0	0	0		0	3	0	0	3		0	0	12	0	0	12	0	15	15			
05:00 PM	0	0	0	0	0		0	1	0	0	1		0	0	2	0	0	2	0	3	3			
05:15 PM	0	0	0	0	0		0	0	0	0	0		0	0	1	0	0	1	0	1	1			
05:30 PM	0	0	0	0	0		0	1	0	0	1		0	0	5	0	0	5	0	6	6			
05:45 PM	0	0	0	0	0		0	1	0	0	1		0	0	2	0	0	2	0	3	3			
Total	0	0	0	0	0		0	3	0	0	3		0	0	10	0	0	10	0	13	13			
Grand Total	0	0	0	0	0		0	6	0	0	6		0	0	22	0	0	22	0	28	28			
Apprch %	0	0	0				0	100	0				0	0	100	0								
Total %	0	0	0				0	21.4	0		21.4		0	0	78.6	0		78.6	0	100				

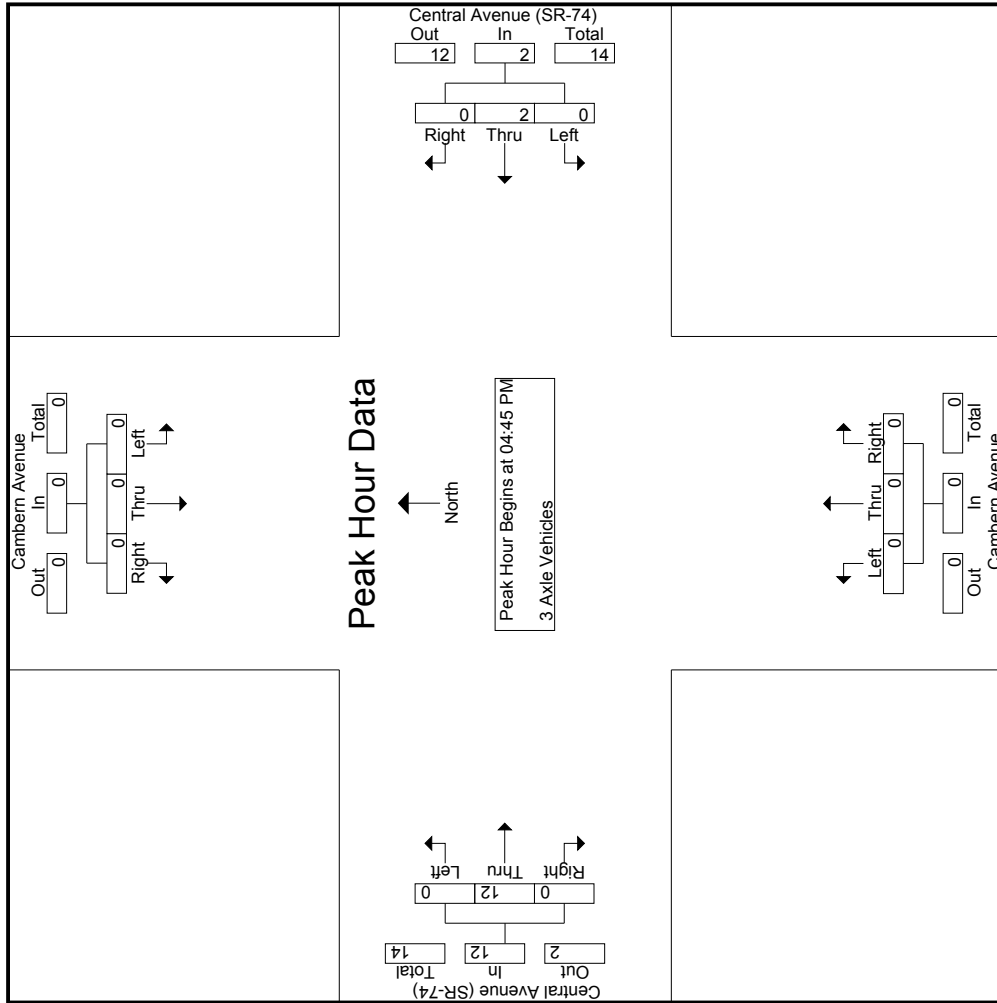
3.1-197

Start Time	Cambarn Avenue Southbound						Central Avenue (SR-74) Westbound						Cambarn Avenue Northbound						Central Avenue (SR-74) Eastbound					
	Left	Thru	Right	RTOR	App. Total		Left	Thru	Right	RTOR	App. Total		Left	Thru	Right	RTOR	App. Total		Left	Thru	Right	RTOR	App. Total	Int. Total
04:45 PM	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	4	0	0	4	4
05:00 PM	0	0	0	0	0		0	1	0	0	1		0	0	0	0	0		0	2	0	0	2	3
05:15 PM	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	1	0	0	1	1
05:30 PM	0	0	0	0	0		0	1	0	0	1		0	0	0	0	0		0	5	0	0	5	6
Total Volume	0	0	0	0	0		0	2	0	0	2		0	0	0	0	0		0	12	0	0	12	14
% App. Total	0	0	0	0	0		0	100	0				0	0	0	0	0		0	100	0			
PHF	.000	.000	.000		.000		.000	.500	.000		.500		.000	.000	.000		.000		.000	.600	.000		.600	.583

Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 04:45 PM

Counts Unlimited
 PO Box 1178
 Corona, CA 92878
 (951) 268-6268

City of Lake Elsinore
 N/S: Cambern Avenue
 E/W: Central Avenue (SR-74)
 Weather: Clear



Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

File Name : 03_LKE_Cambern_Central PM
Site Code : 05118340
Start Date : 4/24/2018
Page No : 3

City of Lake Elsinore
N/S: Cambern Avenue
E/W: Central Avenue (SR-74)
Weather: Clear

Start Time	Cambern Avenue Southbound				Central Avenue (SR-74) Westbound				Cambern Avenue Northbound				Central Avenue (SR-74) Eastbound			
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																
Peak Hour for Each Approach Begins at:																
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	4
+15 mins.	0	0	0	0	0	1	0	1	0	0	0	0	0	2	0	2
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
+45 mins.	0	0	0	0	0	1	0	1	0	0	0	0	0	5	0	5
Total Volume	0	0	0	0	0	2	0	2	0	0	0	0	0	12	0	12
% App. Total	0	0	0	0	0	100	0	100	0	0	0	0	0	100	0	100
PHF	.000	.000	.000	.000	.000	.500	.000	.500	.000	.000	.000	.000	.000	.600	.000	.600

City of Lake Elsinore
N/S: Cambern Avenue
EW: Central Avenue (SR-74)
Weather: Clear

File Name : 03_LKE_Cambern_Central PM
Site Code : 05118340
Start Date : 4/24/2018
Page No : 1

Groups Printed- 4+ Axle Trucks

	Cambern Avenue Southbound						Central Avenue (SR-74) Westbound						Cambern Avenue Northbound						Central Avenue (SR-74) Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total		Left	Thru	Right	RTOR	App. Total		Left	Thru	Right	RTOR	App. Total		Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	0	0	0	0		0	4	0	0	4		0	0	0	0	0		0	4	0	0	4	0	8	8
04:15 PM	0	0	0	0	0		0	0	1	0	1		0	0	0	0	0		0	9	0	0	9	0	10	10
04:30 PM	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	5	0	0	5	0	5	5
04:45 PM	0	0	0	0	0		0	1	0	0	1		0	0	0	0	0		0	6	0	0	6	0	7	7
Total	0	0	0	0	0		0	5	1	0	6		0	0	0	0	0		0	24	0	0	24	0	30	30
05:00 PM	0	0	0	0	0		0	2	0	0	2		0	0	0	0	0		0	3	0	0	3	0	5	5
05:15 PM	0	0	0	0	0		0	2	0	0	2		0	0	0	0	0		0	0	0	0	0	0	2	2
05:30 PM	0	0	0	0	0		0	2	0	0	2		0	0	0	0	0		1	1	0	0	2	0	4	4
05:45 PM	0	0	0	0	0		0	2	0	0	2		0	0	0	0	0		0	2	0	0	2	0	4	4
Total	0	0	0	0	0		0	8	0	0	8		0	0	0	0	0		1	6	0	0	7	0	15	15
Grand Total	0	0	0	0	0		0	13	1	0	14		0	0	0	0	0		1	30	0	0	31	0	45	45
Apprch %	0	0	0				0	92.9	7.1				0	0	0				3.2	96.8	0			0	100	
Total %	0	0	0				0	28.9	2.2		31.1		0	0	0		0		2.2	66.7	0		68.9	0		

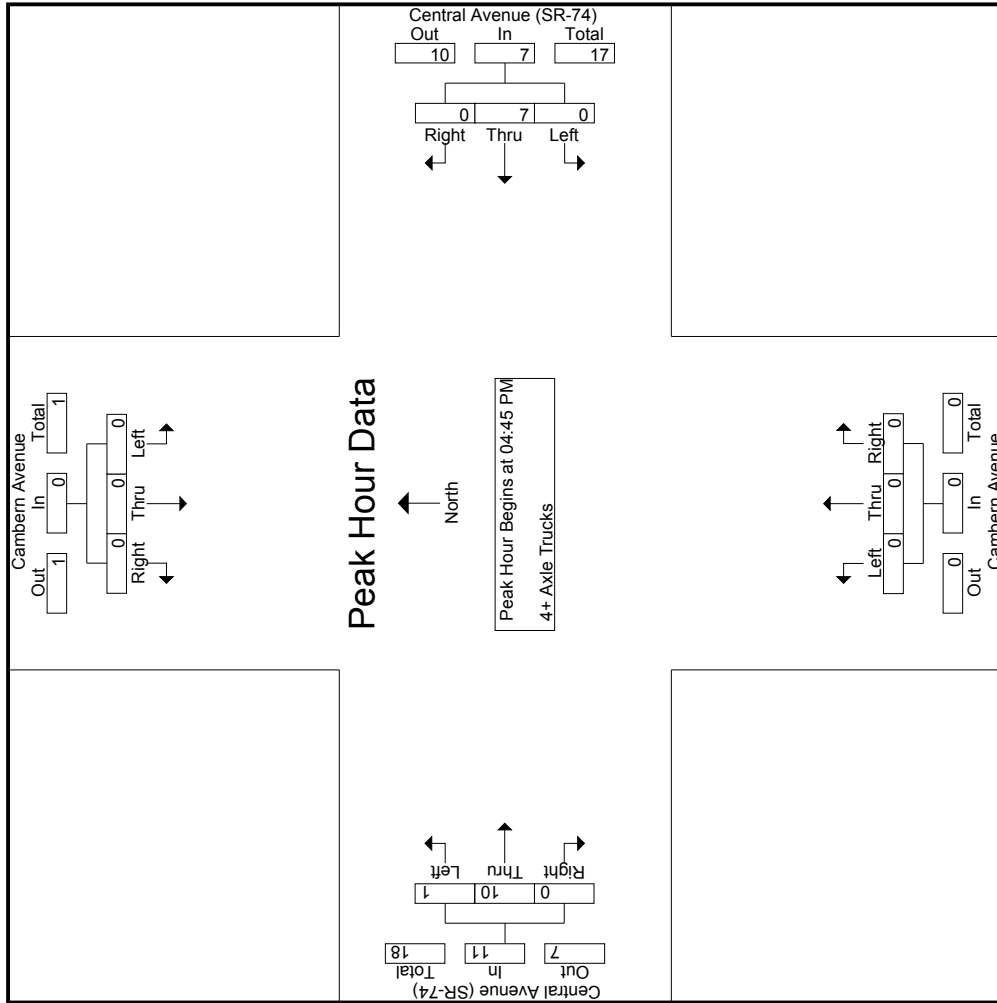
3.1-200

	Cambern Avenue Southbound						Central Avenue (SR-74) Westbound						Cambern Avenue Northbound						Central Avenue (SR-74) Eastbound					
Start Time	Left	Thru	Right	App. Total			Left	Thru	Right	App. Total			Left	Thru	Right	App. Total			Left	Thru	Right	App. Total		
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																								
Peak Hour for Entire Intersection Begins at 04:45 PM																								
04:45 PM	0	0	0	0			0	1	0	1			0	0	0	0			0	6	0	6		7
05:00 PM	0	0	0	0			0	2	0	2			0	0	0	0			0	3	0	3		5
05:15 PM	0	0	0	0			0	2	0	2			0	0	0	0			0	0	0	0		2
05:30 PM	0	0	0	0			0	2	0	2			0	0	0	0			1	1	0	2		4
Total Volume	0	0	0	0			0	7	0	7			0	0	0	0			1	10	0	11		18
% App. Total	0	0	0	0			0	100	0	0			0	0	0	0			9.1	90.9	0	0		
PHF	.000	.000	.000	.000			.000	.875	.000	.875			.000	.000	.000	.000			.250	.417	.000	.458		.643

Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 04:45 PM

Counts Unlimited
 PO Box 1178
 Corona, CA 92878
 (951) 268-6268

City of Lake Elsinore
 N/S: Cambern Avenue
 E/W: Central Avenue (SR-74)
 Weather: Clear



Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

File Name : 03_LKE_Cambern_Central PM
Site Code : 05118340
Start Date : 4/24/2018
Page No : 3

City of Lake Elsinore
N/S: Cambern Avenue
E/W: Central Avenue (SR-74)
Weather: Clear

Start Time	Cambern Avenue Southbound				Central Avenue (SR-74) Westbound				Cambern Avenue Northbound				Central Avenue (SR-74) Eastbound			
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																
Peak Hour for Each Approach Begins at:																
+0 mins.	0	0	0	0	0	1	0	1	0	0	0	0	0	6	0	6
+15 mins.	0	0	0	0	0	2	0	2	0	0	0	0	0	3	0	3
+30 mins.	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	2	0	2	0	0	0	0	1	1	0	2
Total Volume	0	0	0	0	0	7	0	7	0	0	0	0	1	10	0	11
% App. Total	0	0	0	0	0	100	0	0	0	0	0	0	9.1	90.9	0	0
PHF	.000	.000	.000	.000	.000	.875	.000	.875	.000	.000	.000	.000	.250	.417	.000	.458

Location: Lake Elsinore
 N/S: Cambern Avenue
 E/W: Central Avenue (SR-74)



Date: 4/24/2018
 Day: Tuesday

PEDESTRIANS

	North Leg Cambern Avenue	East Leg Central Avenue (SR-74)	South Leg Cambern Avenue	West Leg Central Avenue (SR-74)	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	1	2	1	0	4
7:15 AM	0	0	0	0	0
7:30 AM	0	0	1	0	1
7:45 AM	0	0	0	0	0
8:00 AM	1	0	2	0	3
8:15 AM	0	0	1	0	1
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	2	2	5	0	9

	North Leg Cambern Avenue	East Leg Central Avenue (SR-74)	South Leg Cambern Avenue	West Leg Central Avenue (SR-74)	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	2	0	0	0	2
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	1	0	0	1
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	2	1	0	0	3

Location: Lake Elsinore
 N/S: Cambern Avenue
 E/W: Central Avenue (SR-74)



Date: 4/24/2018
 Day: Tuesday

BICYCLES

		Southbound Cambern Avenue			Westbound Central Avenue (SR-74)			Northbound Cambern Avenue			Eastbound Central Avenue (SR-74)			
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
	7:00 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
	7:15 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
	7:30 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:30 AM	0	0	0	0	0	0	0	0	0	0	1	0	1
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:		0	0	0	0	3	0	0	0	0	0	1	0	4

		Southbound Cambern Avenue			Westbound Central Avenue (SR-74)			Northbound Cambern Avenue			Eastbound Central Avenue (SR-74)			
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:15 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
	4:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	1
	4:45 PM	0	0	0	0	2	0	0	0	0	0	0	0	2
	5:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	1
	5:15 PM	1	0	0	0	0	0	0	0	0	0	1	0	2
	5:30 PM	0	0	0	0	1	0	0	1	0	0	0	0	2
	5:45 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
TOTAL VOLUMES:		1	0	0	0	5	0	0	1	0	0	3	0	10

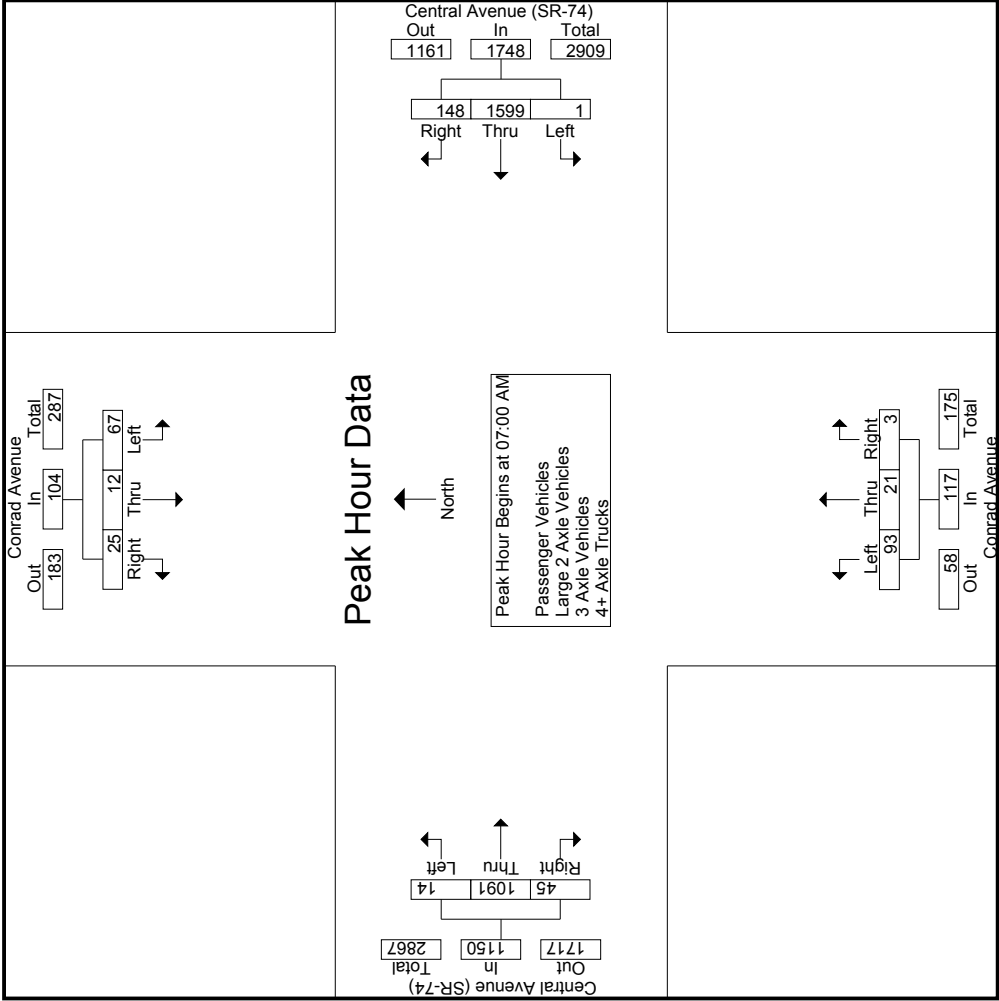
County of Riverside
N/S: Conrad Avenue
EW: Central Avenue (SR-74)
Weather: Clear

File Name : 04_CRV_Conrad_Central AM
Site Code : 05118340
Start Date : 4/24/2018
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

Start Time	Conrad Avenue Southbound						Central Avenue Westbound						Conrad Avenue Northbound						Central Avenue Eastbound					
	Left	Thru	Right	RTOR	App. Total		Left	Thru	Right	RTOR	App. Total		Left	Thru	Right	RTOR	App. Total		Left	Thru	Right	RTOR	App. Total	
	Exclu. Total	Inclu. Total	Int. Total				Exclu. Total	Inclu. Total	Int. Total				Exclu. Total	Inclu. Total	Int. Total				Exclu. Total	Inclu. Total	Int. Total			
07:00 AM	15	1	9	2	25		1	411	79	19	491		30	10	0	0	40		4	263	9	0	276	
07:15 AM	29	8	5	1	42		0	424	43	6	467		27	10	1	0	38		6	289	17	3	312	
07:30 AM	16	2	5	2	23		0	350	15	2	365		20	0	2	1	22		3	305	13	2	321	
07:45 AM	7	1	6	3	14		0	414	11	0	425		16	1	0	0	17		1	234	6	1	241	
Total	67	12	25	8	104		1	1599	148	27	1748		93	21	3	1	117		14	1091	45	6	1150	
08:00 AM	5	0	6	0	11		0	311	2	0	313		10	0	1	1	11		4	210	6	1	220	
08:15 AM	8	0	6	5	14		1	317	6	1	324		10	0	0	0	10		2	191	7	0	200	
08:30 AM	3	0	4	3	7		0	270	2	1	272		13	0	1	1	14		2	199	7	0	208	
08:45 AM	4	0	6	1	10		1	279	2	0	282		15	0	1	0	16		4	188	8	0	200	
Total	20	0	22	9	42		2	1177	12	2	1191		48	0	3	2	51		12	788	28	1	828	
Grand Total	87	12	47	17	146		3	2776	160	29	2939		141	21	6	3	168		26	1879	73	7	1978	
Approch %	59.6	8.2	32.2				0.1	94.5	5.4				83.9	12.5	3.6				1.3	95	3.7			
Total %	1.7	0.2	0.9		2.8		0.1	53.1	3.1		56.2		2.7	0.4	0.1		3.2		0.5	35.9	1.4		37.8	
Passenger Vehicles	84	12	42		153		3	2641	155		2828		140	19	6		168		26	1774	71		1878	
% Passenger Vehicles	96.6	100	89.4	88.2	93.9		100	95.1	96.9	100	95.3		99.3	90.5	100	100	98.2		100	94.4	97.3	100	94.6	
Large 2 Axle Vehicles	3	0	5		10		0	82	5		87		1	2	0		3		0	62	2		64	
% Large 2 Axle Vehicles	3.4	0	10.6	11.8	6.1		0	3	3.1	0	2.9		0.7	9.5	0	0	1.8		0	3.3	2.7	0	3.2	
3 Axle Vehicles	0	0	0		0		0	9	0		9		0	0	0		0		0	12	0		12	
% 3 Axle Vehicles	0	0	0	0	0		0	0.3	0	0	0.3		0	0	0	0	0		0	0.6	0	0	0.6	
4+ Axle Trucks	0	0	0		0		0	44	0		44		0	0	0		0		0	31	0		31	
% 4+ Axle Trucks	0	0	0	0	0		0	1.6	0	0	1.5		0	0	0	0	0		0	1.6	0	0	1.6	

Start Time	Conrad Avenue Southbound						Central Avenue Westbound						Conrad Avenue Northbound						Central Avenue Eastbound					
	Left	Thru	Right	RTOR	App. Total		Left	Thru	Right	RTOR	App. Total		Left	Thru	Right	RTOR	App. Total		Left	Thru	Right	RTOR	App. Total	
	Exclu. Total	Inclu. Total	Int. Total				Exclu. Total	Inclu. Total	Int. Total				Exclu. Total	Inclu. Total	Int. Total				Exclu. Total	Inclu. Total	Int. Total			
07:00 AM	15	1	9		25		1	411	79		491		30	10	0		40		4	263	9		276	
07:15 AM	29	8	5		42		0	424	43		467		27	10	1		38		6	289	17		312	
07:30 AM	16	2	5		23		0	350	15		365		20	0	2		22		3	305	13		321	
07:45 AM	7	1	6		14		0	414	11		425		16	1	0		17		1	234	6		241	
Total Volume	67	12	25		104		1	1599	148		1748		93	21	3		117		14	1091	45		1150	
% App. Total	64.4	11.5	24				0.1	91.5	8.5				79.5	17.9	2.6				1.2	94.9	3.9			
PHF	.578	.375	.694		.619		.250	.943	.468		.890		.775	.525	.375		.731		.583	.894	.662		.896	



Start Time	Conrad Avenue Southbound				Central Avenue (SR-74) Westbound				Conrad Avenue Northbound				Central Avenue (SR-74) Eastbound			
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																
Peak Hour for Each Approach Begins at:																
+0 mins.	15	1	9	25	07:00 AM				07:00 AM				07:00 AM			
+15 mins.	29	8	5	42	1	411	79	491	10	0	0	40	4	263	9	276
+30 mins.	16	2	5	23	0	424	43	467	10	1	1	38	6	289	17	312
+45 mins.	7	1	6	14	0	350	15	365	0	2	0	22	3	305	13	321
Total Volume	67	12	25	104	0	414	11	425	1	0	0	17	1	234	6	241
% App. Total	64.4	11.5	24		0.1	91.5	8.5	1748	21	3	3	117	14	1091	45	1150
PHF	.578	.375	.694	.619	.250	.943	.468	.890	.525	.375	.26	.731	.583	.894	.662	.896

County of Riverside
N/S: Conrad Avenue
EW: Central Avenue (SR-74)
Weather: Clear

File Name : 04_CRV_Conrad_Central AM
Site Code : 05118340
Start Date : 4/24/2018
Page No : 1

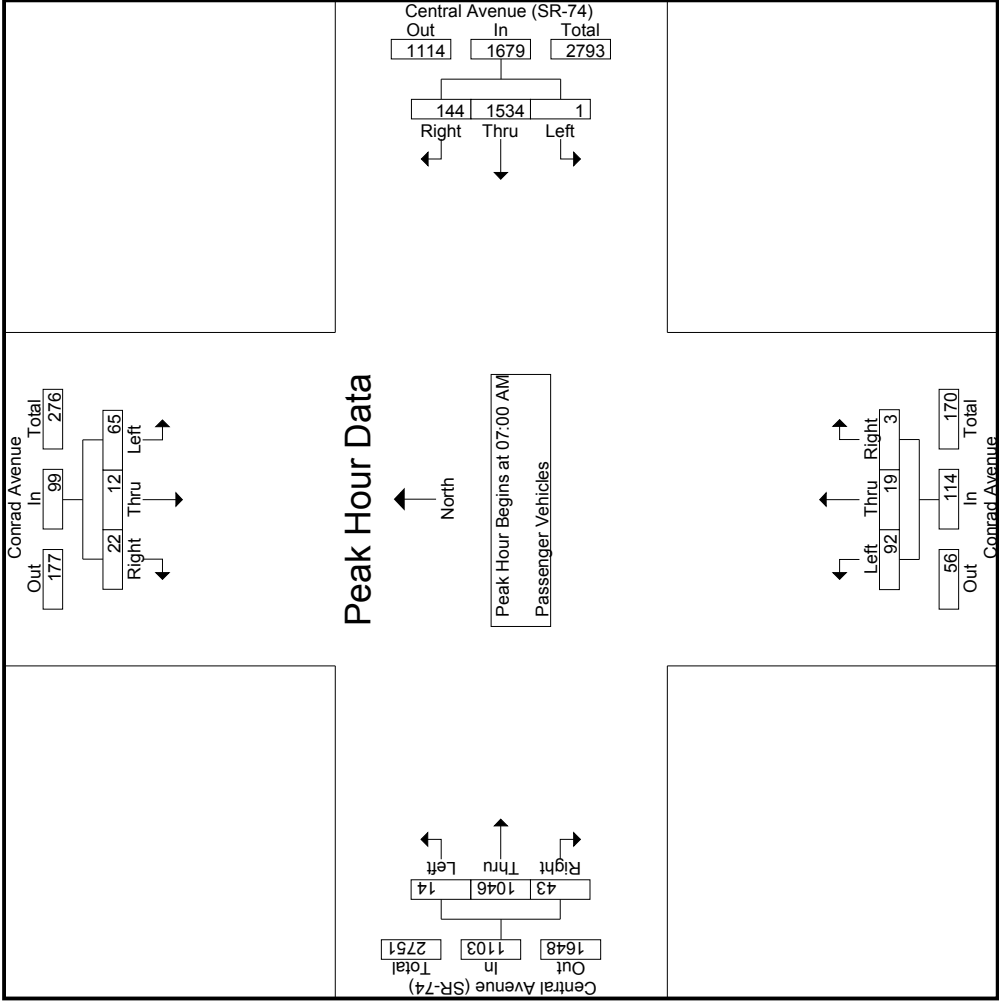
Groups Printed- Passenger Vehicles

Start Time	Conrad Avenue Southbound						Central Avenue Westbound						Conrad Avenue Northbound						Central Avenue Eastbound					
	Left	Thru	Right	RTOR	App. Total		Left	Thru	Right	RTOR	App. Total		Left	Thru	Right	RTOR	App. Total		Left	Thru	Right	RTOR	App. Total	
07:00 AM	15	1	9	2	25		1	398	78	19	477		30	9	0	0	39		4	252	7	0	263	
07:15 AM	27	8	4	1	39		0	400	42	6	442		26	9	1	0	36		6	277	17	3	300	
07:30 AM	16	2	4	2	22		0	343	15	2	358		20	0	2	1	22		3	292	13	2	308	
07:45 AM	7	1	5	3	13		0	393	9	0	402		16	1	0	0	17		1	225	6	1	232	
Total	65	12	22	8	99		1	1534	144	27	1679		92	19	3	1	114		14	1046	43	6	1103	
08:00 AM	5	0	6	0	11		0	296	2	0	298		10	0	1	1	11		4	195	6	1	205	
08:15 AM	8	0	5	4	13		1	296	5	1	302		10	0	0	0	10		2	177	7	0	186	
08:30 AM	2	0	3	2	5		0	250	2	1	252		13	0	1	1	14		2	182	7	0	191	
08:45 AM	4	0	6	1	10		1	265	2	0	268		15	0	1	0	16		4	174	8	0	186	
Total	19	0	20	7	39		2	1107	11	2	1120		48	0	3	2	51		12	728	28	1	768	
Grand Total	84	12	42	15	138		3	2641	155	29	2799		140	19	6	3	165		26	1774	71	7	1871	
Apprch %	60.9	8.7	30.4				0.1	94.4	5.5		56.3		84.8	11.5	3.6		3.3		1.4	94.8	3.8		37.6	
Total %	1.7	0.2	0.8		2.8		0.1	53.1	3.1				2.8	0.4	0.1				0.5	35.7	1.4		98.9	

3.1-208

Start Time	Conrad Avenue Southbound						Central Avenue Westbound						Conrad Avenue Northbound						Central Avenue Eastbound					
	Left	Thru	Right	RTOR	App. Total		Left	Thru	Right	RTOR	App. Total		Left	Thru	Right	RTOR	App. Total		Left	Thru	Right	RTOR	App. Total	
07:00 AM	15	1	9	2	25		1	398	78	19	477		30	9	0	0	39		4	252	7	0	263	
07:15 AM	27	8	4	1	39		0	400	42	6	442		26	9	1	0	36		6	277	17	3	300	
07:30 AM	16	2	4	2	22		0	343	15	2	358		20	0	2	1	22		3	292	13	2	308	
07:45 AM	7	1	5	3	13		0	393	9	0	402		16	1	0	0	17		1	225	6	1	232	
Total Volume	65	12	22	8	99		1	1534	144	27	1679		92	19	3	1	114		14	1046	43	6	1103	
% App. Total	65.7	12.1	22.2				0.1	91.4	8.6		56.3		80.7	16.7	2.6		3.3		1.3	94.8	3.9		98.9	
PHF	.602	.375	.611		.635		.250	.959	.462		.880		.767	.528	.375		.731		.583	.896	.632		.895	

Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 07:00 AM



Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

County of Riverside
N/S: Conrad Avenue
E/W: Central Avenue (SR-74)
Weather: Clear

File Name : 04_CRV_Conrad_Central AM
Site Code : 05118340
Start Date : 4/24/2018
Page No : 3

Start Time	Conrad Avenue Southbound				Central Avenue (SR-74) Westbound				Conrad Avenue Northbound				Central Avenue (SR-74) Eastbound			
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																
Peak Hour for Each Approach Begins at:																
+0 mins.	15	1	9	25	07:00 AM				07:00 AM				07:00 AM			
+15 mins.	27	8	4	39	1	398	78	477	9	0	0	39	4	252	7	263
+30 mins.	16	2	4	22	0	400	42	442	9	1	1	36	6	277	17	300
+45 mins.	7	1	5	13	0	343	15	358	0	2	2	22	3	292	13	308
Total Volume	65	12	22	99	0	393	9	402	1	0	0	17	1	225	6	232
% App. Total	65.7	12.1	22.2		1	1534	144	1679	19	3	3	114	14	1046	43	1103
PHF	.602	.375	.611	.635	.250	.914	8.6	.880	.528	.375	.26	.731	.583	.896	.632	.895

County of Riverside
N/S: Conrad Avenue
EW: Central Avenue (SR-74)
Weather: Clear

File Name : 04_CRV_Conrad_Central AM
Site Code : 05118340
Start Date : 4/24/2018
Page No : 1

Groups Printed- Large 2 Axle Vehicles

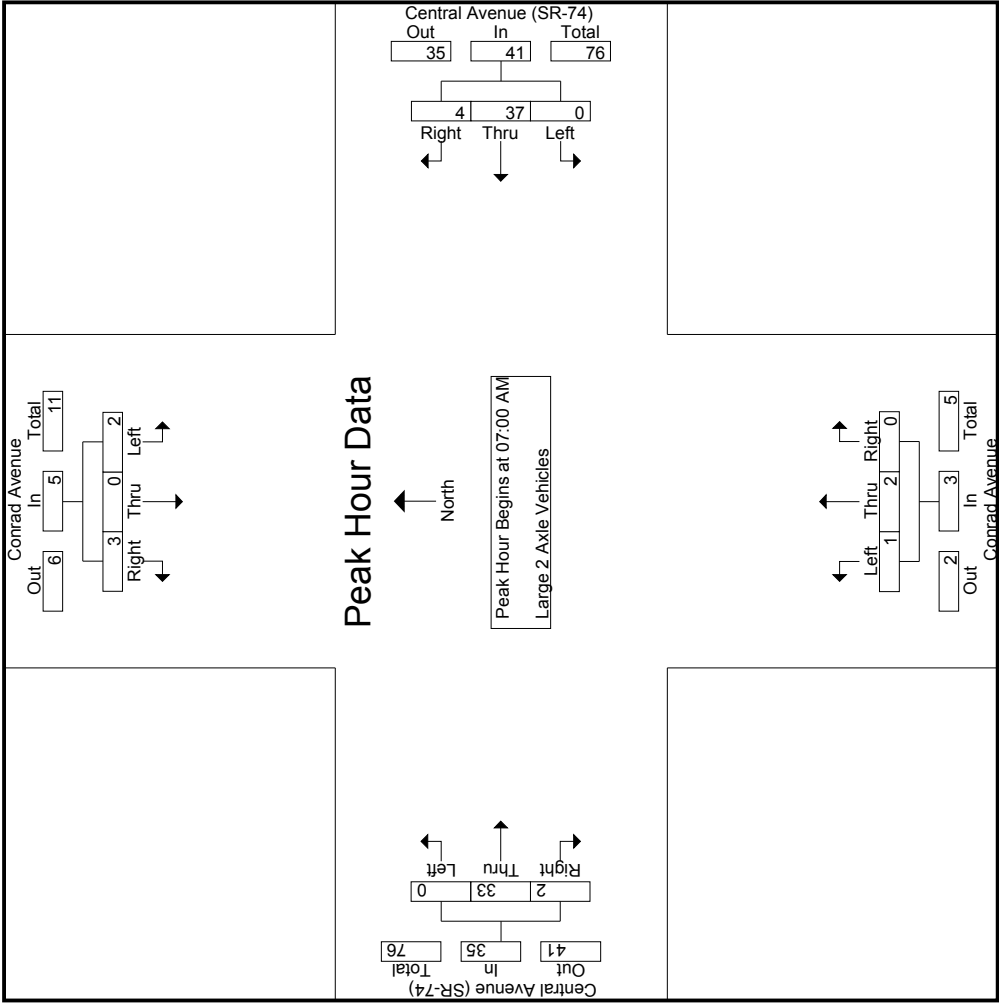
		Conrad Avenue Southbound						Central Avenue (SR-74) Westbound						Conrad Avenue Northbound						Central Avenue (SR-74) Eastbound					
Start Time		Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total	
07:00 AM		0	0	0	0	0	0	0	10	1	0	11	0	1	0	0	1	0	8	2	0	10	0	22	22
07:15 AM		2	0	1	0	3	0	14	1	0	15	1	1	0	0	2	0	9	0	0	0	9	0	29	29
07:30 AM		0	0	1	0	1	0	0	4	0	0	4	0	0	0	0	0	0	11	0	0	11	0	16	16
07:45 AM		0	0	1	0	1	0	0	9	2	0	11	0	0	0	0	0	5	0	0	0	5	0	17	17
Total		2	0	3	0	5	0	37	4	0	41	1	2	0	0	3	0	33	2	0	0	35	0	84	84
08:00 AM		0	0	0	0	0	0	7	0	0	7	0	0	0	0	0	0	7	0	0	0	7	0	14	14
08:15 AM		0	0	1	1	1	0	14	1	0	15	0	0	0	0	0	0	7	0	0	0	7	1	23	24
08:30 AM		1	0	1	1	2	0	14	0	0	14	0	0	0	0	0	0	9	0	0	0	9	1	25	26
08:45 AM		0	0	0	0	0	0	10	0	0	10	0	0	0	0	0	0	6	0	0	0	6	0	16	16
Total		1	0	2	2	3	0	45	1	0	46	0	0	0	0	0	0	29	0	0	0	29	2	78	80
Grand Total		3	0	5	2	8	0	82	5	0	87	1	2	0	0	3	0	62	2	0	0	64	2	162	164
Apprch %		37.5	0	62.5			0	94.3	5.7		53.7	33.3	66.7	0		1.9	0	96.9	3.1			39.5	1.2	98.8	
Total %		1.9	0	3.1		4.9	0	50.6	3.1			0.6	1.2	0			0	38.3	1.2						

3.1-211

Start Time	Conrad Avenue Southbound					Central Avenue (SR-74) Westbound					Conrad Avenue Northbound					Central Avenue (SR-74) Eastbound					
	Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Int. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	0	0	0	0		0	10	1	11		0	1	0	1		0	8	2	10		22
07:15 AM	2	0	1	3		0	14	1	15		1	1	0	2		0	9	0	9		29
07:30 AM	0	0	1	1		0	4	0	4		0	0	0	0		0	11	0	11		16
07:45 AM	0	0	1	1		0	9	2	11		0	0	0	0		0	5	0	5		17
Total Volume	2	0	3	5		0	37	4	41		1	2	0	3		0	33	2	35		84
% App. Total	40	0	60			0	90.2	9.8			33.3	66.7	0			0	94.3	5.7			
PHF	.250	.000	.750	.417		.000	.661	.500	.683		.250	.500	.000	.375		.000	.750	.250	.795		.724

Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 07:00 AM



Start Time	Conrad Avenue Southbound				Central Avenue (SR-74) Westbound				Conrad Avenue Northbound				Central Avenue (SR-74) Eastbound			
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																
Peak Hour for Each Approach Begins at:																
+0 mins.	07:00 AM				07:00 AM				07:00 AM				07:00 AM			
	0	0	0	0	0	10	1	11	1	0	0	1	0	8	2	10
+15 mins.	2	0	1	3	0	14	1	15	1	0	0	2	0	9	0	9
+30 mins.	0	0	1	1	0	4	0	4	0	0	0	0	0	11	0	11
+45 mins.	0	0	1	1	0	9	2	11	0	0	0	0	0	5	0	5
Total Volume	2	0	3	5	0	37	4	41	1	2	0	3	0	33	2	35
% App. Total	40	0	60		0	90.2	9.8		33.3	66.7	0		0	94.3	5.7	
PHF	.250	.000	.750	.417	.000	.661	.500	.683	.250	.500	.000	.375	.000	.750	.250	.795

County of Riverside
N/S: Conrad Avenue
E/W: Central Avenue (SR-74)
Weather: Clear

File Name : 04_CRV_Conrad_Central AM
Site Code : 05118340
Start Date : 4/24/2018
Page No : 1

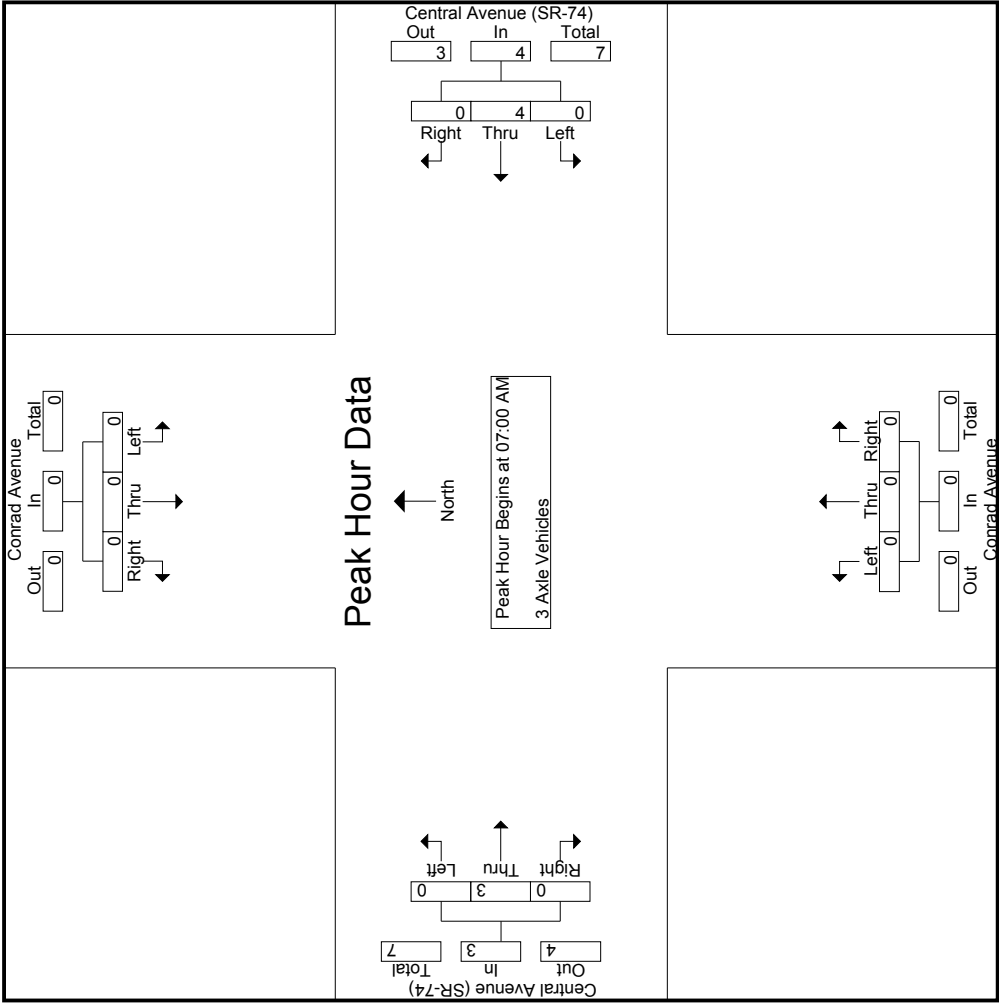
Groups Printed- 3 Axle Vehicles

	Conrad Avenue Southbound						Central Avenue (SR-74) Westbound						Conrad Avenue Northbound						Central Avenue (SR-74) Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total		Left	Thru	Right	RTOR	App. Total		Left	Thru	Right	RTOR	App. Total		Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0	0		0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0		0	1	0	0	1		0	0	0	0	0	0		0	1	0	0	1	0	2
07:30 AM	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0	0		0	1	0	0	1	0	1
07:45 AM	0	0	0	0	0		0	3	0	0	3		0	0	0	0	0	0		0	1	0	0	1	0	4
Total	0	0	0	0	0		0	4	0	0	4		0	0	0	0	0	0		0	3	0	0	3	0	7
08:00 AM	0	0	0	0	0		0	3	0	0	3		0	0	0	0	0	0		0	3	0	0	3	0	6
08:15 AM	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0	0		0	1	0	0	1	0	1
08:30 AM	0	0	0	0	0		0	2	0	0	2		0	0	0	0	0	0		0	4	0	0	4	0	6
08:45 AM	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0	0		0	1	0	0	1	0	1
Total	0	0	0	0	0		0	5	0	0	5		0	0	0	0	0	0		0	9	0	0	9	0	14
Grand Total	0	0	0	0	0		0	9	0	0	9		0	0	0	0	0	0		0	12	0	0	12	0	21
Approch %	0	0	0				0	100	0				0	0						0	100	0				
Total %	0	0	0				0	42.9	0		42.9		0	0						0	57.1	0		57.1	0	100

3.1-214

	Conrad Avenue Southbound						Central Avenue Westbound						Conrad Avenue Northbound						Central Avenue Eastbound					
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total							
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																								
Peak Hour for Entire Intersection Begins at 07:00 AM																								
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
07:15 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	2							
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1							
07:45 AM	0	0	0	0	0	3	0	3	0	0	0	0	0	1	0	1	4							
Total Volume	0	0	0	0	0	4	0	4	0	0	0	0	0	3	0	3	7							
% App. Total	0	0	0	0	0	100	0	0	0	0	0	0	0	100	0	0	0							
PHF	.000	.000	.000	.000	.000	.333	.000	.333	.000	.000	.000	.000	.000	.750	.000	.750	.438							

Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 07:00 AM



Start Time	Conrad Avenue Southbound				Central Avenue Westbound				Conrad Avenue Northbound				Central Avenue Eastbound			
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																
Peak Hour for Each Approach Begins at:																
+0 mins.	07:00 AM				07:00 AM				07:00 AM				07:00 AM			
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
+45 mins.	0	0	0	0	0	3	0	3	0	0	0	0	0	1	0	1
Total Volume	0	0	0	0	0	4	0	4	0	0	0	0	0	3	0	3
% App. Total	0	0	0	0	0	100	0	100	0	0	0	0	0	100	0	100
PHF	.000	.000	.000	.000	.000	.333	.000	.333	.000	.000	.000	.000	.000	.750	.000	.750

County of Riverside
N/S: Conrad Avenue
E/W: Central Avenue (SR-74)
Weather: Clear

File Name : 04_CRV_Conrad_Central AM
Site Code : 05118340
Start Date : 4/24/2018
Page No : 1

Groups Printed- 4+ Axle Trucks

Start Time	Conrad Avenue Southbound						Central Avenue Westbound						Conrad Avenue Northbound						Central Avenue Eastbound					
	Left	Thru	Right	RTOR	App. Total		Left	Thru	Right	RTOR	App. Total		Left	Thru	Right	RTOR	App. Total		Left	Thru	Right	RTOR	App. Total	
07:00 AM	0	0	0	0	0		0	3	0	0	3		0	0	0	0	0		0	3	0	0	3	
07:15 AM	0	0	0	0	0		0	9	0	0	9		0	0	0	0	0		0	2	0	0	2	
07:30 AM	0	0	0	0	0		0	3	0	0	3		0	0	0	0	0		0	1	0	0	1	
07:45 AM	0	0	0	0	0		0	9	0	0	9		0	0	0	0	0		0	3	0	0	3	
Total	0	0	0	0	0		0	24	0	0	24		0	0	0	0	0		0	9	0	0	9	
08:00 AM	0	0	0	0	0		0	5	0	0	5		0	0	0	0	0		0	5	0	0	5	
08:15 AM	0	0	0	0	0		0	7	0	0	7		0	0	0	0	0		0	6	0	0	6	
08:30 AM	0	0	0	0	0		0	4	0	0	4		0	0	0	0	0		0	4	0	0	4	
08:45 AM	0	0	0	0	0		0	4	0	0	4		0	0	0	0	0		0	7	0	0	7	
Total	0	0	0	0	0		0	20	0	0	20		0	0	0	0	0		0	22	0	0	22	
Grand Total	0	0	0	0	0		0	44	0	0	44		0	0	0	0	0		0	31	0	0	31	
Apprch %	0	0	0				0	100	0				0	0	0				0	100	0			
Total %	0	0	0		0		0	58.7	0		58.7		0	0	0		0		0	41.3	0		41.3	

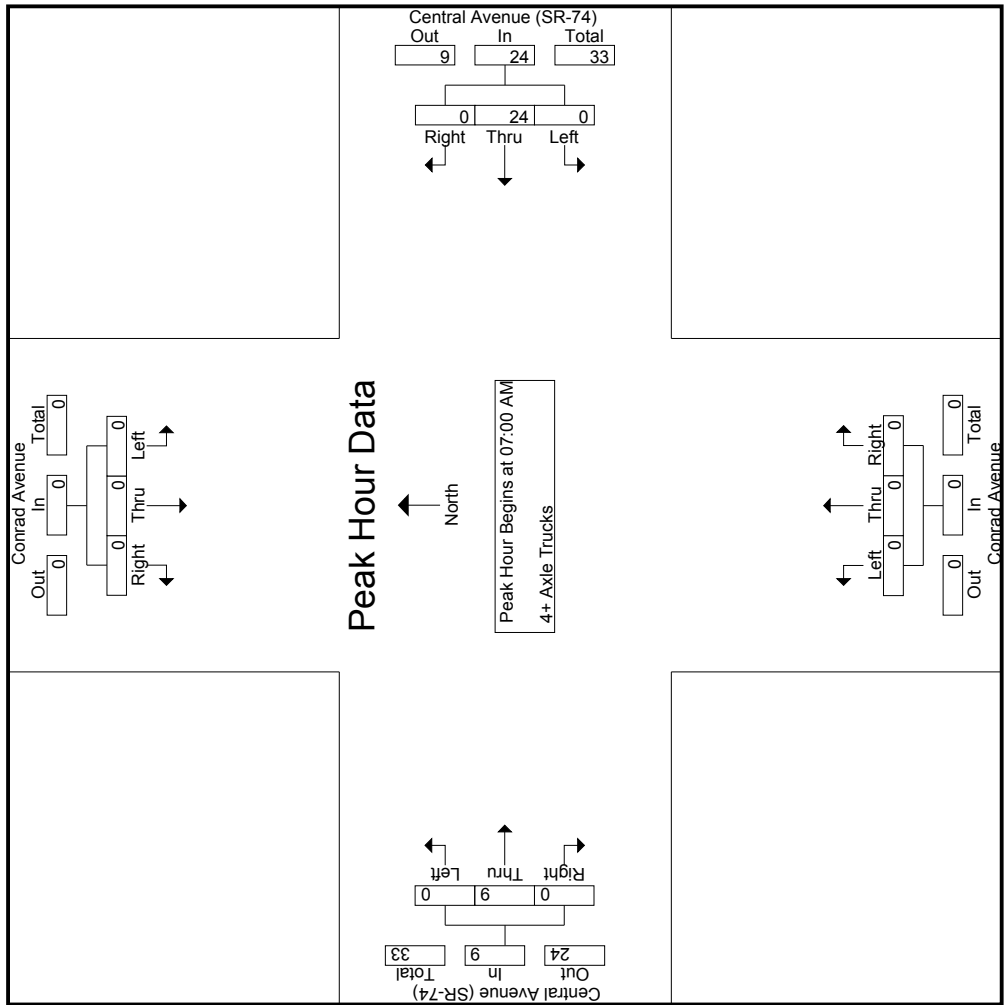
3.1-217

Start Time	Conrad Avenue Southbound						Central Avenue Westbound						Conrad Avenue Northbound						Central Avenue Eastbound					
	Left	Thru	Right	RTOR	App. Total		Left	Thru	Right	RTOR	App. Total		Left	Thru	Right	RTOR	App. Total		Left	Thru	Right	RTOR	App. Total	
07:00 AM	0	0	0	0	0		0	3	0	0	3		0	0	0	0	0		0	3	0	0	3	
07:15 AM	0	0	0	0	0		0	9	0	0	9		0	0	0	0	0		0	2	0	0	2	
07:30 AM	0	0	0	0	0		0	3	0	0	3		0	0	0	0	0		0	1	0	0	1	
07:45 AM	0	0	0	0	0		0	9	0	0	9		0	0	0	0	0		0	3	0	0	3	
Total Volume	0	0	0	0	0		0	24	0	0	24		0	0	0	0	0		0	9	0	0	9	
% App. Total	0	0	0				0	100	0				0	0	0				0	100	0			
PHF	.000	.000	.000		.000		.000	.667	.000		.667		.000	.000	.000		.000		.000	.750	.000		.750	

Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 07:00 AM

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

County of Riverside
N/S: Conrad Avenue
E/W: Central Avenue (SR-74)
Weather: Clear



Start Time	Conrad Avenue Southbound				Central Avenue Westbound				Conrad Avenue Northbound				Central Avenue Eastbound			
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																
Peak Hour for Each Approach Begins at:																
+0 mins.	07:00 AM				07:00 AM				07:00 AM				07:00 AM			
	0	0	0	0	0	3	0	0	0	0	0	0	0	3	0	3
+15 mins.	0	0	0	0	0	9	0	0	0	0	0	0	0	2	0	2
+30 mins.	0	0	0	0	0	3	0	0	0	0	0	0	0	1	0	1
+45 mins.	0	0	0	0	0	9	0	0	0	0	0	0	0	3	0	3
Total Volume	0	0	0	0	0	24	0	0	0	0	0	0	0	9	0	9
% App. Total	0	0	0	0	0	100	0	0	0	0	0	0	0	100	0	0
PHF	.000	.000	.000	.000	.000	.667	.000	.000	.000	.000	.000	.000	.000	.750	.000	.750

County of Riverside
N/S: Conrad Avenue
EW: Central Avenue (SR-74)
Weather: Clear

File Name : 04_CRV_Conrad_Central PM
Site Code : 05118340
Start Date : 4/24/2018
Page No : 1

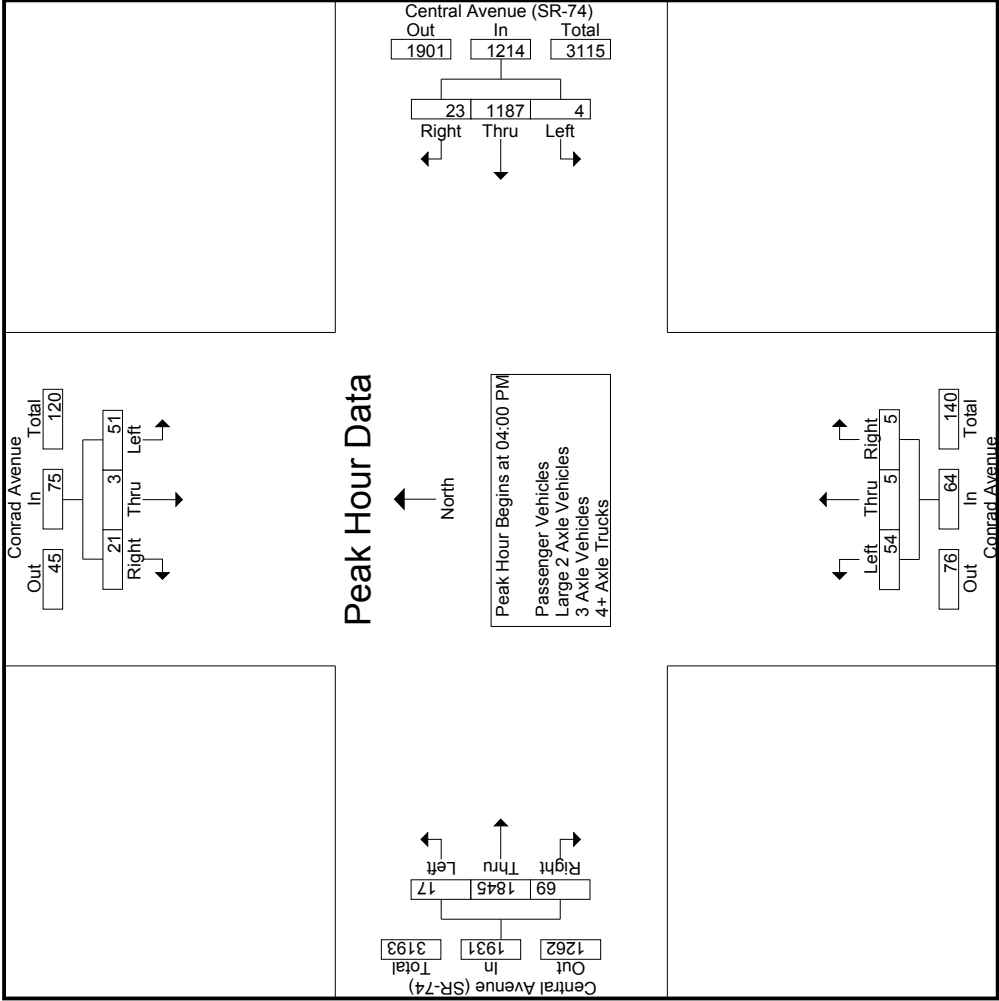
Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

Start Time	Conrad Avenue Southbound						Central Avenue Westbound						Conrad Avenue Northbound						Central Avenue Eastbound					
	Left	Thru	Right	RTOR	App. Total		Left	Thru	Right	RTOR	App. Total		Left	Thru	Right	RTOR	App. Total		Left	Thru	Right	RTOR	App. Total	
	Exclu. Total	Inclu. Total	Int. Total				Exclu. Total	Inclu. Total	Int. Total				Exclu. Total	Inclu. Total	Int. Total				Exclu. Total	Inclu. Total	Int. Total			
04:00 PM	13	0	7	5	20		2	300	7	0	309		16	0	2	1	18		6	510	19	1	535	
04:15 PM	15	1	4	1	20		0	302	6	1	308		14	3	1	1	18		4	472	21	2	497	
04:30 PM	14	0	4	2	18		1	290	5	0	296		12	2	1	0	15		4	399	10	2	413	
04:45 PM	9	2	6	3	17		1	295	5	0	301		12	0	1	0	13		3	464	19	3	486	
Total	51	3	21	11	75		4	1187	23	1	1214		54	5	5	2	64		17	1845	69	8	1931	
05:00 PM	8	1	2	1	11		0	281	8	2	289		3	0	1	1	4		3	481	15	1	499	
05:15 PM	15	0	3	3	18		0	294	5	0	299		12	1	2	2	15		2	494	18	2	514	
05:30 PM	10	3	4	0	17		1	282	5	0	288		9	0	1	0	10		1	468	18	2	487	
05:45 PM	3	0	2	1	5		0	303	1	0	304		17	0	1	0	18		2	408	23	1	433	
Total	36	4	11	5	51		1	1160	19	2	1180		41	1	5	3	47		8	1851	74	6	1933	
Grand Total	87	7	32	16	126		5	2347	42	3	2394		95	6	10	5	111		25	3696	143	14	3864	
Approch %	69	5.6	25.4				0.2	98	1.8				85.6	5.4	9				0.6	95.7	3.7			
Total %	1.3	0.1	0.5		1.9		0.1	36.1	0.6		36.9		1.5	0.1	0.2		1.7		0.4	56.9	2.2		59.5	
Passenger Vehicles	85	7	32		140		5	2283	41		2332		93	6	10		114		25	3561	141		3741	
% Passenger Vehicles	97.7	100	100	100	98.6		100	97.3	97.6	100	97.3		97.9	100	100	100	98.3		100	96.3	98.6	100	96.5	
Large 2 Axle Vehicles	2	0	0		2		0	43	1		44		2	0	0		2		0	81	2		83	
% Large 2 Axle Vehicles	2.3	0	0	0	1.4		0	1.8	2.4	0	1.8		2.1	0	0	0	1.7		0	2.2	1.4	0	2.1	
3 Axle Vehicles	0	0	0		0		0	6	0		6		0	0	0		0		0	24	0		24	
% 3 Axle Vehicles	0	0	0	0	0		0	0.3	0	0	0.3		0	0	0	0	0		0	0.6	0	0	0.6	
4+ Axle Trucks	0	0	0		0		0	15	0		15		0	0	0		0		0	30	0		30	
% 4+ Axle Trucks	0	0	0	0	0		0	0.6	0	0	0.6		0	0	0	0	0		0	0.8	0	0	0.8	

Start Time	Conrad Avenue Southbound						Central Avenue Westbound						Conrad Avenue Northbound						Central Avenue Eastbound					
	Left	Thru	Right	RTOR	App. Total		Left	Thru	Right	RTOR	App. Total		Left	Thru	Right	RTOR	App. Total		Left	Thru	Right	RTOR	App. Total	
	Exclu. Total	Inclu. Total	Int. Total				Exclu. Total	Inclu. Total	Int. Total				Exclu. Total	Inclu. Total	Int. Total				Exclu. Total	Inclu. Total	Int. Total			
04:00 PM	13	0	7		20		2	300	7		309		16	0	2		18		6	510	19		535	
04:15 PM	15	1	4		20		0	302	6		308		14	3	1		18		4	472	21		497	
04:30 PM	14	0	4		18		1	290	5		296		12	2	1		15		4	399	10		413	
04:45 PM	9	2	6		17		1	295	5		301		12	0	1		13		3	464	19		486	
Total Volume	51	3	21		75		4	1187	23		1214		54	5	5		64		17	1845	69		1931	
% App. Total	68	4	28				0.3	97.8	1.9				84.4	7.8	7.8				0.9	95.5	3.6			
PHF	.850	.375	.750		.938		.500	.983	.821		.982		.844	.417	.625		.889		.708	.904	.821		.902	

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 04:00 PM



Counts Unlimited
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County of Riverside
N/S: Conrad Avenue
E/W: Central Avenue (SR-74)
Weather: Clear

File Name : 04_CRV_Conrad_Central PM
Site Code : 05118340
Start Date : 4/24/2018
Page No : 3

Start Time	Conrad Avenue Southbound				Central Avenue (SR-74) Westbound				Conrad Avenue Northbound				Central Avenue (SR-74) Eastbound			
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																
Peak Hour for Each Approach Begins at:																
04:00 PM																
+0 mins.	13	0	7	20	2	300	7	309	0	2	18	3	464	19	486	
+15 mins.	15	1	4	20	0	302	6	308	3	1	18	3	481	15	499	
+30 mins.	14	0	4	18	1	290	5	296	2	1	15	2	494	18	514	
+45 mins.	9	2	6	17	1	295	5	301	0	1	13	1	468	18	487	
Total Volume	51	3	21	75	4	1187	23	1214	54	5	64	9	1907	70	1986	
% App. Total	68	4	28		0.3	97.8	1.9		84.4	7.8		0.5	96	3.5		
PHF	.850	.375	.750	.938	.500	.983	.821	.982	.844	.417	.625	.889	.750	.965	.921	.966

County of Riverside
N/S: Conrad Avenue
EW: Central Avenue (SR-74)
Weather: Clear

File Name : 04_CRV_Conrad_Central_PM
Site Code : 05118340
Start Date : 4/24/2018
Page No : 1

Groups Printed- Passenger Vehicles

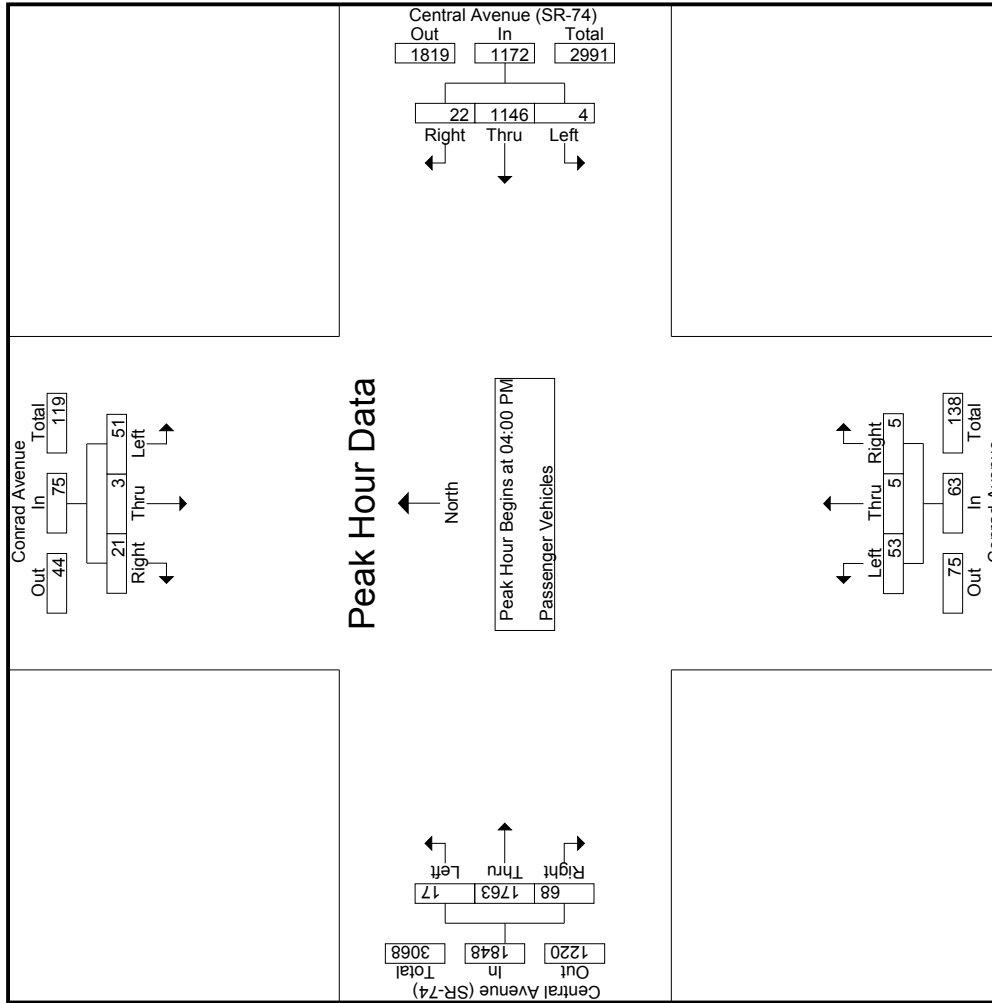
Conrad Avenue Southbound										Central Avenue (SR-74) Westbound										Conrad Avenue Northbound										Central Avenue (SR-74) Eastbound									
Start Time	Left		Thru		Right		RTOR		App. Total		Left		Thru		Right		RTOR		App. Total		Left		Thru		Right		RTOR		App. Total		Exclu. Total		Inclu. Total		Int. Total				
04:00 PM	13		0	7	5				20		2	281				0		1		289		15		0	2	1		17			7	840		847					
04:15 PM	15		1	4	1				20		0	293				6	1	1		299		14		3	1	1		18			5	811		816					
04:30 PM	14		0	4	2				18		1	284				5	0	0		290		12		2	1	0		15			4	721		725					
04:45 PM	9		2	6	3				17		1	288				5	0	0		294		12		0	1	0		13			6	786		792					
Total	51		3	21	11				75		4	1146				22	1	2		1172		53		5	5	2		63			22	3158		3180					
05:00 PM	8		1	2	1				11		0	275				8	2	1		283		3		0	1	1		4			5	786		791					
05:15 PM	14		0	3	3				17		0	288				5	0	2		293		11		1	2	2		14			7	827		834					
05:30 PM	9		3	4	0				16		1	278				5	0	0		284		9		0	1	0		10			2	780		782					
05:45 PM	3		0	2	1				5		0	296				1	0	0		297		17		0	1	0		18			2	738		740					
Total	34		4	11	5				49		1	1137				19	2	3		1157		40		1	5	3		46			16	3131		3147					
Grand Total	85		7	32	16				124		5	2283				41	3	5		2329		93		6	10	5		109			38	6289		6327					
Apprch %	68.5		5.6	25.8							0.2	98				1.8						85.3		5.5	9.2														
Total %	1.4		0.1	0.5					2		0.1	36.3				0.7				37		1.5		0.1	0.2		1.7			0.6	99.4								

3.1-223

Conrad Avenue Southbound				Central Avenue (SR-74) Westbound				Conrad Avenue Northbound				Central Avenue (SR-74) Eastbound					
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	13	0	7	20	2	281	6	289	15	0	2	17	6	490	18	514	840
04:15 PM	15	1	4	20	0	293	6	299	14	3	1	18	4	449	21	474	811
04:30 PM	14	0	4	18	1	284	5	290	12	2	1	15	4	384	10	398	721
04:45 PM	9	2	6	17	1	288	5	294	12	0	1	13	3	440	19	462	786
Total Volume	51	3	21	75	4	1146	22	1172	53	5	5	63	17	1763	68	1848	3158
% App. Total	68	4	28		0.3	97.8	1.9		84.1	7.9	7.9		0.9	95.4	3.7		
PHF	.850	.375	.750	.938	.500	.978	.917	.980	.883	.417	.625	.875	.708	.899	.810	.899	.940

Counts Unlimited
PO Box 1178
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(951) 268-6268

County of Riverside
N/S: Conrad Avenue
E/W: Central Avenue (SR-74)
Weather: Clear



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County of Riverside
N/S: Conrad Avenue
E/W: Central Avenue (SR-74)
Weather: Clear

File Name : 04_CRV_Conrad_Central PM
Site Code : 05118340
Start Date : 4/24/2018
Page No : 3

Start Time	Conrad Avenue Southbound				Central Avenue (SR-74) Westbound				Conrad Avenue Northbound				Central Avenue (SR-74) Eastbound			
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																
Peak Hour for Each Approach Begins at:																
04:00 PM																
+0 mins.	13	0	7	20	2	281	6	289	15	0	2	17	6	490	18	514
+15 mins.	15	1	4	20	0	293	6	299	14	3	1	18	4	449	21	474
+30 mins.	14	0	4	18	1	284	5	290	12	2	1	15	4	384	10	398
+45 mins.	9	2	6	17	1	288	5	294	12	0	1	13	3	440	19	462
Total Volume	51	3	21	75	4	1146	22	1172	53	5	5	63	17	1763	68	1848
% App. Total	68	4	28		0.3	97.8	1.9		84.1	7.9	7.9		0.9	95.4	3.7	
PHF	.850	.375	.750	.938	.500	.978	.917	.980	.883	.417	.625	.875	.708	.899	.810	.899

County of Riverside
N/S: Conrad Avenue
EW: Central Avenue (SR-74)
Weather: Clear

File Name : 04_CRV_Conrad_Central PM
Site Code : 05118340
Start Date : 4/24/2018
Page No : 1

Groups Printed- Large 2 Axle Vehicles

	Conrad Avenue Southbound						Central Avenue (SR-74) Westbound						Conrad Avenue Northbound						Central Avenue (SR-74) Eastbound								
Start Time	Left	Thru	Right	RTOR	App. Total		Left	Thru	Right	RTOR	App. Total		Left	Thru	Right	RTOR	App. Total		Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total	
04:00 PM	0	0	0	0	0		0	13	1	0	14		1	0	11	1	0	12		0	11	0	0	12	0	27	27
04:15 PM	0	0	0	0	0		0	6	0	0	6		0	0	11	0	0	11		0	11	0	0	11	0	17	17
04:30 PM	0	0	0	0	0		0	6	0	0	6		0	0	9	0	0	9		0	9	0	0	9	0	15	15
04:45 PM	0	0	0	0	0		0	6	0	0	6		0	0	14	0	0	14		0	14	0	0	14	0	20	20
Total	0	0	0	0	0		0	31	1	0	32		1	0	45	1	0	46		0	45	1	0	46	0	79	79
05:00 PM	0	0	0	0	0		0	3	0	0	3		0	0	6	0	0	6		0	6	0	0	6	0	9	9
05:15 PM	1	0	0	0	1		0	3	0	0	3		1	0	9	1	0	10		0	9	1	0	10	0	15	15
05:30 PM	1	0	0	0	1		0	2	0	0	2		0	0	11	0	0	11		0	11	0	0	11	0	14	14
05:45 PM	0	0	0	0	0		0	4	0	0	4		0	0	10	0	0	10		0	10	0	0	10	0	14	14
Total	2	0	0	0	2		0	12	0	0	12		1	0	36	1	0	37		0	36	1	0	37	0	52	52
Grand Total	2	0	0	0	2		0	43	1	0	44		2	0	81	2	0	83		0	81	2	0	83	0	131	131
Apprch %	100	0	0				0	97.7	2.3				100	0	97.6	2.4				0	97.6	2.4			0		
Total %	1.5	0	0		1.5		0	32.8	0.8		33.6		1.5	0	61.8	1.5		63.4		0	61.8	1.5		63.4	0	100	

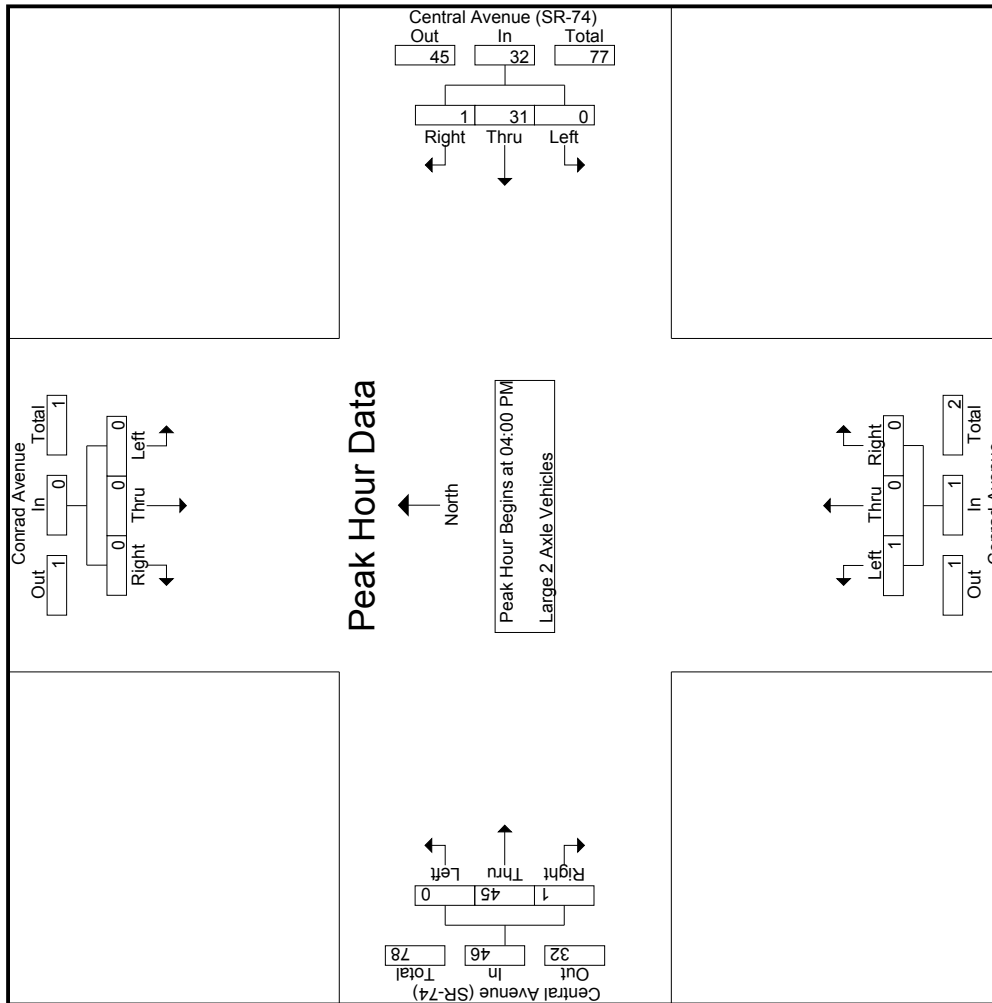
3.1-226

Start Time	Conrad Avenue Southbound					Central Avenue (SR-74) Westbound					Conrad Avenue Northbound					Central Avenue (SR-74) Eastbound					
	Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	0	0	0	0		0	13	1	14		1	0	0	1		0	11	1	12		27
04:15 PM	0	0	0	0		0	6	0	6		0	0	0	0		0	11	0	11		17
04:30 PM	0	0	0	0		0	6	0	6		0	0	0	0		0	9	0	9		15
04:45 PM	0	0	0	0		0	6	0	6		0	0	0	0		0	14	0	14		20
Total Volume	0	0	0	0		0	31	1	32		1	0	0	1		0	45	1	46		79
% App. Total	0	0	0	0		0	96.9	3.1			100	0	0			0	97.8	2.2			
PHF	.000	.000	.000	.000		.000	.596	.250	.571		.250	.000	.000	.250		.000	.804	.250	.821		.731

Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 04:00 PM

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

County of Riverside
N/S: Conrad Avenue
E/W: Central Avenue (SR-74)
Weather: Clear



Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

File Name : 04_CRV_Conrad_Central PM
Site Code : 05118340
Start Date : 4/24/2018
Page No : 3

County of Riverside
N/S: Conrad Avenue
E/W: Central Avenue (SR-74)
Weather: Clear

Start Time	Conrad Avenue Southbound				Central Avenue (SR-74) Westbound				Conrad Avenue Northbound				Central Avenue (SR-74) Eastbound			
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																
Peak Hour for Each Approach Begins at:																
+0 mins.	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+15 mins.	0	0	0	0	0	13	1	14	0	0	0	0	0	11	1	12
+30 mins.	0	0	0	0	0	6	0	6	0	0	0	0	0	11	0	11
+45 mins.	0	0	0	0	0	6	0	6	0	0	0	0	0	9	0	9
Total Volume	0	0	0	0	0	6	0	6	0	0	0	0	0	14	0	14
% App. Total	0	0	0	0	0	31	1	32	0	0	0	0	0	45	1	46
PHF	.000	.000	.000	.000	.000	.596	.250	.571	.000	.000	.000	.250	.000	.804	.250	.821

County of Riverside
N/S: Conrad Avenue
E/W: Central Avenue (SR-74)
Weather: Clear

File Name : 04_CRV_Conrad_Central PM
Site Code : 05118340
Start Date : 4/24/2018
Page No : 1

Groups Printed- 3 Axle Vehicles

	Conrad Avenue Southbound						Central Avenue (SR-74) Westbound						Conrad Avenue Northbound						Central Avenue (SR-74) Eastbound							
	Left	Thru	Right	RTOR	App. Total		Left	Thru	Right	RTOR	App. Total		Left	Thru	Right	RTOR	App. Total		Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
Start Time																										
04:00 PM	0	0	0	0	0		0	2	0	0	2		0	0	0	0	0	0		0	5	0	0	5	0	7
04:15 PM	0	0	0	0	0		0	1	0	0	1		0	0	0	0	0	0		0	4	0	0	4	0	5
04:30 PM	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0	0		0	1	0	0	1	0	1
04:45 PM	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0	0		0	4	0	0	4	0	4
Total	0	0	0	0	0		0	3	0	0	3		0	0	0	0	0	0		0	14	0	0	14	0	17
05:00 PM	0	0	0	0	0		0	1	0	0	1		0	0	0	0	0	0		0	2	0	0	2	0	3
05:15 PM	0	0	0	0	0		0	1	0	0	1		0	0	0	0	0	0		0	1	0	0	1	0	2
05:30 PM	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0	0		0	5	0	0	5	0	5
05:45 PM	0	0	0	0	0		0	1	0	0	1		0	0	0	0	0	0		0	2	0	0	2	0	3
Total	0	0	0	0	0		0	3	0	0	3		0	0	0	0	0	0		0	10	0	0	10	0	13
Grand Total	0	0	0	0	0		0	6	0	0	6		0	0	0	0	0	0		0	24	0	0	24	0	30
Apprch %	0	0	0				0	100	0		20		0	0	0		0			0	100	0		80	0	100
Total %	0	0	0				0	20	0				0	0	0		0			0	80	0			0	

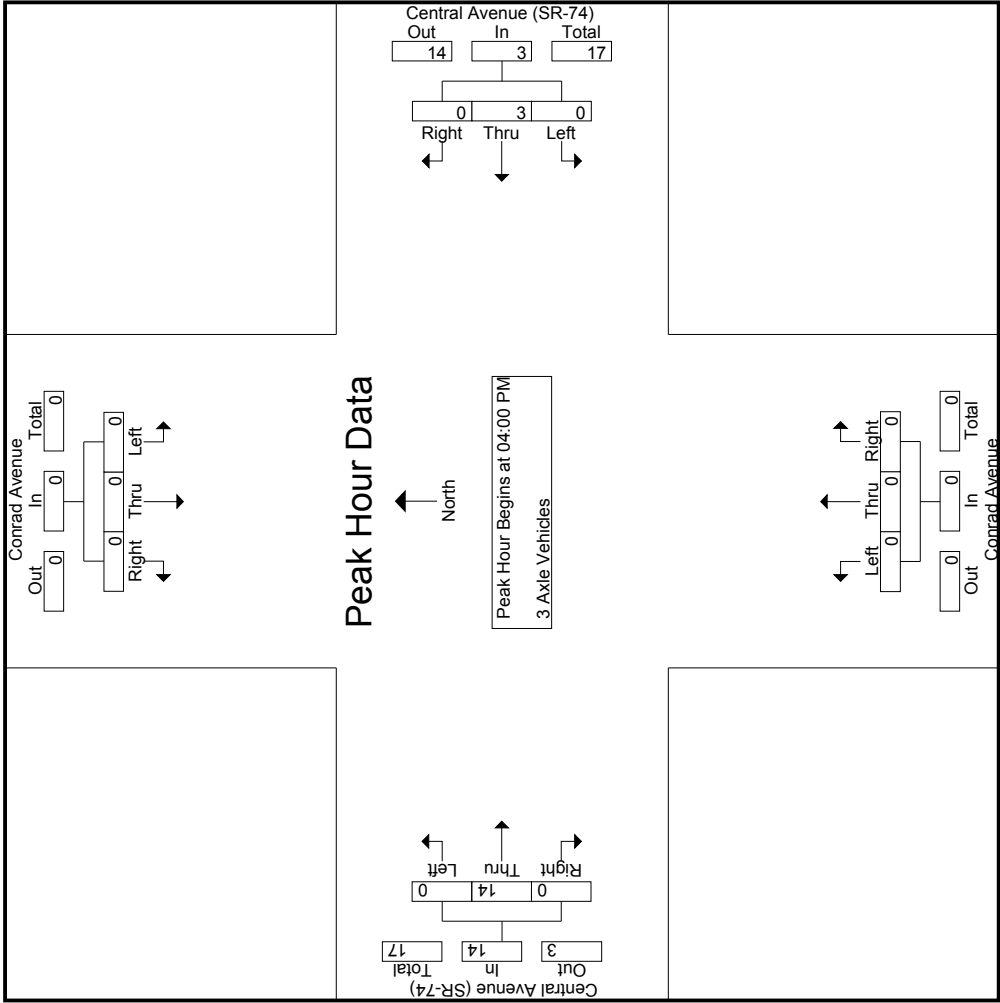
3.1-229

Start Time	Conrad Avenue Southbound					Central Avenue (SR-74) Westbound					Conrad Avenue Northbound					Central Avenue (SR-74) Eastbound					
	Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		Left	Thru	Right	App. Total		
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	0	0	0	0		0	2	0	2		0	0	0	0		0	5	0	5		7
04:15 PM	0	0	0	0		0	1	0	1		0	0	0	0		0	4	0	4		5
04:30 PM	0	0	0	0		0	0	0	0		0	0	0	0		0	1	0	1		1
04:45 PM	0	0	0	0		0	0	0	0		0	0	0	0		0	4	0	4		4
Total Volume	0	0	0	0		0	3	0	3		0	0	0	0		0	14	0	14		17
% App. Total	0	0	0	0		0	100	0			0	0	0			0	100	0			
PHF	.000	.000	.000	.000		.000	.375	.000	.375		.000	.000	.000	.000		.000	.700	.000	.700		.607

Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 04:00 PM

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

County of Riverside
N/S: Conrad Avenue
E/W: Central Avenue (SR-74)
Weather: Clear



Start Time	Conrad Avenue Southbound				Central Avenue Westbound				Conrad Avenue Northbound				Central Avenue Eastbound			
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																
Peak Hour for Each Approach Begins at:																
+0 mins.	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
	0	0	0	0	0	2	0	0	0	0	0	0	0	5	0	5
+15 mins.	0	0	0	0	0	1	0	0	0	0	0	0	0	4	0	4
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	4
Total Volume	0	0	0	0	0	3	0	0	0	0	0	0	0	14	0	14
% App. Total	0	0	0	0	0	100	0	0	0	0	0	0	0	100	0	100
PHF	.000	.000	.000	.000	.000	.375	.000	.000	.000	.000	.000	.000	.000	.700	.000	.700

County of Riverside
N/S: Conrad Avenue
EW: Central Avenue (SR-74)
Weather: Clear

File Name : 04_CRV_Conrad_Central PM
Site Code : 05118340
Start Date : 4/24/2018
Page No : 1

Groups Printed- 4+ Axle Trucks

	Conrad Avenue Southbound						Central Avenue (SR-74) Westbound						Conrad Avenue Northbound						Central Avenue (SR-74) Eastbound							
Start Time	Left	Thru	Right	RTOR	App. Total		Left	Thru	Right	RTOR	App. Total		Left	Thru	Right	RTOR	App. Total		Left	Thru	Right	RTOR	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	0	0	0	0		0	4	0	0	4		0	0	0	0	0	4		0	4	0	0	4	0	8
04:15 PM	0	0	0	0	0		0	2	0	0	2		0	0	0	0	0	0		0	8	0	0	8	0	10
04:30 PM	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0	5		0	5	0	0	5	0	5
04:45 PM	0	0	0	0	0		0	1	0	0	1		0	0	0	0	0	6		0	6	0	0	6	0	7
Total	0	0	0	0	0		0	7	0	0	7		0	0	0	0	0	23		0	23	0	0	23	0	30
05:00 PM	0	0	0	0	0		0	2	0	0	2		0	0	0	0	0	3		0	3	0	0	3	0	5
05:15 PM	0	0	0	0	0		0	2	0	0	2		0	0	0	0	0	0		0	0	0	0	0	2	2
05:30 PM	0	0	0	0	0		0	2	0	0	2		0	0	0	0	0	1		0	1	0	0	1	0	3
05:45 PM	0	0	0	0	0		0	2	0	0	2		0	0	0	0	0	3		0	3	0	0	3	0	5
Total	0	0	0	0	0		0	8	0	0	8		0	0	0	0	0	7		0	7	0	0	7	0	15
Grand Total	0	0	0	0	0		0	15	0	0	15		0	0	0	0	0	30		0	30	0	0	30	0	45
Apprch %	0	0	0				0	100	0				0	0	0					0	100	0				
Total %	0	0	0				0	33.3	0		33.3		0	0	0			66.7		0	66.7	0		66.7	0	100

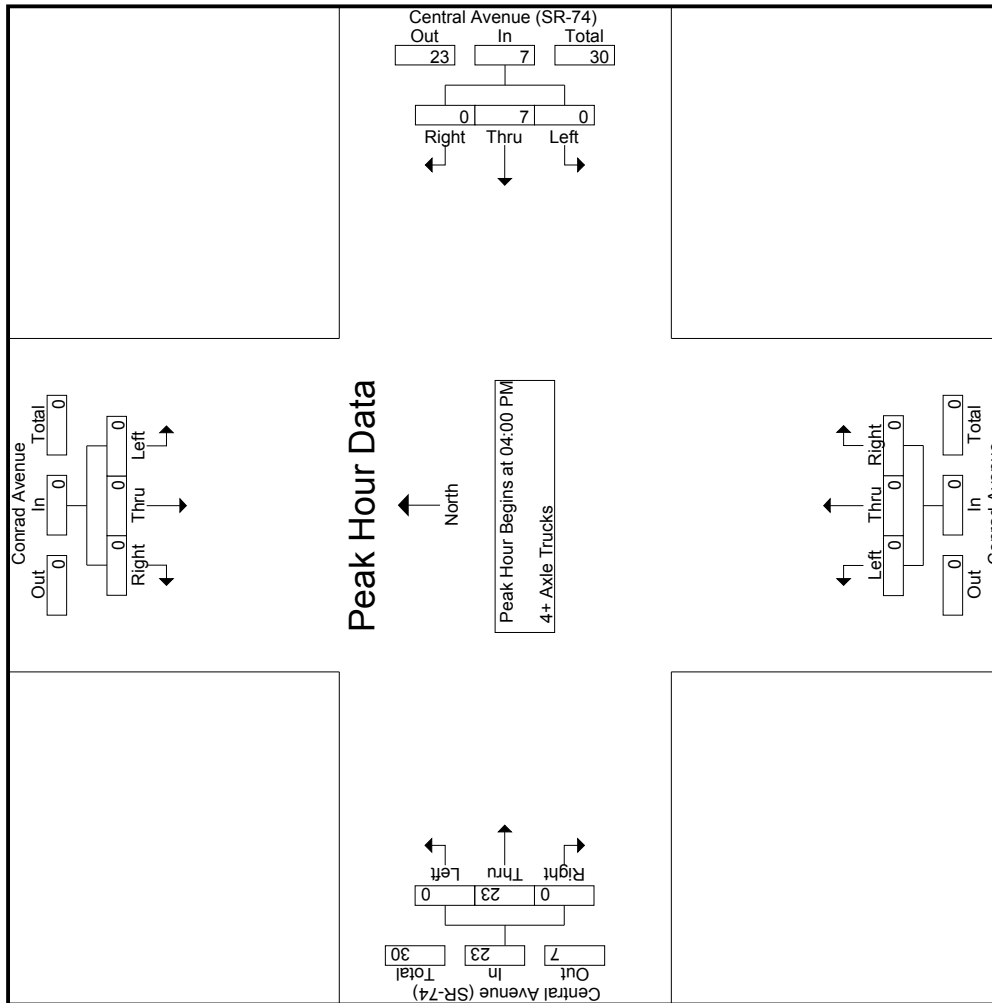
3.1-232

Start Time	Conrad Avenue Southbound						Central Avenue (SR-74) Westbound						Conrad Avenue Northbound						Central Avenue (SR-74) Eastbound					
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total			
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																								
Peak Hour for Entire Intersection Begins at 04:00 PM																								
04:00 PM	0	0	0	0	0	4	0	4	0	0	0	0	0	4	0	0	0	0	4	0	4	8		
04:15 PM	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	8	0	8	10		
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	5	5		
04:45 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	6	0	6	7			
Total Volume	0	0	0	0	0	7	0	7	0	0	0	0	0	0	0	0	0	23	0	23	30			
% App. Total	0	0	0	0	0	100	0	100	0	0	0	0	0	0	0	0	0	100	0	100	0			
PHF	.000	.000	.000	.000	.000	.438	.000	.438	.000	.000	.000	.000	.000	.000	.000	.000	.000	.719	.000	.719	.750			

Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 04:00 PM

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

County of Riverside
N/S: Conrad Avenue
E/W: Central Avenue (SR-74)
Weather: Clear



Start Time	Conrad Avenue Southbound				Central Avenue Westbound				Conrad Avenue Northbound				Central Avenue Eastbound			
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																
Peak Hour for Each Approach Begins at:																
+0 mins.	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
	0	0	0	0	0	4	0	0	0	0	0	0	0	4	0	4
+15 mins.	0	0	0	0	0	2	0	0	0	0	0	0	0	8	0	8
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	5
+45 mins.	0	0	0	0	0	1	0	0	0	0	0	0	0	6	0	6
Total Volume	0	0	0	0	0	7	0	0	0	0	0	0	0	23	0	23
% App. Total	0	0	0	0	0	100	0	0	0	0	0	0	0	100	0	0
PHF	.000	.000	.000	.000	.000	.438	.000	.000	.000	.000	.000	.000	.000	.719	.000	.719

Location: County of Riverside
 N/S: Conrad Avenue
 E/W: Central Avenue (SR-74)



Date: 4/24/2018
 Day: Tuesday

PEDESTRIANS

	North Leg Conrad Avenue	East Leg Central Avenue (SR-74)	South Leg Conrad Avenue	West Leg Central Avenue (SR-74)	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
7:00 AM	0	0	1	0	1
7:15 AM	0	0	0	0	0
7:30 AM	0	0	1	0	1
7:45 AM	0	0	0	0	0
8:00 AM	0	0	1	0	1
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	0	0	3	0	3

	North Leg Conrad Avenue	East Leg Central Avenue (SR-74)	South Leg Conrad Avenue	West Leg Central Avenue (SR-74)	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0

Location: County of Riverside
 N/S: Conrad Avenue
 E/W: Central Avenue (SR-74)



Date: 4/24/2018
 Day: Tuesday

BICYCLES

	Southbound Conrad Avenue			Westbound Central Avenue (SR-74)			Northbound Conrad Avenue			Eastbound Central Avenue (SR-74)			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
7:00 AM	0	0	0	0	2	1	0	0	0	0	0	0	3
7:15 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
7:30 AM	0	0	0	0	0	0	1	0	0	0	0	0	1
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	1	1
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	3	1	1	0	0	0	0	1	6

	Southbound Conrad Avenue			Westbound Central Avenue (SR-74)			Northbound Conrad Avenue			Eastbound Central Avenue (SR-74)			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4:00 PM	0	0	0	0	0	0	0	0	1	0	0	0	1
4:15 PM	0	0	0	0	0	0	1	0	0	0	0	0	1
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	2	0	0	0	0	0	0	0	2
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	3	3
5:30 PM	0	0	0	0	0	0	1	0	0	0	0	0	1
5:45 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
TOTAL VOLUMES:	0	0	0	0	3	0	2	0	1	0	0	3	9

APPENDIX 3.2:

EXISTING (2018) CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

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Timings
1: Lake St. & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

05/18/2018

									
Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBL	SBT	Ø5
Lane Configurations									
Traffic Volume (vph)	15	4	177	5	674	347	17	272	
Future Volume (vph)	15	4	177	5	674	347	17	272	
Turn Type	Perm	NA	Perm	NA	NA	Perm	Prot	NA	
Protected Phases		4		8	2		1	6	5
Permitted Phases	4		8			2			
Detector Phase	4	4	8	8	2	2	1	6	
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	5.0	10.0	5.0
Minimum Split (s)	14.6	14.6	16.2	16.2	16.2	16.2	9.6	16.2	9.6
Total Split (s)	42.2	42.2	42.2	42.2	42.2	42.2	35.6	42.2	35.6
Total Split (%)	35.2%	35.2%	35.2%	35.2%	35.2%	35.2%	29.7%	35.2%	30%
Yellow Time (s)	3.6	3.6	5.2	5.2	5.2	5.2	3.6	5.2	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		4.6		6.2	6.2	6.2	4.6	6.2	
Lead/Lag					Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	Max	Max	None	Max	None
Act Effect Green (s)		18.4		16.8	36.6	36.6	5.6	38.4	
Actuated g/C Ratio		0.27		0.25	0.54	0.54	0.08	0.57	
v/c Ratio		0.05		0.68	0.72	0.41	0.12	0.28	
Control Delay		18.8		33.3	20.2	8.9	34.7	9.3	
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay		18.8		33.3	20.2	8.9	34.7	9.3	
LOS		B		C	C	A	C	A	
Approach Delay		18.8		33.3	16.3			10.8	
Approach LOS		B		C	B			B	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 67.8

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.72

Intersection Signal Delay: 17.7

Intersection LOS: B

Intersection Capacity Utilization 59.4%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 1: Lake St. & Nichols Rd.

		
Ø1	Ø2	Ø4
35.6 s	42.2 s	42.2 s
		
Ø5	Ø6	Ø8
35.6 s	42.2 s	42.2 s

HCM 6th Signalized Intersection Summary
1: Lake St. & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

05/18/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	4	0	177	5	38	0	674	347	17	272	4
Future Volume (veh/h)	15	4	0	177	5	38	0	674	347	17	272	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	16	4	0	190	5	29	0	725	0	18	292	4
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	330	72	0	334	6	36	3	1002		38	1151	16
Arrive On Green	0.19	0.19	0.00	0.19	0.19	0.19	0.00	0.54	0.00	0.02	0.63	0.63
Sat Flow, veh/h	1230	381	0	1236	33	189	1781	1870	1585	1781	1841	25
Grp Volume(v), veh/h	20	0	0	224	0	0	0	725	0	18	0	296
Grp Sat Flow(s),veh/h/ln	1610	0	0	1457	0	0	1781	1870	1585	1781	0	1866
Q Serve(g_s), s	0.0	0.0	0.0	9.2	0.0	0.0	0.0	19.8	0.0	0.7	0.0	4.7
Cycle Q Clear(g_c), s	0.6	0.0	0.0	9.8	0.0	0.0	0.0	19.8	0.0	0.7	0.0	4.7
Prop In Lane	0.80		0.00	0.85		0.13	1.00		1.00	1.00		0.01
Lane Grp Cap(c), veh/h	403	0	0	376	0	0	3	1002		38	0	1167
V/C Ratio(X)	0.05	0.00	0.00	0.60	0.00	0.00	0.00	0.72		0.48	0.00	0.25
Avail Cap(c_a), veh/h	939	0	0	874	0	0	822	1002		822	0	1167
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.3	0.0	0.0	26.0	0.0	0.0	0.0	11.8	0.0	32.5	0.0	5.6
Incr Delay (d2), s/veh	0.1	0.0	0.0	1.5	0.0	0.0	0.0	4.5	0.0	3.4	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.0	3.2	0.0	0.0	0.0	7.1	0.0	0.3	0.0	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.3	0.0	0.0	27.5	0.0	0.0	0.0	16.4	0.0	35.9	0.0	6.1
LnGrp LOS	C	A	A	C	A	A	A	B		D	A	A
Approach Vol, veh/h		20			224			725	A		314	
Approach Delay, s/veh		22.3			27.5			16.4			7.8	
Approach LOS		C			C			B			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.0	42.2		19.0	0.0	48.2		19.0				
Change Period (Y+Rc), s	4.6	6.2		* 6.2	4.6	6.2		6.2				
Max Green Setting (Gmax), s	31.0	36.0		* 38	31.0	36.0		36.0				
Max Q Clear Time (g_c+I1), s	2.7	21.8		2.6	0.0	6.7		11.8				
Green Ext Time (p_c), s	0.0	5.3		0.1	0.0	2.3		1.1				
Intersection Summary												
HCM 6th Ctrl Delay				16.3								
HCM 6th LOS				B								
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.												

Timings
2: Lake St. & Alberhill Ranch Rd.

S. Nichols Mixed-Use Development (JN 10878)

05/18/2018

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	57	47	1013	48	18	414
Future Volume (vph)	57	47	1013	48	18	414
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2		
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	15.1	15.1	16.2	16.2	11.2	16.2
Total Split (s)	15.1	15.1	93.7	93.7	11.2	104.9
Total Split (%)	12.6%	12.6%	78.1%	78.1%	9.3%	87.4%
Yellow Time (s)	4.1	4.1	5.2	5.2	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	6.2	6.2	6.2	6.2
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	Max	Max	None	Max
Act Effect Green (s)	10.0	10.0	98.5	98.5	5.0	103.0
Actuated g/C Ratio	0.08	0.08	0.82	0.82	0.04	0.86
v/c Ratio	0.41	0.28	0.71	0.04	0.26	0.28
Control Delay	61.4	18.5	10.6	1.5	64.7	2.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.4	18.5	10.6	1.5	64.7	2.6
LOS	E	B	B	A	E	A
Approach Delay	42.0		10.1			5.2
Approach LOS	D		B			A

Intersection Summary

Cycle Length: 120	
Actuated Cycle Length: 120	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.71	
Intersection Signal Delay: 10.9	Intersection LOS: B
Intersection Capacity Utilization 71.1%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 2: Lake St. & Alberhill Ranch Rd.



HCM 6th Signalized Intersection Summary
2: Lake St. & Alberhill Ranch Rd.

S. Nichols Mixed-Use Development (JN 10878)

05/18/2018

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	57	47	1013	48	18	414
Future Volume (veh/h)	57	47	1013	48	18	414
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	61	26	1078	42	19	440
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	141	125	1412	1194	35	1546
Arrive On Green	0.08	0.08	0.75	0.75	0.02	0.83
Sat Flow, veh/h	1781	1585	1870	1582	1781	1870
Grp Volume(v), veh/h	61	26	1078	42	19	440
Grp Sat Flow(s),veh/h/ln	1781	1585	1870	1582	1781	1870
Q Serve(g_s), s	3.9	1.8	39.8	0.8	1.3	6.4
Cycle Q Clear(g_c), s	3.9	1.8	39.8	0.8	1.3	6.4
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	141	125	1412	1194	35	1546
V/C Ratio(X)	0.43	0.21	0.76	0.04	0.54	0.28
Avail Cap(c_a), veh/h	149	133	1412	1194	75	1546
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.4	51.5	8.5	3.7	58.0	2.4
Incr Delay (d2), s/veh	0.8	0.3	4.0	0.1	4.8	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.7	12.6	0.2	0.6	1.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	53.2	51.8	12.4	3.7	62.9	2.8
LnGrp LOS	D	D	B	A	E	A
Approach Vol, veh/h	87		1120			459
Approach Delay, s/veh	52.8		12.1			5.3
Approach LOS	D		B			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	8.5	96.4			104.9	14.5
Change Period (Y+Rc), s	6.2	6.2			6.2	5.1
Max Green Setting (Gmax), s	5.0	87.5			98.7	10.0
Max Q Clear Time (g_c+l1), s	3.3	41.8			8.4	5.9
Green Ext Time (p_c), s	0.0	10.9			2.6	0.0
Intersection Summary						
HCM 6th Ctrl Delay			12.4			
HCM 6th LOS			B			

Intersection

Intersection Delay, s/veh 11.4

Intersection LOS B

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	359	16	35	181	38	69
Future Vol, veh/h	359	16	35	181	38	69
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	408	18	40	206	43	78
Number of Lanes	1	0	0	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	1
HCM Control Delay	12.7	10.1	9.2
HCM LOS	B	B	A

Lane	NBLn1	NBLn2	EBLn1	WBLn1
Vol Left, %	100%	0%	0%	16%
Vol Thru, %	0%	0%	96%	84%
Vol Right, %	0%	100%	4%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	38	69	375	216
LT Vol	38	0	0	35
Through Vol	0	0	359	181
RT Vol	0	69	16	0
Lane Flow Rate	43	78	426	245
Geometry Grp	7	7	2	2
Degree of Util (X)	0.078	0.116	0.536	0.325
Departure Headway (Hd)	6.537	5.322	4.527	4.771
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	545	668	797	751
Service Time	4.312	3.096	2.566	2.818
HCM Lane V/C Ratio	0.079	0.117	0.535	0.326
HCM Control Delay	9.9	8.8	12.7	10.1
HCM Lane LOS	A	A	B	B
HCM 95th-tile Q	0.3	0.4	3.2	1.4

Timings

S. Nichols Mixed-Use Development (JN 10878)

4: Lakeshore Dr. & Riverside Dr. (SR-74)

05/18/2018

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	19	443	141	129	529	337	266	293	199	171	9
Future Volume (vph)	19	443	141	129	529	337	266	293	199	171	9
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2	1	6	
Permitted Phases			4			8					6
Detector Phase	7	4	4	3	8	8	5	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	32.4	32.4	9.6	33.4	33.4	9.6	34.7	9.6	32.7	32.7
Total Split (s)	9.6	35.0	35.0	22.6	48.0	48.0	28.0	38.4	24.0	34.4	34.4
Total Split (%)	8.0%	29.2%	29.2%	18.8%	40.0%	40.0%	23.3%	32.0%	20.0%	28.7%	28.7%
Yellow Time (s)	3.6	4.4	4.4	3.6	4.4	4.4	3.6	3.7	3.6	3.7	3.7
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.4	5.4	4.6	5.4	5.4	4.6	4.7	4.6	4.7	4.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	None	Max	Max
Act Effect Green (s)	5.1	24.4	24.4	13.0	38.7	38.7	21.3	34.5	16.8	30.1	30.1
Actuated g/C Ratio	0.05	0.23	0.23	0.12	0.36	0.36	0.20	0.32	0.15	0.28	0.28
v/c Ratio	0.26	0.62	0.33	0.68	0.89	0.49	0.86	0.41	0.81	0.20	0.02
Control Delay	62.3	42.0	7.6	63.7	51.3	7.5	67.6	29.2	69.0	33.1	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.3	42.0	7.6	63.7	51.3	7.5	67.6	29.2	69.0	33.1	0.1
LOS	E	D	A	E	D	A	E	C	E	C	A
Approach Delay		34.6			38.0			44.5		51.2	
Approach LOS		C			D			D		D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 108.4

Natural Cycle: 100

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.89

Intersection Signal Delay: 40.8

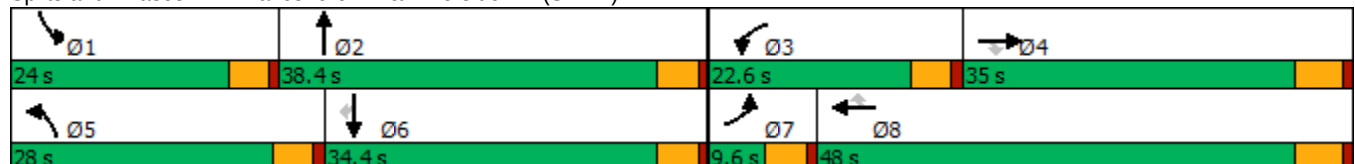
Intersection LOS: D

Intersection Capacity Utilization 84.1%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 4: Lakeshore Dr. & Riverside Dr. (SR-74)



HCM 6th Signalized Intersection Summary 4: Lakeshore Dr. & Riverside Dr. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

05/18/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	19	443	141	129	529	337	266	293	109	199	171	9
Future Volume (veh/h)	19	443	141	129	529	337	266	293	109	199	171	9
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	21	498	95	145	594	0	299	329	57	224	192	7
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	38	950	423	175	643	545	329	954	164	254	970	433
Arrive On Green	0.02	0.27	0.27	0.10	0.34	0.00	0.18	0.31	0.31	0.14	0.27	0.27
Sat Flow, veh/h	1781	3554	1581	1781	1870	1585	1781	3032	520	1781	3554	1585
Grp Volume(v), veh/h	21	498	95	145	594	0	299	191	195	224	192	7
Grp Sat Flow(s),veh/h/ln	1781	1777	1581	1781	1870	1585	1781	1777	1775	1781	1777	1585
Q Serve(g_s), s	1.3	13.0	5.1	8.7	33.2	0.0	17.9	9.0	9.2	13.4	4.5	0.4
Cycle Q Clear(g_c), s	1.3	13.0	5.1	8.7	33.2	0.0	17.9	9.0	9.2	13.4	4.5	0.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.29	1.00		1.00
Lane Grp Cap(c), veh/h	38	950	423	175	643	545	329	559	559	254	970	433
V/C Ratio(X)	0.55	0.52	0.22	0.83	0.92	0.00	0.91	0.34	0.35	0.88	0.20	0.02
Avail Cap(c_a), veh/h	82	967	430	295	732	621	383	559	559	318	970	433
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.7	34.0	31.1	48.2	34.3	0.0	43.5	28.6	28.7	45.7	30.4	28.9
Incr Delay (d2), s/veh	4.4	0.5	0.3	3.9	16.3	0.0	21.5	1.7	1.7	18.0	0.5	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	5.5	1.9	4.0	17.3	0.0	9.8	4.1	4.2	7.2	2.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.1	34.5	31.3	52.1	50.6	0.0	65.0	30.3	30.4	63.7	30.9	29.0
LnGrp LOS	E	C	C	D	D	A	E	C	C	E	C	C
Approach Vol, veh/h		614			739			685			423	
Approach Delay, s/veh		34.8			50.9			45.5			48.2	
Approach LOS		C			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	20.1	38.9	15.3	34.5	24.7	34.4	6.9	42.8				
Change Period (Y+Rc), s	4.6	* 4.7	4.6	5.4	4.6	* 4.7	4.6	5.4				
Max Green Setting (Gmax), s	19.4	* 34	18.0	29.6	23.4	* 30	5.0	42.6				
Max Q Clear Time (g_c+I1), s	15.4	11.2	10.7	15.0	19.9	6.5	3.3	35.2				
Green Ext Time (p_c), s	0.1	2.3	0.1	2.9	0.2	1.2	0.0	2.1				

Intersection Summary

HCM 6th Ctrl Delay 44.9

HCM 6th LOS D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection												
Int Delay, s/veh	2.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕	↕		↕	↕
Traffic Vol, veh/h	0	827	3	2	620	35	0	2	11	46	3	5
Future Vol, veh/h	0	827	3	2	620	35	0	2	11	46	3	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Stop	-	-	Stop
Storage Length	-	-	-	-	-	-	-	-	75	-	-	75
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	853	3	2	639	36	0	2	11	47	3	5
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	675	0	0	856	0	0	1518	1534	855	1517	1517	657
Stage 1	-	-	-	-	-	-	855	855	-	661	661	-
Stage 2	-	-	-	-	-	-	663	679	-	856	856	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	916	-	-	784	-	-	98	116	358	98	119	465
Stage 1	-	-	-	-	-	-	353	375	-	452	460	-
Stage 2	-	-	-	-	-	-	450	451	-	352	374	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	916	-	-	784	-	-	95	116	358	93	119	465
Mov Cap-2 Maneuver	-	-	-	-	-	-	95	116	-	93	119	-
Stage 1	-	-	-	-	-	-	353	375	-	452	458	-
Stage 2	-	-	-	-	-	-	440	449	-	339	374	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0			18.7			74.7		
HCM LOS							C			F		
Minor Lane/Major Mvmt	NBLn1 NBLn2		EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2		
Capacity (veh/h)	116	358	916	-	-	784	-	-	94	465		
HCM Lane V/C Ratio	0.018	0.032	-	-	-	0.003	-	-	0.537	0.011		
HCM Control Delay (s)	36.6	15.4	0	-	-	9.6	0	-	81	12.8		
HCM Lane LOS	E	C	A	-	-	A	A	-	F	B		
HCM 95th %tile Q(veh)	0.1	0.1	0	-	-	0	-	-	2.4	0		

Intersection						
Int Delay, s/veh	3.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	403	32	93	184	37	91
Future Vol, veh/h	403	32	93	184	37	91
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	120	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	463	37	107	211	43	105
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	500	0	907	482
Stage 1	-	-	-	-	482	-
Stage 2	-	-	-	-	425	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1064	-	306	584
Stage 1	-	-	-	-	621	-
Stage 2	-	-	-	-	659	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1064	-	275	584
Mov Cap-2 Maneuver	-	-	-	-	275	-
Stage 1	-	-	-	-	558	-
Stage 2	-	-	-	-	659	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		2.9		14.8	
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	275	584	-	-	1064	-
HCM Lane V/C Ratio	0.155	0.179	-	-	0.1	-
HCM Control Delay (s)	20.5	12.5	-	-	8.8	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile O(veh)	0.5	0.6	-	-	0.3	-

Timings

S. Nichols Mixed-Use Development (JN 10878)

7: Collier Av. (SR-74)/Collier Av. & Riverside Dr. (SR-74)/Riverside Dr.

05/18/2018

										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	74	10	800	5	1	611	71	1	52	45
Future Volume (vph)	74	10	800	5	1	611	71	1	52	45
Turn Type	Perm	NA	pm+ov	Perm	NA	Split	NA	Split	NA	Perm
Protected Phases		4	2		8	2	2	6	6	
Permitted Phases	4		4	8						6
Detector Phase	4	4	2	8	8	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	15.4	15.4	15.8	14.6	14.6	15.8	15.8	16.2	16.2	16.2
Total Split (s)	23.0	23.0	79.0	23.0	23.0	79.0	79.0	18.0	18.0	18.0
Total Split (%)	19.2%	19.2%	65.8%	19.2%	19.2%	65.8%	65.8%	15.0%	15.0%	15.0%
Yellow Time (s)	4.4	4.4	4.8	3.6	3.6	4.8	4.8	5.2	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.4	5.8		4.6	5.8	5.8	6.2	6.2	6.2
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	None	None	Max	None	None	Max	Max	Max	Max	Max
Act Effect Green (s)		13.0	88.5		13.6	73.6	73.6	11.9	11.9	11.9
Actuated g/C Ratio		0.12	0.79		0.12	0.65	0.65	0.11	0.11	0.11
v/c Ratio		0.55	0.62		0.04	0.56	0.07	0.01	0.28	0.20
Control Delay		61.6	3.6		39.4	14.2	7.7	48.0	53.1	6.1
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		61.6	3.6		39.4	14.2	7.7	48.0	53.1	6.1
LOS		E	A		D	B	A	D	D	A
Approach Delay		9.1			39.4		13.4		31.6	
Approach LOS		A			D		B		C	
Intersection Summary										
Cycle Length: 120										
Actuated Cycle Length: 112.4										
Natural Cycle: 65										
Control Type: Actuated-Uncoordinated										
Maximum v/c Ratio: 0.62										
Intersection Signal Delay: 12.3										
Intersection LOS: B										
Intersection Capacity Utilization 80.0%										
ICU Level of Service D										
Analysis Period (min) 15										

Splits and Phases: 7: Collier Av. (SR-74)/Collier Av. & Riverside Dr. (SR-74)/Riverside Dr.

											
Ø2	Ø2	Ø2	Ø6	Ø6	Ø6	Ø4	Ø4	Ø4	Ø8	Ø8	Ø8
79 s	79 s	79 s	18 s	18 s	18 s	23 s	23 s	23 s	23 s	23 s	23 s

HCM 6th Signalized Intersection Summary S. Nichols Mixed-Use Development (JN 10878)
 7: Collier Av. (SR-74)/Collier Av. & Riverside Dr. (SR-74)/Riverside Dr. 05/18/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	74	10	800	5	1	2	611	71	10	1	52	45
Future Volume (veh/h)	74	10	800	5	1	2	611	71	10	1	52	45
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	78	11	776	5	1	0	643	75	10	1	55	7
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	250	32	1199	119	19	0	1087	986	131	175	184	156
Arrive On Green	0.15	0.15	0.15	0.15	0.15	0.00	0.61	0.61	0.61	0.10	0.10	0.10
Sat Flow, veh/h	1322	216	1585	435	130	0	1781	1616	215	1781	1870	1585
Grp Volume(v), veh/h	89	0	776	6	0	0	643	0	85	1	55	7
Grp Sat Flow(s),veh/h/ln	1539	0	1585	565	0	0	1781	0	1832	1781	1870	1585
Q Serve(g_s), s	0.0	0.0	17.6	0.0	0.0	0.0	26.4	0.0	2.3	0.1	3.3	0.5
Cycle Q Clear(g_c), s	5.6	0.0	17.6	5.7	0.0	0.0	26.4	0.0	2.3	0.1	3.3	0.5
Prop In Lane	0.88		1.00	0.83		0.00	1.00		0.12	1.00		1.00
Lane Grp Cap(c), veh/h	282	0	1199	138	0	0	1087	0	1117	175	184	156
V/C Ratio(X)	0.32	0.00	0.65	0.04	0.00	0.00	0.59	0.00	0.08	0.01	0.30	0.04
Avail Cap(c_a), veh/h	282	0	1199	143	0	0	1087	0	1117	175	184	156
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.1	0.0	5.7	43.9	0.0	0.0	14.3	0.0	9.6	48.8	50.3	49.0
Incr Delay (d2), s/veh	0.6	0.0	1.2	0.1	0.0	0.0	2.4	0.0	0.1	0.1	4.1	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	0.0	23.6	0.2	0.0	0.0	10.2	0.0	0.9	0.0	1.7	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.7	0.0	6.9	44.1	0.0	0.0	16.7	0.0	9.7	48.9	54.4	49.5
LnGrp LOS	D	A	A	D	A	A	B	A	A	D	D	D
Approach Vol, veh/h		865			6			728			63	
Approach Delay, s/veh		11.0			44.1			15.8			53.8	
Approach LOS		B			D			B			D	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		79.0		23.0		18.0		23.0				
Change Period (Y+Rc), s		5.8		5.4		6.2		* 5.4				
Max Green Setting (Gmax), s		73.2		17.6		11.8		* 18				
Max Q Clear Time (g_c+I1), s		28.4		19.6		5.3		7.7				
Green Ext Time (p_c), s		2.7		0.0		0.1		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			14.9									
HCM 6th LOS			B									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Timings

S. Nichols Mixed-Use Development (JN 10878)

8: Collier Av./Collier Av. (SR-74) & Central Av./Central Av. (SR-74)

05/18/2018

											
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 	 		 				 	 	
Traffic Volume (vph)	33	87	499	275	591	29	53	274	757	57	11
Future Volume (vph)	33	87	499	275	591	29	53	274	757	57	11
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	7	4	3	8	1	5	2	3	1	6	
Permitted Phases					8			2			6
Detector Phase	7	4	3	8	1	5	2	3	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	5.0	10.0	5.0	5.0	10.0	10.0
Minimum Split (s)	9.6	14.7	9.6	42.8	9.6	9.6	15.8	9.6	9.6	29.8	29.8
Total Split (s)	10.0	21.0	34.0	45.0	46.0	12.0	19.0	34.0	46.0	53.0	53.0
Total Split (%)	8.3%	17.5%	28.3%	37.5%	38.3%	10.0%	15.8%	28.3%	38.3%	44.2%	44.2%
Yellow Time (s)	3.6	3.7	3.6	4.8	3.6	3.6	4.8	3.6	3.6	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.7	4.6	5.8	4.6	4.6	5.8	4.6	4.6	5.8	5.8
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	None	None	Max	Max
Act Effect Green (s)	5.3	11.0	19.9	28.9	58.5	6.2	21.2	42.3	28.4	47.9	47.9
Actuated g/C Ratio	0.05	0.11	0.20	0.29	0.58	0.06	0.21	0.42	0.28	0.48	0.48
v/c Ratio	0.19	0.31	0.78	0.55	0.34	0.28	0.14	0.38	0.83	0.04	0.01
Control Delay	52.6	35.1	47.5	36.5	1.0	56.0	39.3	9.8	42.1	17.8	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.6	35.1	47.5	36.5	1.0	56.0	39.3	9.8	42.1	17.8	0.0
LOS	D	D	D	D	A	E	D	A	D	B	A
Approach Delay		38.9		25.2			18.0			39.8	
Approach LOS		D		C			B			D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 100.5

Natural Cycle: 95

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 29.5

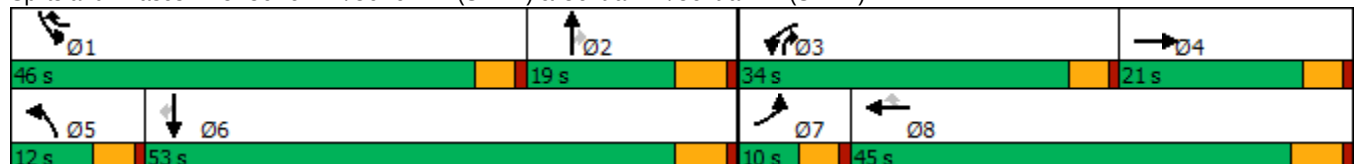
Intersection LOS: C

Intersection Capacity Utilization 59.2%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 8: Collier Av./Collier Av. (SR-74) & Central Av./Central Av. (SR-74)



												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	33	87	29	499	275	591	29	53	274	757	57	11
Future Volume (veh/h)	33	87	29	499	275	591	29	53	274	757	57	11
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	35	93	22	531	293	234	31	56	127	805	61	9
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	108	291	66	616	465	1403	52	465	671	899	1705	750
Arrive On Green	0.03	0.10	0.10	0.18	0.25	0.25	0.03	0.25	0.25	0.26	0.48	0.48
Sat Flow, veh/h	3456	2862	654	3456	1870	2724	1781	1870	1563	3456	3554	1562
Grp Volume(v), veh/h	35	57	58	531	293	234	31	56	127	805	61	9
Grp Sat Flow(s),veh/h/ln	1728	1777	1740	1728	1870	1362	1781	1870	1563	1728	1777	1562
Q Serve(g_s), s	1.0	2.9	3.1	14.7	13.7	4.5	1.7	2.3	5.0	22.1	0.9	0.3
Cycle Q Clear(g_c), s	1.0	2.9	3.1	14.7	13.7	4.5	1.7	2.3	5.0	22.1	0.9	0.3
Prop In Lane	1.00		0.38	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	108	181	177	616	465	1403	52	465	671	899	1705	750
V/C Ratio(X)	0.32	0.31	0.33	0.86	0.63	0.17	0.60	0.12	0.19	0.90	0.04	0.01
Avail Cap(c_a), veh/h	190	294	288	1033	745	1811	134	465	671	1454	1705	750
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.6	41.0	41.1	39.3	32.9	13.0	47.2	28.6	17.6	35.1	13.5	13.4
Incr Delay (d2), s/veh	0.6	1.0	1.1	1.9	1.4	0.1	4.1	0.5	0.6	2.9	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	1.3	1.4	6.1	6.1	1.3	0.8	1.0	1.8	9.1	0.3	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.3	42.0	42.2	41.1	34.4	13.0	51.3	29.2	18.2	38.0	13.6	13.4
LnGrp LOS	D	D	D	D	C	B	D	C	B	D	B	B
Approach Vol, veh/h	150				1058				214			
Approach Delay, s/veh	43.3				33.1				25.9			
Approach LOS	D				C				C			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	30.2	30.3	22.1	15.8	7.5	53.0	7.7	30.3				
Change Period (Y+Rc), s	4.6	5.8	4.6	* 5.8	4.6	5.8	4.6	5.8				
Max Green Setting (Gmax), s	41.4	13.2	29.4	* 16	7.4	47.2	5.4	39.2				
Max Q Clear Time (g_c+I1), s	24.1	7.0	16.7	5.1	3.7	2.9	3.0	15.7				
Green Ext Time (p_c), s	1.5	0.3	0.9	0.4	0.0	0.3	0.0	2.5				

Intersection Summary

HCM 6th Ctrl Delay 34.2

HCM 6th LOS C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection

Intersection Delay, s/veh 15.4

Intersection LOS C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗	↖	↑						↕	
Traffic Vol, veh/h	0	228	267	56	215	0	0	0	0	164	6	62
Future Vol, veh/h	0	228	267	56	215	0	0	0	0	164	6	62
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles, %	0	3	3	25	3	0	0	0	0	8	67	13
Mvmt Flow	0	304	356	75	287	0	0	0	0	219	8	83
Number of Lanes	0	1	1	1	1	0	0	0	0	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	2
HCM Control Delay	15	15.1	16.6
HCM LOS	B	C	C

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	100%	0%	71%
Vol Thru, %	100%	0%	0%	100%	3%
Vol Right, %	0%	100%	0%	0%	27%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	228	267	56	215	232
LT Vol	0	0	56	0	164
Through Vol	228	0	0	215	6
RT Vol	0	267	0	0	62
Lane Flow Rate	304	356	75	287	309
Geometry Grp	7	7	7	7	2
Degree of Util (X)	0.522	0.541	0.153	0.516	0.542
Departure Headway (Hd)	6.179	5.467	7.375	6.483	6.303
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	581	659	485	553	572
Service Time	3.937	3.224	5.141	4.248	4.356
HCM Lane V/C Ratio	0.523	0.54	0.155	0.519	0.54
HCM Control Delay	15.5	14.5	11.5	16	16.6
HCM Lane LOS	C	B	B	C	C
HCM 95th-tile Q	3	3.3	0.5	2.9	3.2

Intersection												
Int Delay, s/veh	57.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	74	318	0	0	131	89	140	3	108	0	0	0
Future Vol, veh/h	74	318	0	0	131	89	140	3	108	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	230	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	62	62	62	62	62	62	62	62	62	62	62	62
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	119	513	0	0	211	144	226	5	174	0	0	0
Major/Minor	Major1		Major2			Minor1						
Conflicting Flow All	355	0	-	-	-	0	1034	1106	513			
Stage 1	-	-	-	-	-	-	751	751	-			
Stage 2	-	-	-	-	-	-	283	355	-			
Critical Hdwy	4.15	-	-	-	-	-	6.44	6.5	6.26			
Critical Hdwy Stg 1	-	-	-	-	-	-	5.44	5.5	-			
Critical Hdwy Stg 2	-	-	-	-	-	-	5.44	5.5	-			
Follow-up Hdwy	2.245	-	-	-	-	-	3.536	4	3.354			
Pot Cap-1 Maneuver	1187	-	0	0	-	-	255	212	553			
Stage 1	-	-	0	0	-	-	463	421	-			
Stage 2	-	-	0	0	-	-	760	633	-			
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	1187	-	-	-	-	-	230	0	553			
Mov Cap-2 Maneuver	-	-	-	-	-	-	230	0	-			
Stage 1	-	-	-	-	-	-	417	0	-			
Stage 2	-	-	-	-	-	-	760	0	-			
Approach	EB		WB			NB						
HCM Control Delay, s	1.6			0			196.6					
HCM LOS							F					
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR							
Capacity (veh/h)	308	1187	-	-	-							
HCM Lane V/C Ratio	1.314	0.101	-	-	-							
HCM Control Delay (s)	196.6	8.4	-	-	-							
HCM Lane LOS	F	A	-	-	-							
HCM 95th %tile O(veh)	19.8	0.3	-	-	-							

Intersection						
Int Delay, s/veh	22.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	166	23	183	65	18	413
Future Vol, veh/h	166	23	183	65	18	413
Conflicting Peds, #/hr	0	1	0	3	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	66	66	66	66	66	66
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	252	35	277	98	27	626
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1009	330	0	0	378	0
Stage 1	329	-	-	-	-	-
Stage 2	680	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	266	712	-	-	1180	-
Stage 1	729	-	-	-	-	-
Stage 2	503	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	256	709	-	-	1177	-
Mov Cap-2 Maneuver	256	-	-	-	-	-
Stage 1	701	-	-	-	-	-
Stage 2	503	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	102.5	0	0.3			
HCM LOS	F					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	278	1177	-	
HCM Lane V/C Ratio	-	-	1.03	0.023	-	
HCM Control Delay (s)	-	-	102.5	8.1	0	
HCM Lane LOS	-	-	F	A	A	
HCM 95th %tile Q(veh)	-	-	10.9	0.1	-	

Intersection						
Int Delay, s/veh	5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	166	23	183	65	18	413
Future Vol, veh/h	166	23	183	65	18	413
Conflicting Peds, #/hr	0	1	0	3	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	180	25	199	71	20	449
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	727	239	0	0	273	0
Stage 1	238	-	-	-	-	-
Stage 2	489	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	391	800	-	-	1290	-
Stage 1	802	-	-	-	-	-
Stage 2	616	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	382	797	-	-	1286	-
Mov Cap-2 Maneuver	382	-	-	-	-	-
Stage 1	783	-	-	-	-	-
Stage 2	616	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	22.4	0		0.3		
HCM LOS	C					
Minor Lane/Major Mvmt		NBT	NBRWBLn1	SBL	SBT	
Capacity (veh/h)		-	-	408	1286	-
HCM Lane V/C Ratio		-	-	0.504	0.015	-
HCM Control Delay (s)		-	-	22.4	7.8	0
HCM Lane LOS		-	-	C	A	A
HCM 95th %tile O(veh)		-	-	2.7	0	-

Intersection												
Int Delay, s/veh	293.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	129	0	263	6	0	15	166	104	6	8	343	228
Future Vol, veh/h	129	0	263	6	0	15	166	104	6	8	343	228
Conflicting Peds, #/hr	0	0	0	0	0	21	0	0	14	0	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	69	69	69	69	69	69	69	69	69	69	69	69
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	187	0	381	9	0	22	241	151	9	12	497	330
Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	1357	1343	663	1529	1504	191	828	0	0	174	0	0
Stage 1	687	687	-	652	652	-	-	-	-	-	-	-
Stage 2	670	656	-	877	852	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	~ 126	152	461	96	121	851	803	-	-	1403	-	-
Stage 1	437	447	-	457	464	-	-	-	-	-	-	-
Stage 2	446	462	-	343	376	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 88	99	461	12	79	823	802	-	-	1384	-	-
Mov Cap-2 Maneuver	~ 88	99	-	12	79	-	-	-	-	-	-	-
Stage 1	292	439	-	302	307	-	-	-	-	-	-	-
Stage 2	285	305	-	58	369	-	-	-	-	-	-	-
Approach	EB		WB			NB			SB			
HCM Control Delay, s\$	932.7		215.6			6.9			0.1			
HCM LOS	F		F									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	802	-	-	192	41	1384	-	-				
HCM Lane V/C Ratio	0.3	-	-	2.959	0.742	0.008	-	-				
HCM Control Delay (s)	11.4	0	-	\$ 932.7	215.6	7.6	0	-				
HCM Lane LOS	B	A	-	F	F	A	A	-				
HCM 95th %tile Q(veh)	1.3	-	-	51.2	2.8	0	-	-				
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s			+: Computation Not Defined			*: All major volume in platoon				

Intersection												
Int Delay, s/veh	61.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	129	0	263	6	0	15	166	104	6	8	343	228
Future Vol, veh/h	129	0	263	6	0	15	166	104	6	8	343	228
Conflicting Peds, #/hr	0	0	0	0	0	21	0	0	14	0	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	140	0	286	7	0	16	180	113	7	9	373	248
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1022	1010	498	1149	1131	152	622	0	0	134	0	0
Stage 1	516	516	-	491	491	-	-	-	-	-	-	-
Stage 2	506	494	-	658	640	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	214	240	572	176	203	894	959	-	-	1451	-	-
Stage 1	542	534	-	559	548	-	-	-	-	-	-	-
Stage 2	549	546	-	453	470	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	172	187	571	73	158	864	958	-	-	1432	-	-
Mov Cap-2 Maneuver	172	187	-	73	158	-	-	-	-	-	-	-
Stage 1	433	528	-	440	432	-	-	-	-	-	-	-
Stage 2	422	431	-	224	465	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	194.7		24.1		5.8		0.1					
HCM LOS	F		C									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	958	-	-	324	211	1432	-	-				
HCM Lane V/C Ratio	0.188	-	-	1.315	0.108	0.006	-	-				
HCM Control Delay (s)	9.6	0	-	194.7	24.1	7.5	0	-				
HCM Lane LOS	A	A	-	F	C	A	A	-				
HCM 95th %tile O(veh)	0.7	-	-	20.5	0.4	0	-	-				

Timings

S. Nichols Mixed-Use Development (JN 10878)

21: Dexter Av. & Central Av. (SR-74)

05/18/2018

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	227	886	124	121	1373	186	99	251	68	141	372
Future Volume (vph)	227	886	124	121	1373	186	99	251	68	141	372
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2	1	6	7
Permitted Phases			4			8					6
Detector Phase	7	4	4	3	8	8	5	2	1	6	7
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0	5.0
Minimum Split (s)	9.6	26.8	26.8	9.6	26.8	26.8	9.6	42.4	9.6	15.8	9.6
Total Split (s)	26.0	42.4	42.4	21.1	37.5	37.5	19.5	43.5	13.0	37.0	26.0
Total Split (%)	21.7%	35.3%	35.3%	17.6%	31.3%	31.3%	16.3%	36.3%	10.8%	30.8%	21.7%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	4.8	3.6	4.4	3.6	4.8	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	5.8	4.6	5.8	5.8	4.6	5.4	4.6	5.8	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	None	Max	None
Act Effect Green (s)	19.0	37.9	37.9	12.6	31.4	31.4	11.2	39.3	7.7	33.1	58.0
Actuated g/C Ratio	0.16	0.33	0.33	0.11	0.27	0.27	0.10	0.34	0.07	0.29	0.50
v/c Ratio	0.86	0.58	0.22	0.69	0.87	0.36	0.64	0.60	0.64	0.29	0.48
Control Delay	74.2	34.8	4.7	68.9	47.0	6.6	68.1	36.9	78.7	35.5	16.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	74.2	34.8	4.7	68.9	47.0	6.6	68.1	36.9	78.7	35.5	16.0
LOS	E	C	A	E	D	A	E	D	E	D	B
Approach Delay		39.0			44.1			44.0		28.1	
Approach LOS		D			D			D		C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 115.6

Natural Cycle: 100

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 40.1

Intersection LOS: D

Intersection Capacity Utilization 84.5%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 21: Dexter Av. & Central Av. (SR-74)

			
Ø1	Ø2	Ø3	Ø4
13 s	43.5 s	21.1 s	42.4 s
			
Ø5	Ø6	Ø7	Ø8
19.5 s	37 s	26 s	37.5 s

HCM 6th Signalized Intersection Summary
21: Dexter Av. & Central Av. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

05/18/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  						 	
Traffic Volume (veh/h)	227	886	124	121	1373	186	99	251	87	68	141	372
Future Volume (veh/h)	227	886	124	121	1373	186	99	251	87	68	141	372
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	249	974	93	133	1509	162	109	276	55	75	155	353
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	278	1717	533	161	1742	424	135	509	101	96	587	745
Arrive On Green	0.16	0.34	0.34	0.09	0.27	0.27	0.08	0.34	0.34	0.05	0.31	0.31
Sat Flow, veh/h	1781	5106	1585	1781	6434	1565	1781	1514	302	1781	1870	1585
Grp Volume(v), veh/h	249	974	93	133	1509	162	109	0	331	75	155	353
Grp Sat Flow(s),veh/h/ln	1781	1702	1585	1781	1609	1565	1781	0	1816	1781	1870	1585
Q Serve(g_s), s	15.5	17.7	4.7	8.3	25.3	9.5	6.8	0.0	16.8	4.7	7.0	17.2
Cycle Q Clear(g_c), s	15.5	17.7	4.7	8.3	25.3	9.5	6.8	0.0	16.8	4.7	7.0	17.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.17	1.00		1.00
Lane Grp Cap(c), veh/h	278	1717	533	161	1742	424	135	0	610	96	587	745
V/C Ratio(X)	0.90	0.57	0.17	0.83	0.87	0.38	0.81	0.00	0.54	0.78	0.26	0.47
Avail Cap(c_a), veh/h	336	1717	533	259	1799	438	234	0	610	132	587	745
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.9	30.8	26.5	50.7	39.4	33.6	51.6	0.0	30.5	53.0	29.1	20.5
Incr Delay (d2), s/veh	20.4	0.4	0.2	5.2	4.6	0.6	4.3	0.0	3.4	12.4	1.1	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.2	7.0	1.7	3.8	10.1	3.6	3.1	0.0	7.7	2.4	3.2	6.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.3	31.3	26.7	55.9	44.0	34.2	55.8	0.0	34.0	65.4	30.2	22.6
LnGrp LOS	E	C	C	E	D	C	E	A	C	E	C	C
Approach Vol, veh/h		1316			1804			440			583	
Approach Delay, s/veh		37.8			44.0			39.4			30.1	
Approach LOS		D			D			D			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.7	43.9	14.8	43.9	13.2	41.4	22.3	36.5				
Change Period (Y+Rc), s	4.6	* 5.8	4.6	5.8	4.6	5.8	4.6	5.8				
Max Green Setting (Gmax), s	8.4	* 38	16.5	36.6	14.9	31.2	21.4	31.7				
Max Q Clear Time (g_c+I1), s	6.7	18.8	10.3	19.7	8.8	19.2	17.5	27.3				
Green Ext Time (p_c), s	0.0	1.7	0.1	6.1	0.1	1.6	0.1	3.4				

Intersection Summary

HCM 6th Ctrl Delay 39.6

HCM 6th LOS D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Timings

S. Nichols Mixed-Use Development (JN 10878)

22: Cambern Av./Cambern Av & Central Av. (SR-74)

05/18/2018

										
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	123	1023	1	1605	111	3	2	126	4	86
Future Volume (vph)	123	1023	1	1605	111	3	2	126	4	86
Turn Type	Prot	NA	Prot	NA	Perm	Perm	NA	Perm	NA	Perm
Protected Phases	7	4	3	8			2		6	
Permitted Phases					8	2		6		6
Detector Phase	7	4	3	8	8	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	24.8	9.6	25.5	25.5	34.7	34.7	14.7	14.7	14.7
Total Split (s)	12.0	75.4	9.6	73.0	73.0	35.0	35.0	35.0	35.0	35.0
Total Split (%)	10.0%	62.8%	8.0%	60.8%	60.8%	29.2%	29.2%	29.2%	29.2%	29.2%
Yellow Time (s)	3.6	4.8	3.6	5.5	5.5	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.6	5.8	4.6	6.5	6.5	4.7	4.7		4.7	4.7
Lead/Lag	Lead	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	Max	None	None	None	None	Max	Max	Max	Max	Max
Act Effect Green (s)	7.4	75.9	5.0	65.1	65.1	30.3	30.3		30.3	30.3
Actuated g/C Ratio	0.06	0.64	0.04	0.55	0.55	0.26	0.26		0.26	0.26
v/c Ratio	0.63	0.50	0.01	0.91	0.13	0.01	0.01		0.41	0.20
Control Delay	68.5	12.6	56.0	32.3	2.6	34.0	30.0		41.5	9.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay	68.5	12.6	56.0	32.3	2.6	34.0	30.0		41.5	9.4
LOS	E	B	E	C	A	C	C		D	A
Approach Delay		18.6		30.4			32.0		28.6	
Approach LOS		B		C			C		C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 118.6

Natural Cycle: 100

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.91

Intersection Signal Delay: 25.9

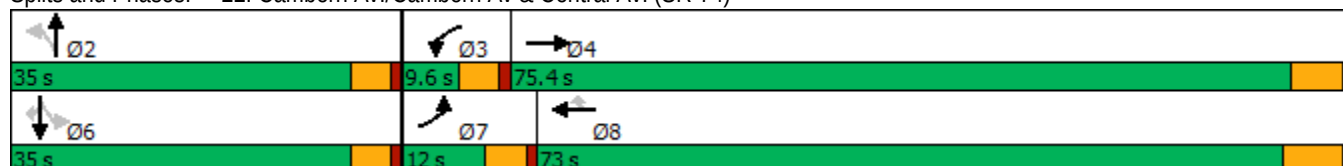
Intersection LOS: C

Intersection Capacity Utilization 90.9%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 22: Cambern Av./Cambern Av & Central Av. (SR-74)



HCM 6th Signalized Intersection Summary S. Nichols Mixed-Use Development (JN 10878)
 22: Cambern Av./Cambern Av & Central Av. (SR-74) 05/18/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	123	1023	1	1	1605	111	3	2	1	126	4	86
Future Volume (veh/h)	123	1023	1	1	1605	111	3	2	1	126	4	86
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	135	1124	1	1	1764	80	3	2	0	138	4	51
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	217	2216	2	2	1943	855	295	480	0	414	11	406
Arrive On Green	0.06	0.61	0.61	0.00	0.55	0.55	0.26	0.26	0.00	0.26	0.26	0.26
Sat Flow, veh/h	3456	3643	3	1781	3554	1564	1348	1870	0	1377	43	1583
Grp Volume(v), veh/h	135	548	577	1	1764	80	3	2	0	142	0	51
Grp Sat Flow(s),veh/h/ln	1728	1777	1870	1781	1777	1564	1348	1870	0	1421	0	1583
Q Serve(g_s), s	4.5	20.6	20.6	0.1	52.7	2.9	0.2	0.1	0.0	9.7	0.0	2.9
Cycle Q Clear(g_c), s	4.5	20.6	20.6	0.1	52.7	2.9	10.0	0.1	0.0	9.8	0.0	2.9
Prop In Lane	1.00		0.00	1.00		1.00	1.00		0.00	0.97		1.00
Lane Grp Cap(c), veh/h	217	1081	1137	2	1943	855	295	480	0	425	0	406
V/C Ratio(X)	0.62	0.51	0.51	0.41	0.91	0.09	0.01	0.00	0.00	0.33	0.00	0.13
Avail Cap(c_a), veh/h	217	1081	1137	75	2002	881	295	480	0	425	0	406
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	54.0	13.1	13.1	58.9	24.1	12.8	40.4	32.6	0.0	36.2	0.0	33.7
Incr Delay (d2), s/veh	12.8	0.5	0.5	36.4	6.6	0.1	0.1	0.0	0.0	2.1	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	7.5	7.9	0.1	20.8	0.9	0.1	0.0	0.0	3.6	0.0	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.7	13.7	13.6	95.3	30.7	12.8	40.4	32.7	0.0	38.4	0.0	34.3
LnGrp LOS	E	B	B	F	C	B	D	C	A	D	A	C
Approach Vol, veh/h		1260			1845			5			193	
Approach Delay, s/veh		19.3			29.9			37.3			37.3	
Approach LOS		B			C			D			D	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		35.0	4.8	78.3		35.0	12.0	71.0				
Change Period (Y+Rc), s		* 4.7	4.6	* 6.5		* 4.7	4.6	6.5				
Max Green Setting (Gmax), s		* 30	5.0	* 70		* 30	7.4	66.5				
Max Q Clear Time (g_c+I1), s		12.0	2.1	22.6		11.8	6.5	54.7				
Green Ext Time (p_c), s		0.0	0.0	13.2		0.8	0.0	9.8				
Intersection Summary												
HCM 6th Ctrl Delay			26.3									
HCM 6th LOS			C									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Timings

S. Nichols Mixed-Use Development (JN 10878)

1: Lake St. & Nichols Rd.

05/18/2018

									
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	1	6	227	0	1	362	164	29	845
Future Volume (vph)	1	6	227	0	1	362	164	29	845
Turn Type	Perm	NA	Perm	NA	Prot	NA	Perm	Prot	NA
Protected Phases		4		8	5	2		1	6
Permitted Phases	4		8				2		
Detector Phase	4	4	8	8	5	2	2	1	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	14.6	14.6	16.2	16.2	9.6	16.2	16.2	9.6	16.2
Total Split (s)	42.2	42.2	42.2	42.2	35.6	42.2	42.2	35.6	42.2
Total Split (%)	35.2%	35.2%	35.2%	35.2%	29.7%	35.2%	35.2%	29.7%	35.2%
Yellow Time (s)	3.6	3.6	5.2	5.2	3.6	5.2	5.2	3.6	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.6		6.2	4.6	6.2	6.2	4.6	6.2
Lead/Lag					Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	None	Max
Act Effect Green (s)		18.2		16.6	5.1	36.9	36.9	6.1	39.4
Actuated g/C Ratio		0.26		0.24	0.07	0.53	0.53	0.09	0.56
v/c Ratio		0.02		0.72	0.01	0.41	0.20	0.21	0.89
Control Delay		19.5		30.1	37.0	14.5	6.0	37.1	28.7
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		19.5		30.1	37.0	14.5	6.0	37.1	28.7
LOS		B		C	D	B	A	D	C
Approach Delay		19.5		30.1		11.9			29.0
Approach LOS		B		C		B			C

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 70.2

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.89

Intersection Signal Delay: 23.7

Intersection LOS: C

Intersection Capacity Utilization 75.2%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 1: Lake St. & Nichols Rd.



HCM 6th Signalized Intersection Summary

1: Lake St. & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

05/18/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	6	1	227	0	18	1	362	164	29	845	1
Future Volume (veh/h)	1	6	1	227	0	18	1	362	164	29	845	1
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1	7	1	249	0	12	1	398	0	32	929	1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	73	340	45	397	0	14	3	949		59	1007	1
Arrive On Green	0.22	0.22	0.22	0.22	0.00	0.22	0.00	0.51	0.00	0.03	0.54	0.54
Sat Flow, veh/h	77	1545	203	1356	0	65	1781	1870	1585	1781	1868	2
Grp Volume(v), veh/h	9	0	0	261	0	0	1	398	0	32	0	930
Grp Sat Flow(s),veh/h/ln	1825	0	0	1421	0	0	1781	1870	1585	1781	0	1870
Q Serve(g_s), s	0.0	0.0	0.0	12.2	0.0	0.0	0.0	9.4	0.0	1.3	0.0	32.3
Cycle Q Clear(g_c), s	0.3	0.0	0.0	12.4	0.0	0.0	0.0	9.4	0.0	1.3	0.0	32.3
Prop In Lane	0.11		0.11	0.95		0.05	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	458	0	0	412	0	0	3	949		59	0	1008
V/C Ratio(X)	0.02	0.00	0.00	0.63	0.00	0.00	0.40	0.42		0.54	0.00	0.92
Avail Cap(c_a), veh/h	1007	0	0	819	0	0	779	949		779	0	1008
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.7	0.0	0.0	26.4	0.0	0.0	35.4	10.9	0.0	33.8	0.0	15.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	1.6	0.0	0.0	33.8	1.4	0.0	2.9	0.0	14.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.0	3.9	0.0	0.0	0.0	3.3	0.0	0.5	0.0	13.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.7	0.0	0.0	28.0	0.0	0.0	69.2	12.3	0.0	36.7	0.0	29.9
LnGrp LOS	C	A	A	C	A	A	E	B		D	A	C
Approach Vol, veh/h	9				261				399			
Approach Delay, s/veh	21.7				28.0				12.4			
Approach LOS	C				C				B			
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.9	42.2		21.8	4.7	44.4		21.8				
Change Period (Y+Rc), s	4.6	6.2		* 6.2	4.6	6.2		6.2				
Max Green Setting (Gmax), s	31.0	36.0		* 38	31.0	36.0		36.0				
Max Q Clear Time (g_c+I1), s	3.3	11.4		2.3	2.0	34.3		14.4				
Green Ext Time (p_c), s	0.0	3.1		0.0	0.0	1.2		1.2				
Intersection Summary												
HCM 6th Ctrl Delay	25.4											
HCM 6th LOS	C											
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.												

Timings
2: Lake St. & Alberhill Ranch Rd.

S. Nichols Mixed-Use Development (JN 10878)

05/18/2018

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	35	19	481	30	23	1012
Future Volume (vph)	35	19	481	30	23	1012
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2		
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	15.1	15.1	16.2	16.2	11.2	16.2
Total Split (s)	16.0	16.0	91.0	91.0	13.0	104.0
Total Split (%)	13.3%	13.3%	75.8%	75.8%	10.8%	86.7%
Yellow Time (s)	4.1	4.1	5.2	5.2	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	6.2	6.2	6.2	6.2
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	Max	Max	None	Max
Act Effect Green (s)	10.0	10.0	94.4	94.4	5.9	102.1
Actuated g/C Ratio	0.08	0.08	0.79	0.79	0.05	0.86
v/c Ratio	0.24	0.13	0.33	0.03	0.26	0.65
Control Delay	55.5	22.6	5.9	1.7	61.6	6.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.5	22.6	5.9	1.7	61.6	6.1
LOS	E	C	A	A	E	A
Approach Delay	44.1		5.6			7.3
Approach LOS	D		A			A

Intersection Summary

Cycle Length: 120	
Actuated Cycle Length: 119.1	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.65	
Intersection Signal Delay: 8.0	Intersection LOS: A
Intersection Capacity Utilization 71.0%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 2: Lake St. & Alberhill Ranch Rd.



HCM 6th Signalized Intersection Summary
2: Lake St. & Alberhill Ranch Rd.

S. Nichols Mixed-Use Development (JN 10878)

05/18/2018

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	35	19	481	30	23	1012
Future Volume (veh/h)	35	19	481	30	23	1012
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		0.98	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	36	6	491	28	23	1033
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	114	101	1428	1185	40	1570
Arrive On Green	0.06	0.06	0.76	0.76	0.02	0.84
Sat Flow, veh/h	1781	1585	1870	1553	1781	1870
Grp Volume(v), veh/h	36	6	491	28	23	1033
Grp Sat Flow(s),veh/h/ln	1781	1585	1870	1553	1781	1870
Q Serve(g_s), s	2.3	0.4	9.8	0.5	1.5	23.1
Cycle Q Clear(g_c), s	2.3	0.4	9.8	0.5	1.5	23.1
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	114	101	1428	1185	40	1570
V/C Ratio(X)	0.32	0.06	0.34	0.02	0.57	0.66
Avail Cap(c_a), veh/h	167	148	1428	1185	104	1570
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.1	51.3	4.4	3.3	56.4	3.4
Incr Delay (d2), s/veh	0.6	0.1	0.7	0.0	4.7	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.2	2.8	0.1	0.7	4.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	52.7	51.4	5.1	3.4	61.1	5.5
LnGrp LOS	D	D	A	A	E	A
Approach Vol, veh/h	42		519			1056
Approach Delay, s/veh	52.5		5.0			6.7
Approach LOS	D		A			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	8.8	95.2			104.0	12.5
Change Period (Y+Rc), s	6.2	6.2			6.2	5.1
Max Green Setting (Gmax), s	6.8	84.8			97.8	10.9
Max Q Clear Time (g_c+l1), s	3.5	11.8			25.1	4.3
Green Ext Time (p_c), s	0.0	3.0			10.1	0.0
Intersection Summary						
HCM 6th Ctrl Delay			7.4			
HCM 6th LOS			A			

Intersection

Intersection Delay, s/veh 9.7

Intersection LOS A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	183	18	74	237	9	61
Future Vol, veh/h	183	18	74	237	9	61
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	195	19	79	252	10	65
Number of Lanes	1	0	0	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	1
HCM Control Delay	9	10.4	8.4
HCM LOS	A	B	A

Lane	NBLn1	NBLn2	EBLn1	WBLn1
Vol Left, %	100%	0%	0%	24%
Vol Thru, %	0%	0%	91%	76%
Vol Right, %	0%	100%	9%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	9	61	201	311
LT Vol	9	0	0	74
Through Vol	0	0	183	237
RT Vol	0	61	18	0
Lane Flow Rate	10	65	214	331
Geometry Grp	7	7	2	2
Degree of Util (X)	0.017	0.091	0.262	0.404
Departure Headway (Hd)	6.239	5.027	4.419	4.398
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	574	712	813	821
Service Time	3.974	2.762	2.443	2.42
HCM Lane V/C Ratio	0.017	0.091	0.263	0.403
HCM Control Delay	9.1	8.3	9	10.4
HCM Lane LOS	A	A	A	B
HCM 95th-tile Q	0.1	0.3	1.1	2

Timings

S. Nichols Mixed-Use Development (JN 10878)

4: Lakeshore Dr. & Riverside Dr. (SR-74)

05/18/2018

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	29	476	263	117	593	298	194	251	265	308	15
Future Volume (vph)	29	476	263	117	593	298	194	251	265	308	15
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2	1	6	
Permitted Phases			4			8					6
Detector Phase	7	4	4	3	8	8	5	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	32.4	32.4	9.6	33.4	33.4	9.6	34.7	9.6	32.7	32.7
Total Split (s)	9.6	38.3	38.3	20.3	49.0	49.0	27.6	35.4	26.0	33.8	33.8
Total Split (%)	8.0%	31.9%	31.9%	16.9%	40.8%	40.8%	23.0%	29.5%	21.7%	28.2%	28.2%
Yellow Time (s)	3.6	4.4	4.4	3.6	4.4	4.4	3.6	3.7	3.6	3.7	3.7
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.4	5.4	4.6	5.4	5.4	4.6	4.7	4.6	4.7	4.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	None	Max	Max
Act Effect Green (s)	5.1	28.7	28.7	11.7	39.7	39.7	16.8	31.1	19.6	34.0	34.0
Actuated g/C Ratio	0.05	0.26	0.26	0.11	0.36	0.36	0.15	0.28	0.18	0.31	0.31
v/c Ratio	0.38	0.54	0.44	0.65	0.91	0.42	0.75	0.42	0.87	0.29	0.03
Control Delay	68.8	37.8	6.5	65.6	54.4	7.4	63.3	26.8	73.1	33.1	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	68.8	37.8	6.5	65.6	54.4	7.4	63.3	26.8	73.1	33.1	0.1
LOS	E	D	A	E	D	A	E	C	E	C	A
Approach Delay		28.3			41.8			38.6		50.3	
Approach LOS		C			D			D		D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 110.7

Natural Cycle: 100

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.91

Intersection Signal Delay: 39.3

Intersection LOS: D

Intersection Capacity Utilization 91.1%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 4: Lakeshore Dr. & Riverside Dr. (SR-74)

			
Ø1	Ø2	Ø3	Ø4
26 s	35.4 s	20.3 s	38.3 s
			
Ø5	Ø6	Ø7	Ø8
27.6 s	33.8 s	9.6 s	49 s

HCM 6th Signalized Intersection Summary 4: Lakeshore Dr. & Riverside Dr. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

05/18/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	476	263	117	593	298	194	251	156	265	308	15
Future Volume (veh/h)	29	476	263	117	593	298	194	251	156	265	308	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	30	491	151	121	611	153	200	259	57	273	318	11
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	48	1056	471	149	661	553	231	802	174	302	1124	495
Arrive On Green	0.03	0.30	0.30	0.08	0.35	0.35	0.13	0.28	0.28	0.17	0.32	0.32
Sat Flow, veh/h	1781	3554	1585	1781	1870	1564	1781	2904	628	1781	3554	1565
Grp Volume(v), veh/h	30	491	151	121	611	153	200	157	159	273	318	11
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1870	1564	1781	1777	1756	1781	1777	1565
Q Serve(g_s), s	1.9	12.5	8.2	7.4	34.9	7.8	12.2	7.8	8.0	16.7	7.5	0.5
Cycle Q Clear(g_c), s	1.9	12.5	8.2	7.4	34.9	7.8	12.2	7.8	8.0	16.7	7.5	0.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.36	1.00		1.00
Lane Grp Cap(c), veh/h	48	1056	471	149	661	553	231	491	485	302	1124	495
V/C Ratio(X)	0.62	0.46	0.32	0.81	0.92	0.28	0.87	0.32	0.33	0.90	0.28	0.02
Avail Cap(c_a), veh/h	80	1056	471	252	734	614	369	491	485	343	1124	495
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.5	31.8	30.3	50.1	34.5	25.7	47.4	31.9	32.0	45.3	28.5	26.2
Incr Delay (d2), s/veh	4.7	0.3	0.4	4.1	16.5	0.3	7.2	1.7	1.8	23.0	0.6	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	5.3	3.1	3.4	18.1	2.9	5.9	3.6	3.7	9.3	3.3	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.2	32.2	30.7	54.2	51.0	26.0	54.6	33.6	33.8	68.3	29.2	26.2
LnGrp LOS	E	C	C	D	D	C	D	C	C	E	C	C
Approach Vol, veh/h		672			885			516			602	
Approach Delay, s/veh		33.0			47.1			41.8			46.8	
Approach LOS		C			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	23.4	35.4	13.9	38.4	19.0	39.8	7.6	44.7				
Change Period (Y+Rc), s	4.6	* 4.7	4.6	5.4	4.6	* 4.7	4.6	5.4				
Max Green Setting (Gmax), s	21.4	* 31	15.7	32.9	23.0	* 29	5.0	43.6				
Max Q Clear Time (g_c+I1), s	18.7	10.0	9.4	14.5	14.2	9.5	3.9	36.9				
Green Ext Time (p_c), s	0.1	1.8	0.1	3.4	0.2	2.0	0.0	2.4				
Intersection Summary												
HCM 6th Ctrl Delay			42.5									
HCM 6th LOS			D									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Intersection												
Int Delay, s/veh	2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕	↕		↕	↕
Traffic Vol, veh/h	2	833	4	6	855	115	0	0	6	28	1	2
Future Vol, veh/h	2	833	4	6	855	115	0	0	6	28	1	2
Conflicting Peds, #/hr	0	0	0	0	0	1	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Stop	-	-	Stop
Storage Length	-	-	-	-	-	-	-	-	75	-	-	75
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	859	4	6	881	119	0	0	6	29	1	2
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1001	0	0	863	0	0	1818	1878	861	1819	1821	942
Stage 1	-	-	-	-	-	-	865	865	-	954	954	-
Stage 2	-	-	-	-	-	-	953	1013	-	865	867	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	692	-	-	779	-	-	60	71	355	60	77	319
Stage 1	-	-	-	-	-	-	348	371	-	311	337	-
Stage 2	-	-	-	-	-	-	311	316	-	348	370	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	691	-	-	779	-	-	58	69	355	58	75	319
Mov Cap-2 Maneuver	-	-	-	-	-	-	58	69	-	58	75	-
Stage 1	-	-	-	-	-	-	346	369	-	309	331	-
Stage 2	-	-	-	-	-	-	302	310	-	340	368	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.1			15.3			113.5		
HCM LOS							C			F		
Minor Lane/Major Mvmt	NBLn1 NBLn2		EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2		
Capacity (veh/h)	-	355	691	-	-	779	-	-	58	319		
HCM Lane V/C Ratio	-	0.017	0.003	-	-	0.008	-	-	0.515	0.006		
HCM Control Delay (s)	0	15.3	10.2	0	-	9.7	0	-	120.2	16.4		
HCM Lane LOS	A	C	B	A	-	A	A	-	F	C		
HCM 95th %tile Q(veh)	-	0.1	0	-	-	0	-	-	2	0		

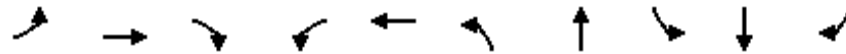
Intersection						
Int Delay, s/veh	6.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	187	54	222	249	78	254
Future Vol, veh/h	187	54	222	249	78	254
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	120	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	199	57	236	265	83	270
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	256	0	965	228
Stage 1	-	-	-	-	228	-
Stage 2	-	-	-	-	737	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1309	-	283	811
Stage 1	-	-	-	-	810	-
Stage 2	-	-	-	-	473	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1309	-	232	811
Mov Cap-2 Maneuver	-	-	-	-	232	-
Stage 1	-	-	-	-	664	-
Stage 2	-	-	-	-	473	-
Approach	EB	WB	NB			
HCM Control Delay, s	0	3.9	15.7			
HCM LOS	C					
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	232	811	-	-	1309	-
HCM Lane V/C Ratio	0.358	0.333	-	-	0.18	-
HCM Control Delay (s)	28.9	11.6	-	-	8.4	-
HCM Lane LOS	D	B	-	-	A	-
HCM 95th %tile O(veh)	1.5	1.5	-	-	0.7	-

Timings

S. Nichols Mixed-Use Development (JN 10878)

7: Collier Av. (SR-74)/Collier Av. & Riverside Dr. (SR-74)/Riverside Dr.

05/18/2018



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations		↰	↱		↰	↱	↰	↱	↰	↱
Traffic Volume (vph)	99	11	757	20	17	867	222	3	178	92
Future Volume (vph)	99	11	757	20	17	867	222	3	178	92
Turn Type	Perm	NA	pm+ov	Perm	NA	Split	NA	Split	NA	Perm
Protected Phases		4	2		8	2	2	6	6	
Permitted Phases	4		4	8						6
Detector Phase	4	4	2	8	8	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	15.4	15.4	15.8	14.6	14.6	15.8	15.8	16.2	16.2	16.2
Total Split (s)	19.0	19.0	79.0	19.0	19.0	79.0	79.0	22.0	22.0	22.0
Total Split (%)	15.8%	15.8%	65.8%	15.8%	15.8%	65.8%	65.8%	18.3%	18.3%	18.3%
Yellow Time (s)	4.4	4.4	4.8	3.6	3.6	4.8	4.8	5.2	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.4	5.8		4.6	5.8	5.8	6.2	6.2	6.2
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	None	None	Max	None	None	Max	Max	Max	Max	Max
Act Effect Green (s)		12.7	85.5		13.5	73.2	73.2	15.8	15.8	15.8
Actuated g/C Ratio		0.11	0.72		0.11	0.61	0.61	0.13	0.13	0.13
v/c Ratio		0.75	0.67		0.26	0.83	0.22	0.01	0.75	0.33
Control Delay		79.7	9.1		47.1	26.7	10.7	45.7	69.4	12.5
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		79.7	9.1		47.1	26.7	10.7	45.7	69.4	12.5
LOS		E	A		D	C	B	D	E	B
Approach Delay		18.0			47.1		23.2		49.9	
Approach LOS		B			D		C		D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 119.1

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 24.9

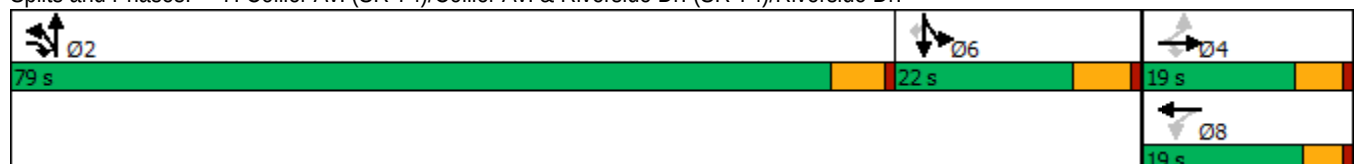
Intersection LOS: C

Intersection Capacity Utilization 82.8%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 7: Collier Av. (SR-74)/Collier Av. & Riverside Dr. (SR-74)/Riverside Dr.



HCM 6th Signalized Intersection Summary S. Nichols Mixed-Use Development (JN 10878)
 7: Collier Av. (SR-74)/Collier Av. & Riverside Dr. (SR-74)/Riverside Dr. 05/18/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	99	11	757	20	17	7	867	222	19	3	178	92
Future Volume (veh/h)	99	11	757	20	17	7	867	222	19	3	178	92
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	103	11	741	21	18	1	903	231	19	3	185	23
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	175	13	1145	54	34	1	1079	1031	85	233	245	207
Arrive On Green	0.12	0.12	0.12	0.12	0.12	0.12	0.61	0.61	0.61	0.13	0.13	0.13
Sat Flow, veh/h	992	106	1548	71	288	9	1781	1702	140	1781	1870	1585
Grp Volume(v), veh/h	114	0	741	40	0	0	903	0	250	3	185	23
Grp Sat Flow(s),veh/h/ln	1098	0	1548	368	0	0	1781	0	1842	1781	1870	1585
Q Serve(g_s), s	0.0	0.0	14.4	1.5	0.0	0.0	48.9	0.0	7.5	0.2	11.5	1.5
Cycle Q Clear(g_c), s	12.5	0.0	14.4	13.9	0.0	0.0	48.9	0.0	7.5	0.2	11.5	1.5
Prop In Lane	0.90		1.00	0.52		0.02	1.00		0.08	1.00		1.00
Lane Grp Cap(c), veh/h	188	0	1145	89	0	0	1079	0	1116	233	245	207
V/C Ratio(X)	0.61	0.00	0.65	0.45	0.00	0.00	0.84	0.00	0.22	0.01	0.76	0.11
Avail Cap(c_a), veh/h	188	0	1145	89	0	0	1079	0	1116	233	245	207
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.3	0.0	6.5	50.7	0.0	0.0	19.0	0.0	10.9	45.7	50.6	46.3
Incr Delay (d2), s/veh	5.5	0.0	1.3	3.5	0.0	0.0	7.7	0.0	0.5	0.1	19.4	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	0.0	22.8	1.3	0.0	0.0	20.1	0.0	2.9	0.1	6.5	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.9	0.0	7.8	54.2	0.0	0.0	26.7	0.0	11.3	45.8	70.0	47.4
LnGrp LOS	E	A	A	D	A	A	C	A	B	D	E	D
Approach Vol, veh/h		855			40			1153			211	
Approach Delay, s/veh		14.5			54.2			23.4			67.2	
Approach LOS		B			D			C			E	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		79.0		19.8		22.0		19.8				
Change Period (Y+Rc), s		5.8		5.4		6.2		* 5.4				
Max Green Setting (Gmax), s		73.2		13.6		15.8		* 14				
Max Q Clear Time (g_c+I1), s		50.9		16.4		13.5		15.9				
Green Ext Time (p_c), s		5.0		0.0		0.2		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			24.7									
HCM 6th LOS			C									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Timings

S. Nichols Mixed-Use Development (JN 10878)

8: Collier Av./Collier Av. (SR-74) & Central Av./Central Av. (SR-74)

05/18/2018

											
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	187	315	203	191	712	49	117	336	902	132	31
Future Volume (vph)	187	315	203	191	712	49	117	336	902	132	31
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	7	4	3	8	1	5	2	3	1	6	
Permitted Phases					8			2			6
Detector Phase	7	4	3	8	1	5	2	3	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	5.0	10.0	5.0	5.0	10.0	10.0
Minimum Split (s)	9.6	14.7	9.6	42.8	9.6	9.6	15.8	9.6	9.6	29.8	29.8
Total Split (s)	14.0	28.8	28.0	42.8	43.0	13.6	20.2	28.0	43.0	49.6	49.6
Total Split (%)	11.7%	24.0%	23.3%	35.7%	35.8%	11.3%	16.8%	23.3%	35.8%	41.3%	41.3%
Yellow Time (s)	3.6	3.7	3.6	4.8	3.6	3.6	4.8	3.6	3.6	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.7	4.6	5.8	4.6	4.6	5.8	4.6	4.6	5.8	5.8
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	None	None	Max	Max
Act Effect Green (s)	8.8	16.9	11.1	18.1	49.6	7.1	19.1	31.5	30.3	44.7	44.7
Actuated g/C Ratio	0.09	0.17	0.11	0.19	0.51	0.07	0.20	0.32	0.31	0.46	0.46
v/c Ratio	0.62	0.62	0.53	0.57	0.47	0.40	0.33	0.60	0.87	0.08	0.04
Control Delay	55.0	41.4	47.4	42.9	6.8	56.5	42.0	23.4	42.4	18.6	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.0	41.4	47.4	42.9	6.8	56.5	42.0	23.4	42.4	18.6	0.1
LOS	E	D	D	D	A	E	D	C	D	B	A
Approach Delay		46.0		20.5			31.0			38.2	
Approach LOS		D		C			C			D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 97.5

Natural Cycle: 95

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 32.3

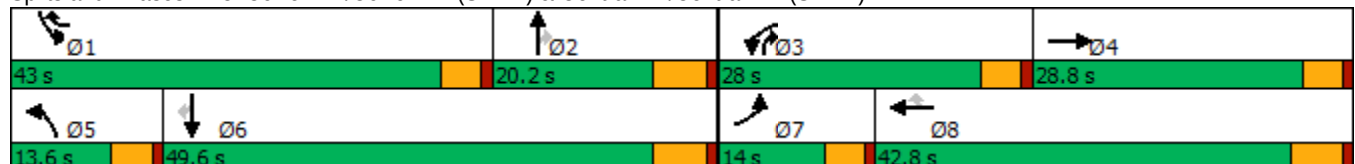
Intersection LOS: C

Intersection Capacity Utilization 70.0%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 8: Collier Av./Collier Av. (SR-74) & Central Av./Central Av. (SR-74)



HCM 6th Signalized Intersection Summary S. Nichols Mixed-Use Development (JN 10878)
 8: Collier Av./Collier Av. (SR-74) & Central Av./Central Av. (SR-74) 05/18/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	187	315	50	203	191	712	49	117	336	902	132	31
Future Volume (veh/h)	187	315	50	203	191	712	49	117	336	902	132	31
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	193	325	48	209	197	211	51	121	118	930	136	19
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	267	472	69	291	297	1271	72	433	495	1034	1744	767
Arrive On Green	0.08	0.15	0.15	0.08	0.16	0.16	0.04	0.23	0.23	0.30	0.49	0.49
Sat Flow, veh/h	3456	3110	455	3456	1870	2746	1781	1870	1561	3456	3554	1563
Grp Volume(v), veh/h	193	184	189	209	197	211	51	121	118	930	136	19
Grp Sat Flow(s),veh/h/ln	1728	1777	1788	1728	1870	1373	1781	1870	1561	1728	1777	1563
Q Serve(g_s), s	4.9	8.8	8.9	5.3	8.8	4.0	2.5	4.7	5.0	23.0	1.8	0.6
Cycle Q Clear(g_c), s	4.9	8.8	8.9	5.3	8.8	4.0	2.5	4.7	5.0	23.0	1.8	0.6
Prop In Lane	1.00		0.25	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	267	270	271	291	297	1271	72	433	495	1034	1744	767
V/C Ratio(X)	0.72	0.68	0.70	0.72	0.66	0.17	0.71	0.28	0.24	0.90	0.08	0.02
Avail Cap(c_a), veh/h	364	480	483	906	775	1973	180	433	495	1487	1744	767
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.2	35.8	35.9	39.8	35.3	14.2	42.3	28.2	22.6	30.0	12.0	11.7
Incr Delay (d2), s/veh	2.3	3.1	3.2	1.2	2.5	0.1	4.8	1.6	1.1	4.4	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	4.0	4.1	2.2	4.0	1.1	1.2	2.2	1.9	9.4	0.7	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.6	38.9	39.1	41.1	37.8	14.3	47.1	29.8	23.7	34.4	12.1	11.8
LnGrp LOS	D	D	D	D	D	B	D	C	C	C	B	B
Approach Vol, veh/h		566			617			290			1085	
Approach Delay, s/veh		40.2			30.9			30.4			31.2	
Approach LOS		D			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	31.3	26.5	12.1	19.3	8.2	49.6	11.5	20.0				
Change Period (Y+Rc), s	4.6	5.8	4.6	* 5.8	4.6	5.8	4.6	5.8				
Max Green Setting (Gmax), s	38.4	14.4	23.4	* 24	9.0	43.8	9.4	37.0				
Max Q Clear Time (g_c+I1), s	25.0	7.0	7.3	10.9	4.5	3.8	6.9	10.8				
Green Ext Time (p_c), s	1.7	0.5	0.3	1.8	0.0	0.8	0.1	1.8				
Intersection Summary												
HCM 6th Ctrl Delay			33.0									
HCM 6th LOS			C									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Intersection

Intersection Delay, s/veh 13.4

Intersection LOS B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗	↖	↑						↕	
Traffic Vol, veh/h	0	239	268	25	339	0	0	0	0	78	2	132
Future Vol, veh/h	0	239	268	25	339	0	0	0	0	78	2	132
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	0	3	3	25	3	0	0	0	0	8	67	13
Mvmt Flow	0	254	285	27	361	0	0	0	0	83	2	140
Number of Lanes	0	1	1	1	1	0	0	0	0	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	2
HCM Control Delay	11.7	16.3	12.3
HCM LOS	B	C	B

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	100%	0%	37%
Vol Thru, %	100%	0%	0%	100%	1%
Vol Right, %	0%	100%	0%	0%	62%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	239	268	25	339	212
LT Vol	0	0	25	0	78
Through Vol	239	0	0	339	2
RT Vol	0	268	0	0	132
Lane Flow Rate	254	285	27	361	226
Geometry Grp	7	7	7	7	2
Degree of Util (X)	0.407	0.4	0.05	0.591	0.367
Departure Headway (Hd)	5.765	5.055	6.786	5.899	5.852
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	625	713	528	613	613
Service Time	3.499	2.789	4.522	3.636	3.891
HCM Lane V/C Ratio	0.406	0.4	0.051	0.589	0.369
HCM Control Delay	12.4	11.1	9.9	16.8	12.3
HCM Lane LOS	B	B	A	C	B
HCM 95th-tile Q	2	1.9	0.2	3.9	1.7

Intersection												
Int Delay, s/veh	12.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	140	177	0	0	112	39	252	1	30	0	0	0
Future Vol, veh/h	140	177	0	0	112	39	252	1	30	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	230	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	146	184	0	0	117	41	263	1	31	0	0	0

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	158	0	- - - 0 614 634 184
Stage 1	-	-	- - - 476 476 -
Stage 2	-	-	- - - 138 158 -
Critical Hdwy	4.15	-	- - - 6.44 6.5 6.26
Critical Hdwy Stg 1	-	-	- - - 5.44 5.5 -
Critical Hdwy Stg 2	-	-	- - - 5.44 5.5 -
Follow-up Hdwy	2.245	-	- - - 3.536 4 3.354
Pot Cap-1 Maneuver	1403	-	0 0 - - 452 399 848
Stage 1	-	-	0 0 - - 621 560 -
Stage 2	-	-	0 0 - - 884 771 -
Platoon blocked, %	-	-	- -
Mov Cap-1 Maneuver	1403	-	- - - 405 0 848
Mov Cap-2 Maneuver	-	-	- - - 405 0 -
Stage 1	-	-	- - - 556 0 -
Stage 2	-	-	- - - 884 0 -

Approach	EB	WB	NB
HCM Control Delay, s	3.5	0	29.9
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR
Capacity (veh/h)	429	1403	-	-	-
HCM Lane V/C Ratio	0.687	0.104	-	-	-
HCM Control Delay (s)	29.9	7.9	-	-	-
HCM Lane LOS	D	A	-	-	-
HCM 95th %tile Q(veh)	5.1	0.3	-	-	-

Intersection						
Int Delay, s/veh	1.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	12	17	126	24	48	150
Future Vol, veh/h	12	17	126	24	48	150
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	13	18	137	26	52	163
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	417	150	0	0	163	0
Stage 1	150	-	-	-	-	-
Stage 2	267	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	592	896	-	-	1416	-
Stage 1	878	-	-	-	-	-
Stage 2	778	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	568	896	-	-	1416	-
Mov Cap-2 Maneuver	568	-	-	-	-	-
Stage 1	843	-	-	-	-	-
Stage 2	778	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	10.2	0	1.9			
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	723	1416	-	
HCM Lane V/C Ratio	-	-	0.044	0.037	-	
HCM Control Delay (s)	-	-	10.2	7.6	0	
HCM Lane LOS	-	-	B	A	A	
HCM 95th %tile Q(veh)	-	-	0.1	0.1	-	

Intersection												
Int Delay, s/veh	1.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	14	0	29	5	0	1	13	135	4	6	146	10
Future Vol, veh/h	14	0	29	5	0	1	13	135	4	6	146	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	3
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	17	0	35	6	0	1	15	161	5	7	174	12
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	391	393	183	406	397	164	189	0	0	166	0	0
Stage 1	197	197	-	194	194	-	-	-	-	-	-	-
Stage 2	194	196	-	212	203	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	568	543	859	555	540	881	1385	-	-	1412	-	-
Stage 1	805	738	-	808	740	-	-	-	-	-	-	-
Stage 2	808	739	-	790	733	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	558	532	857	526	529	881	1381	-	-	1412	-	-
Mov Cap-2 Maneuver	558	532	-	526	529	-	-	-	-	-	-	-
Stage 1	793	731	-	798	731	-	-	-	-	-	-	-
Stage 2	797	730	-	754	726	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	10.3		11.5		0.7		0.3					
HCM LOS	B		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1381	-	-	730	564	1412	-	-				
HCM Lane V/C Ratio	0.011	-	-	0.07	0.013	0.005	-	-				
HCM Control Delay (s)	7.6	0	-	10.3	11.5	7.6	0	-				
HCM Lane LOS	A	A	-	B	B	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0.2	0	0	-	-				

Timings

S. Nichols Mixed-Use Development (JN 10878)

21: Dexter Av. & Central Av. (SR-74)

05/18/2018

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	338	1617	161	156	1112	67	119	130	67	91	315
Future Volume (vph)	338	1617	161	156	1112	67	119	130	67	91	315
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2	1	6	7
Permitted Phases			4			8					6
Detector Phase	7	4	4	3	8	8	5	2	1	6	7
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0	5.0
Minimum Split (s)	9.6	26.8	26.8	9.6	26.8	26.8	9.6	42.4	9.6	15.8	9.6
Total Split (s)	33.3	47.0	47.0	18.0	31.7	31.7	20.3	44.0	11.0	34.7	33.3
Total Split (%)	27.8%	39.2%	39.2%	15.0%	26.4%	26.4%	16.9%	36.7%	9.2%	28.9%	27.8%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	4.8	3.6	4.4	3.6	4.8	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	5.8	4.6	5.8	5.8	4.6	5.4	4.6	5.8	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	None	Max	None
Act Effect Green (s)	25.7	41.1	41.1	12.6	28.0	28.0	12.0	39.2	6.3	30.8	57.7
Actuated g/C Ratio	0.22	0.35	0.35	0.11	0.24	0.24	0.10	0.33	0.05	0.26	0.49
v/c Ratio	0.89	0.93	0.26	0.84	0.74	0.13	0.67	0.50	0.72	0.19	0.39
Control Delay	70.2	47.3	6.6	86.1	45.7	0.5	69.2	29.4	94.8	36.2	11.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	70.2	47.3	6.6	86.1	45.7	0.5	69.2	29.4	94.8	36.2	11.7
LOS	E	D	A	F	D	A	E	C	F	D	B
Approach Delay		47.9			48.2			40.7		28.1	
Approach LOS		D			D			D		C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 117.3

Natural Cycle: 110

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.93

Intersection Signal Delay: 45.1

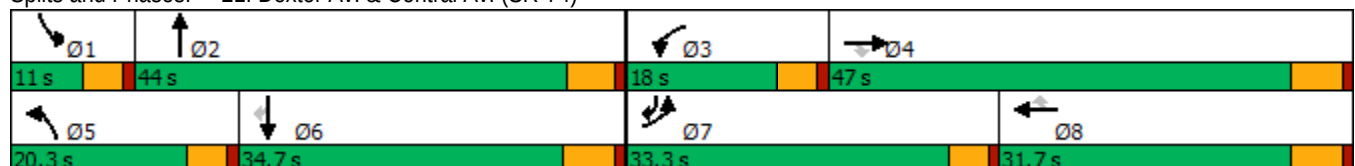
Intersection LOS: D

Intersection Capacity Utilization 91.9%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 21: Dexter Av. & Central Av. (SR-74)



HCM 6th Signalized Intersection Summary
21: Dexter Av. & Central Av. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

05/18/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  						 	
Traffic Volume (veh/h)	338	1617	161	156	1112	67	119	130	168	67	91	315
Future Volume (veh/h)	338	1617	161	156	1112	67	119	130	168	67	91	315
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	345	1650	122	159	1135	44	121	133	111	68	93	258
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	372	1762	533	186	1548	375	147	305	254	87	547	788
Arrive On Green	0.21	0.35	0.35	0.10	0.24	0.24	0.08	0.33	0.33	0.05	0.29	0.29
Sat Flow, veh/h	1781	5106	1545	1781	6434	1560	1781	935	780	1781	1870	1565
Grp Volume(v), veh/h	345	1650	122	159	1135	44	121	0	244	68	93	258
Grp Sat Flow(s),veh/h/ln	1781	1702	1545	1781	1609	1560	1781	0	1715	1781	1870	1565
Q Serve(g_s), s	22.5	37.0	6.6	10.4	19.3	2.6	7.9	0.0	13.2	4.5	4.4	11.7
Cycle Q Clear(g_c), s	22.5	37.0	6.6	10.4	19.3	2.6	7.9	0.0	13.2	4.5	4.4	11.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.45	1.00		1.00
Lane Grp Cap(c), veh/h	372	1762	533	186	1548	375	147	0	559	87	547	788
V/C Ratio(X)	0.93	0.94	0.23	0.86	0.73	0.12	0.82	0.00	0.44	0.78	0.17	0.33
Avail Cap(c_a), veh/h	432	1777	538	202	1548	375	236	0	559	96	547	788
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.9	37.5	27.6	52.1	41.4	35.1	53.4	0.0	31.3	55.7	31.2	17.6
Incr Delay (d2), s/veh	22.9	9.9	0.2	25.3	1.8	0.1	5.4	0.0	2.5	26.8	0.7	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.0	16.2	2.4	5.8	7.6	1.0	3.7	0.0	5.7	2.6	2.0	4.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.8	47.4	27.8	77.4	43.3	35.3	58.8	0.0	33.8	82.5	31.9	18.7
LnGrp LOS	E	D	C	E	D	D	E	A	C	F	C	B
Approach Vol, veh/h		2117			1338			365			419	
Approach Delay, s/veh		49.8			47.1			42.1			32.0	
Approach LOS		D			D			D			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.4	44.4	16.9	46.6	14.4	40.4	29.3	34.3				
Change Period (Y+Rc), s	4.6	* 5.8	4.6	5.8	4.6	5.8	4.6	5.8				
Max Green Setting (Gmax), s	6.4	* 39	13.4	41.2	15.7	28.9	28.7	25.9				
Max Q Clear Time (g_c+I1), s	6.5	15.2	12.4	39.0	9.9	13.7	24.5	21.3				
Green Ext Time (p_c), s	0.0	1.3	0.0	1.8	0.1	1.1	0.2	2.8				

Intersection Summary

HCM 6th Ctrl Delay	46.5
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Timings

S. Nichols Mixed-Use Development (JN 10878)

22: Cambern Av./Cambern Av & Central Av. (SR-74)

05/18/2018



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT	SBR	Ø3
Lane Configurations	↔↔	↕↕	↕↕	↔	↔	↕		↕	↔	
Traffic Volume (vph)	252	1736	1119	143	1	3	230	3	83	
Future Volume (vph)	252	1736	1119	143	1	3	230	3	83	
Turn Type	Prot	NA	NA	Perm	Perm	NA	Perm	NA	Perm	
Protected Phases	7	4	8			2		6		3
Permitted Phases				8	2		6		6	
Detector Phase	7	4	8	8	2	2	6	6	6	
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	5.0
Minimum Split (s)	9.6	24.8	25.5	25.5	34.7	34.7	14.7	14.7	14.7	9.6
Total Split (s)	19.8	74.0	63.8	63.8	36.4	36.4	36.4	36.4	36.4	9.6
Total Split (%)	16.5%	61.7%	53.2%	53.2%	30.3%	30.3%	30.3%	30.3%	30.3%	8%
Yellow Time (s)	3.6	4.8	5.5	5.5	3.7	3.7	3.7	3.7	3.7	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.6	5.8	6.5	6.5	4.7	4.7		4.7	4.7	
Lead/Lag	Lead	Lag	Lag	Lag						Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes						Yes
Recall Mode	Max	None	None	None	Max	Max	Max	Max	Max	None
Act Effect Green (s)	15.3	68.2	47.6	47.6	31.9	31.9		31.9	31.9	
Actuated g/C Ratio	0.14	0.62	0.43	0.43	0.29	0.29		0.29	0.29	
v/c Ratio	0.56	0.83	0.77	0.20	0.00	0.01		0.62	0.16	
Control Delay	50.9	20.5	30.3	3.5	32.0	28.5		44.2	3.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	50.9	20.5	30.3	3.5	32.0	28.5		44.2	3.5	
LOS	D	C	C	A	C	C		D	A	
Approach Delay		24.4	27.3			29.2		33.5		
Approach LOS		C	C			C		C		

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 110.6

Natural Cycle: 100

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 26.2

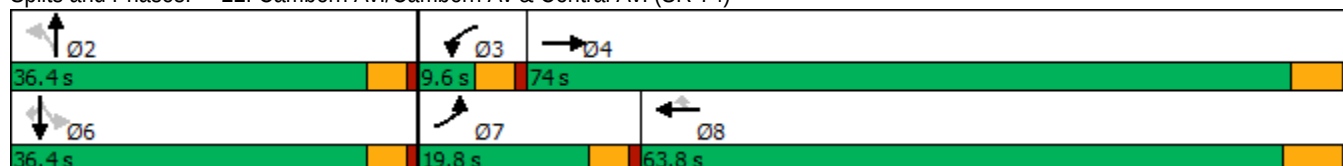
Intersection LOS: C

Intersection Capacity Utilization 84.3%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 22: Cambern Av./Cambern Av & Central Av. (SR-74)



HCM 6th Signalized Intersection Summary S. Nichols Mixed-Use Development (JN 10878)
 22: Cambern Av./Cambern Av & Central Av. (SR-74) 05/18/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	252	1736	1	0	1119	143	1	3	1	230	3	83
Future Volume (veh/h)	252	1736	1	0	1119	143	1	3	1	230	3	83
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	262	1808	1	0	1166	97	1	3	1	240	3	33
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	490	2185	1	2	1474	648	271	397	132	479	5	463
Arrive On Green	0.14	0.60	0.60	0.00	0.41	0.41	0.30	0.30	0.30	0.30	0.30	0.30
Sat Flow, veh/h	3456	3645	2	1781	3554	1561	1372	1342	447	1392	17	1565
Grp Volume(v), veh/h	262	881	928	0	1166	97	1	0	4	243	0	33
Grp Sat Flow(s),veh/h/ln	1728	1777	1870	1781	1777	1561	1372	0	1790	1409	0	1565
Q Serve(g_s), s	7.5	42.2	42.2	0.0	30.6	4.2	0.1	0.0	0.2	15.7	0.0	1.6
Cycle Q Clear(g_c), s	7.5	42.2	42.2	0.0	30.6	4.2	15.9	0.0	0.2	15.8	0.0	1.6
Prop In Lane	1.00		0.00	1.00		1.00	1.00		0.25	0.99		1.00
Lane Grp Cap(c), veh/h	490	1065	1121	2	1474	648	271	0	530	484	0	463
V/C Ratio(X)	0.53	0.83	0.83	0.00	0.79	0.15	0.00	0.00	0.01	0.50	0.00	0.07
Avail Cap(c_a), veh/h	490	1131	1190	83	1901	835	271	0	530	484	0	463
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	42.7	17.0	17.0	0.0	27.3	19.6	38.9	0.0	26.6	32.2	0.0	27.1
Incr Delay (d2), s/veh	4.1	5.3	5.0	0.0	2.1	0.2	0.0	0.0	0.0	3.7	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.4	16.1	16.9	0.0	12.1	1.4	0.0	0.0	0.1	5.8	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.8	22.3	22.1	0.0	29.4	19.7	38.9	0.0	26.6	35.9	0.0	27.4
LnGrp LOS	D	C	C	A	C	B	D	A	C	D	A	C
Approach Vol, veh/h	2071			1263			5			276		
Approach Delay, s/veh	25.3			28.7			29.1			34.9		
Approach LOS	C			C			C			C		
Timer - Assigned Phs	2			3			4			6		
Phs Duration (G+Y+Rc), s	36.4			0.0			70.7			36.4		
Change Period (Y+Rc), s	* 4.7			4.6			* 6.5			* 4.7		
Max Green Setting (Gmax), s	* 32			5.0			* 68			* 32		
Max Q Clear Time (g_c+I1), s	17.9			0.0			44.2			17.8		
Green Ext Time (p_c), s	0.0			0.0			18.1			1.2		

Intersection Summary

HCM 6th Ctrl Delay	27.2
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

APPENDIX 3.3:

EXISTING (2018) CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

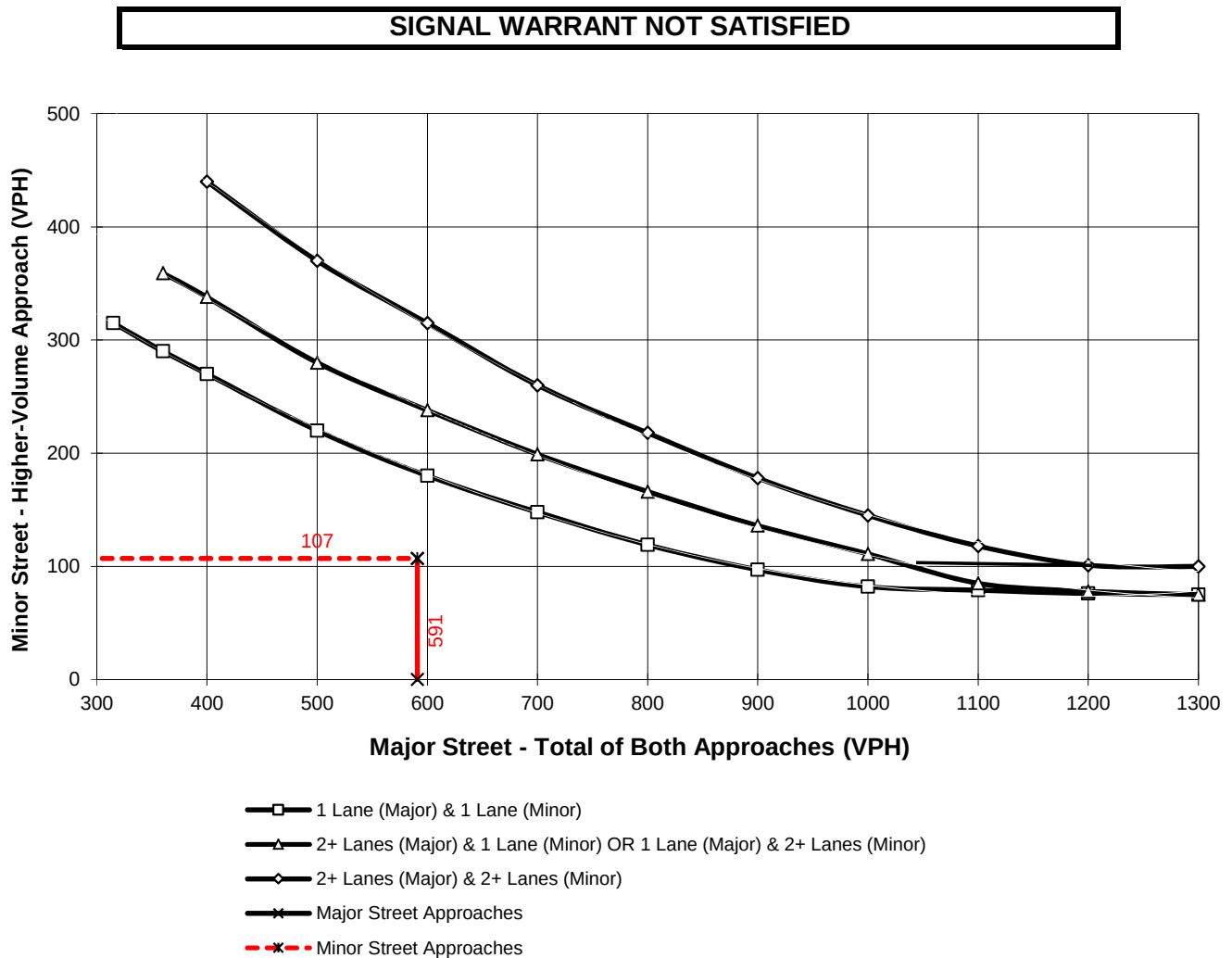
Traffic Conditions = **Existing (2018) Conditions - Weekday AM Peak Hour**

Major Street Name = **Nichols Rd.**

Total of Both Approaches (VPH) = **591**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Alberhill Ranch Rd.**

High Volume Approach (VPH) = **107**
Number of Approach Lanes Minor Street = **1**



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes
and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-3. Warrant 3, Peak Hour

Traffic Conditions = **Existing (2018) Conditions - Weekday AM Peak Hour**

Major Street Name = **Gunnerson St.**

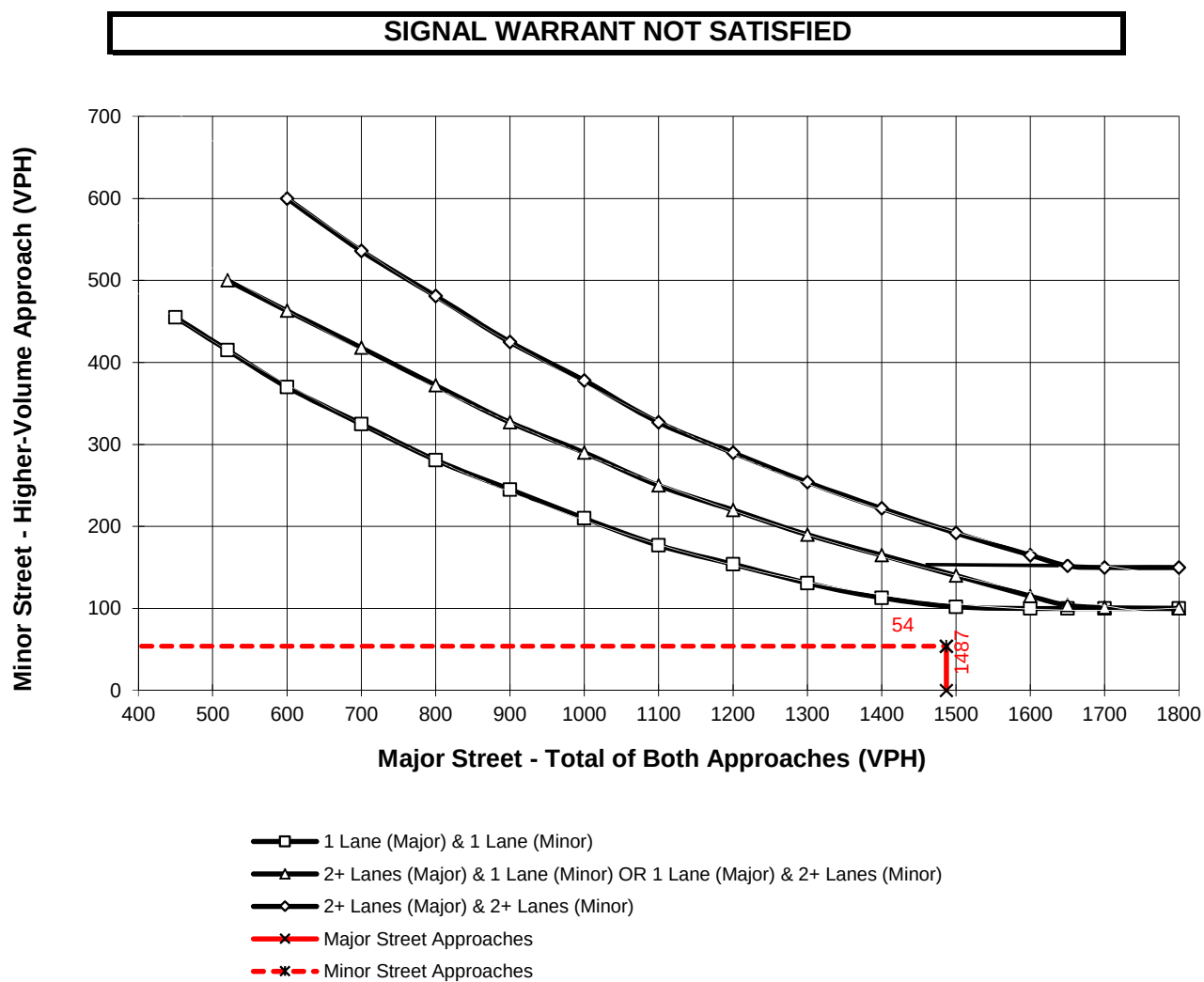
Total of Both Approaches (VPH) = **1487**

Number of Approach Lanes on Major Street = **1**

Minor Street Name = **Strickland Av./Riverside Dr.**

High Volume Approach (VPH) = **54**

Number of Approach Lanes On Minor Street = **1**



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes
and 100 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

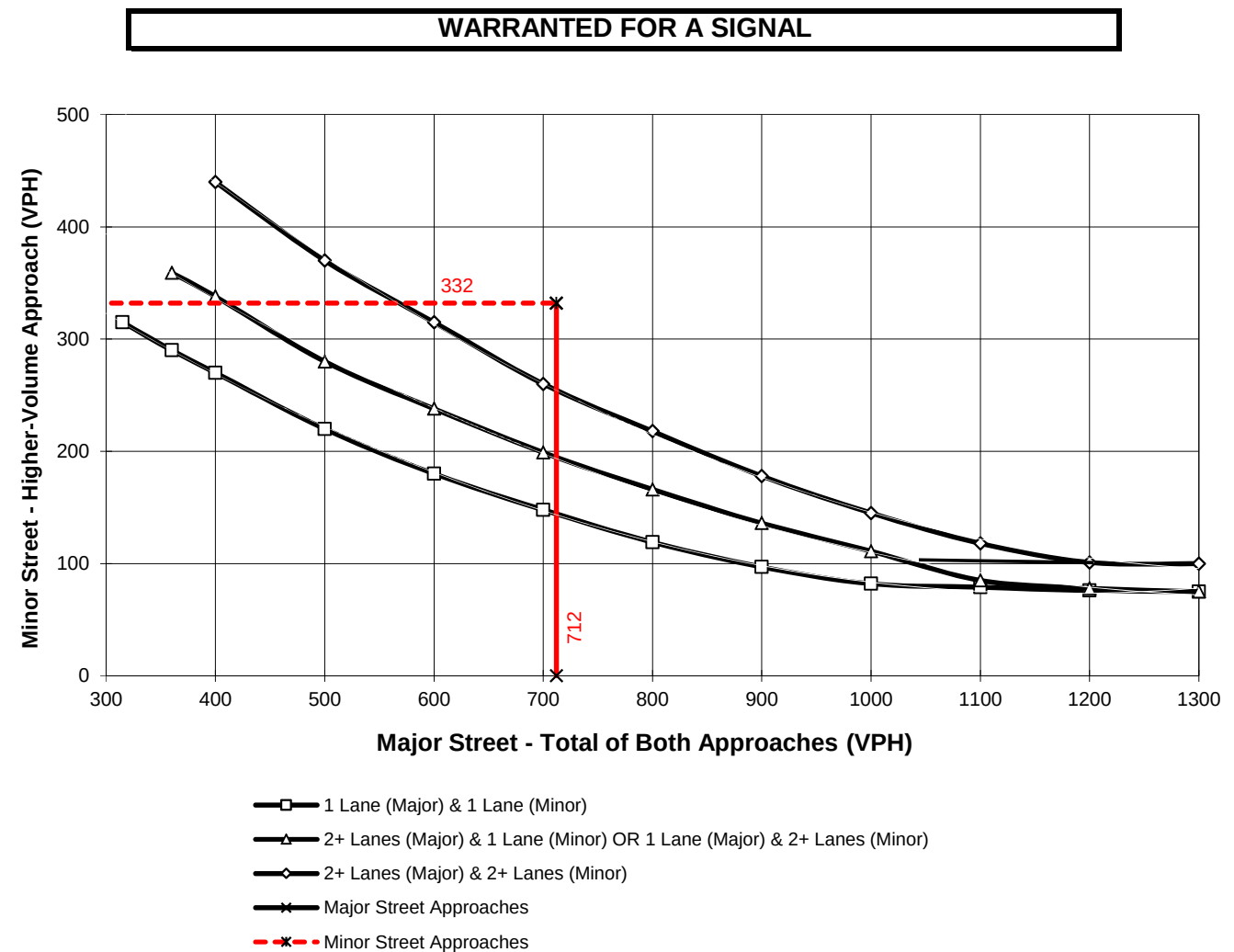
Traffic Conditions = **Existing (2018) Conditions - Weekday PM Peak Hour**

Major Street Name = **Nichols Rd.**

Total of Both Approaches (VPH) = **712**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Collier Rd.**

High Volume Approach (VPH) = **332**
Number of Approach Lanes Minor Street = **2**



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes
and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

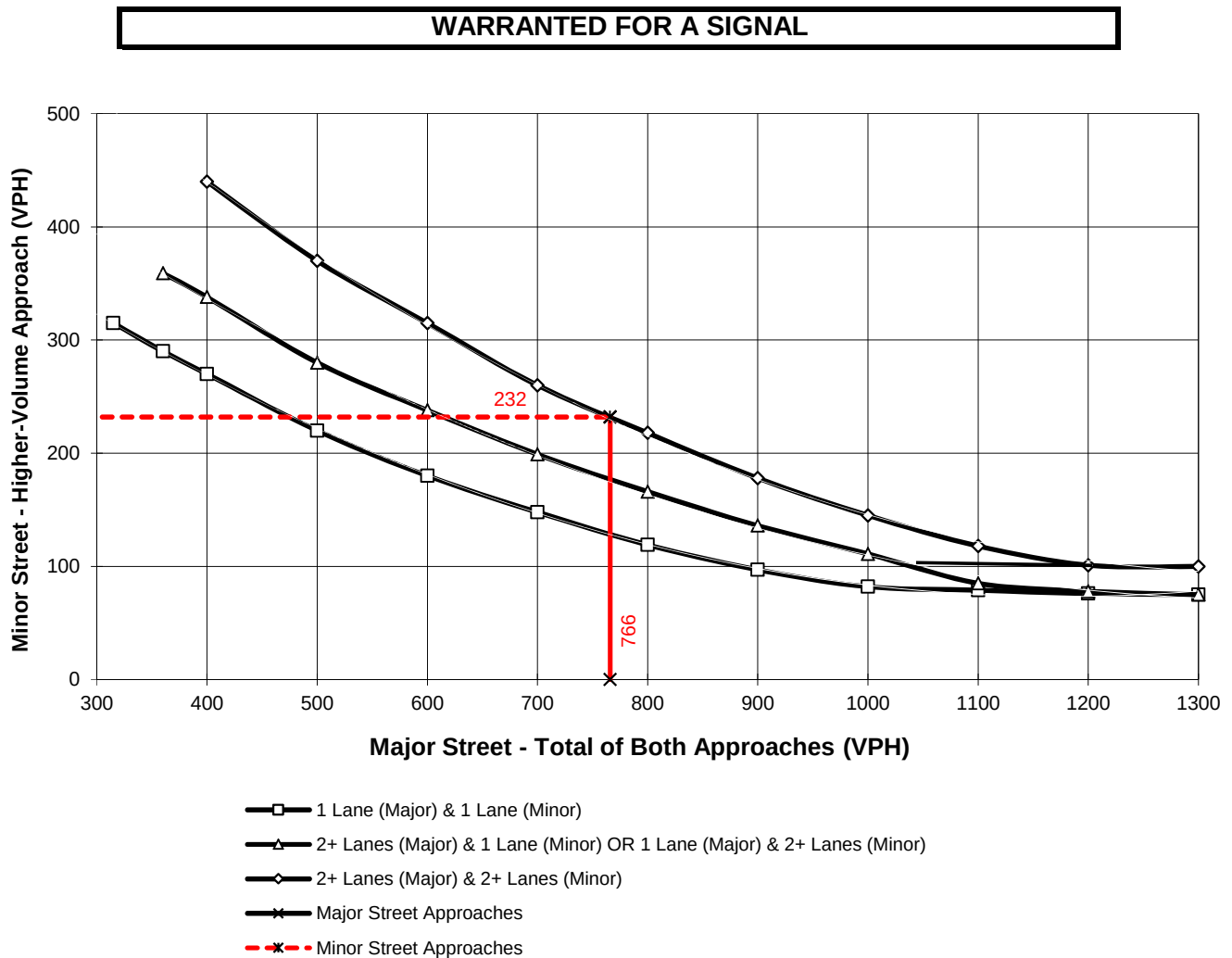
Traffic Conditions = **Existing (2018) Conditions - Weekday AM Peak Hour**

Major Street Name = **Nichols Rd.**

Total of Both Approaches (VPH) = **766**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **I-15 Southbound Ramps**

High Volume Approach (VPH) = **232**
Number of Approach Lanes Minor Street = **1**



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes
and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

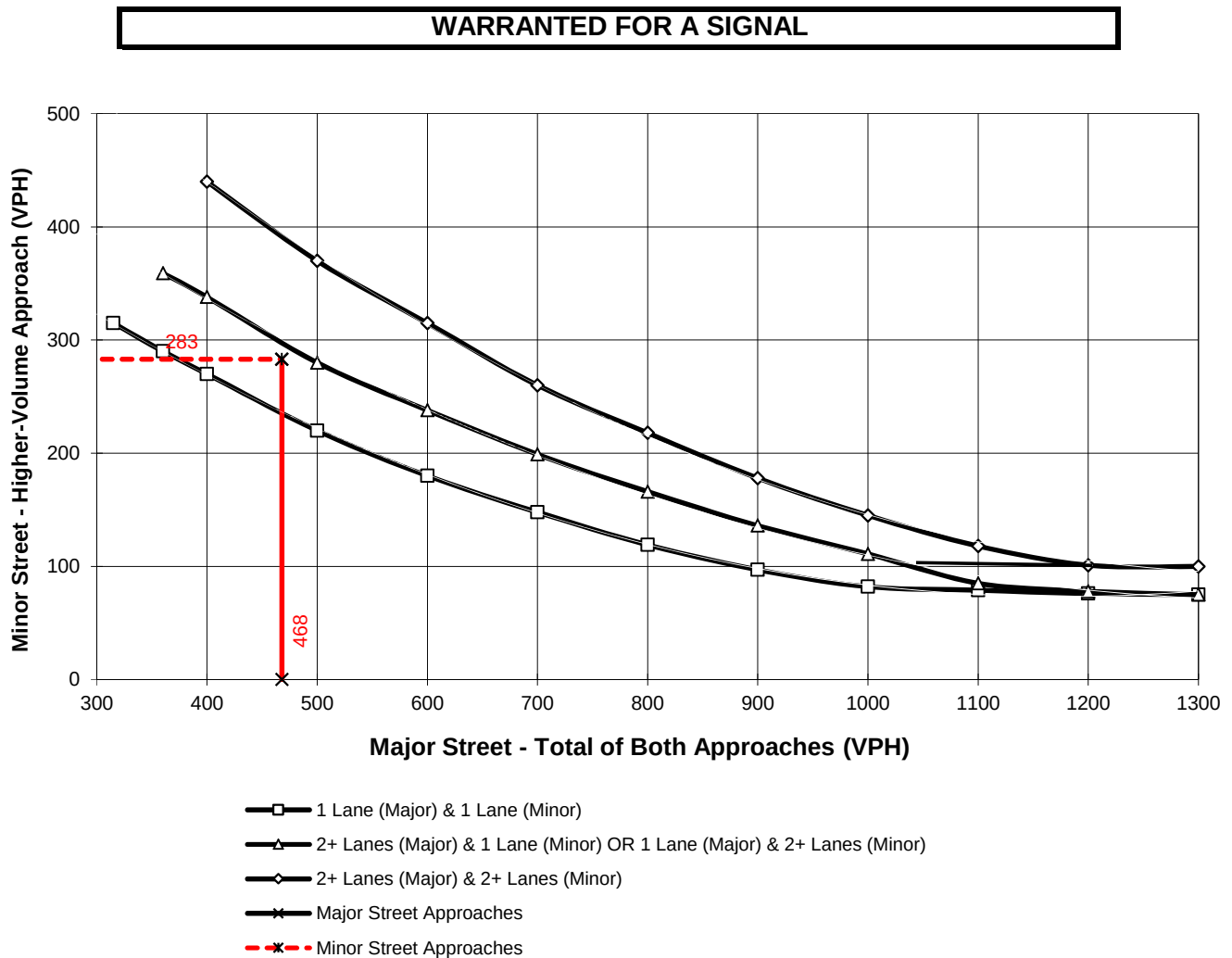
Traffic Conditions = **Existing (2018) Conditions - Weekday PM Peak Hour**

Major Street Name = **Nichols Rd.**

Total of Both Approaches (VPH) = **468**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **I-15 Northbound Ramps**

High Volume Approach (VPH) = **283**
Number of Approach Lanes Minor Street = **1**



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes
and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-3. Warrant 3, Peak Hour

Traffic Conditions = **Existing (2018) Conditions - Weekday AM Peak Hour**

Major Street Name = **El Toro Rd.**

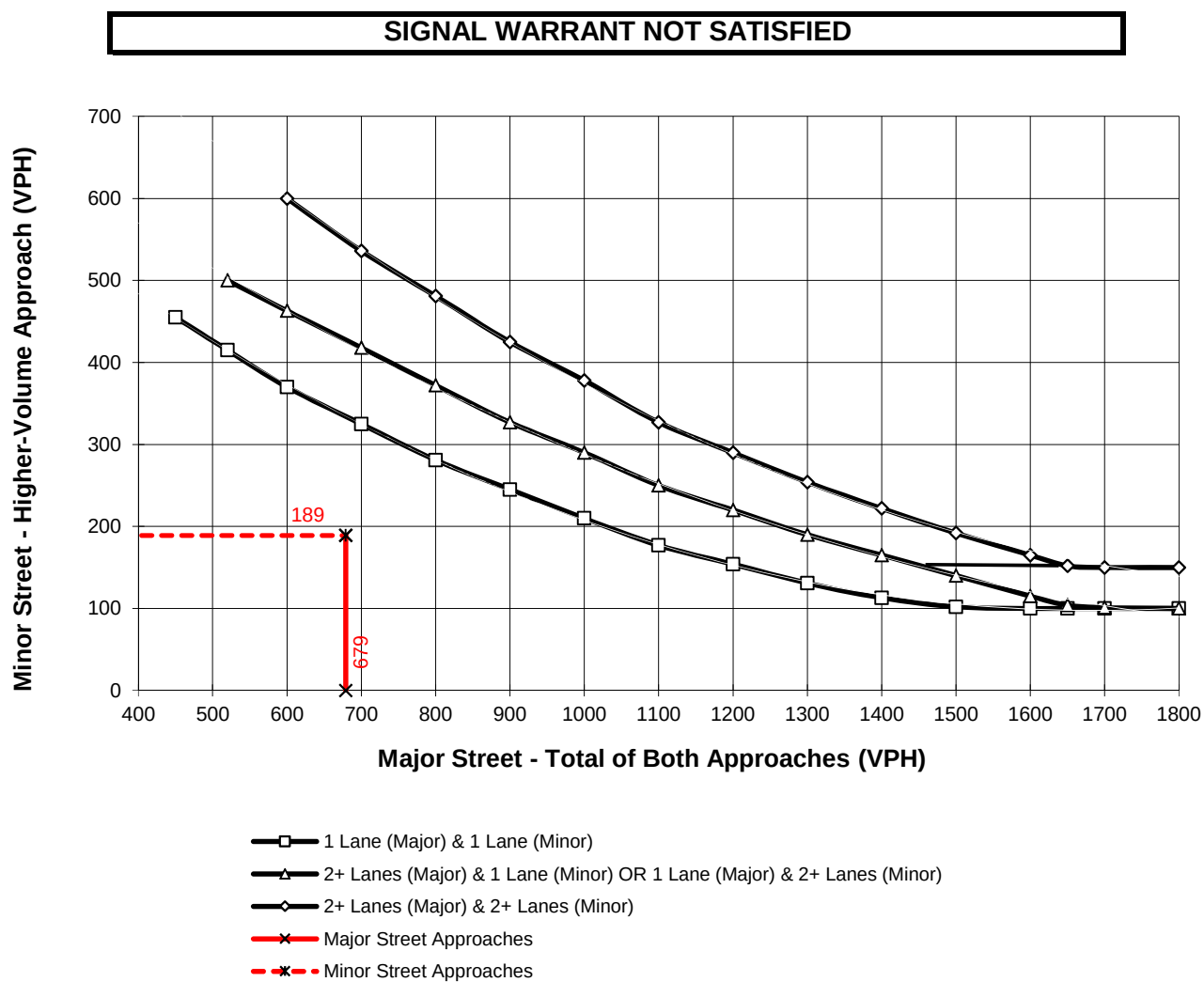
Total of Both Approaches (VPH) = **679**

Number of Approach Lanes on Major Street = **1**

Minor Street Name = **Tereticornis Av.**

High Volume Approach (VPH) = **189**

Number of Approach Lanes On Minor Street = **1**



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes
and 100 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-3. Warrant 3, Peak Hour

Traffic Conditions = **Existing (2018) Conditions - Weekday AM Peak Hour**

Major Street Name = **El Toro Rd.**

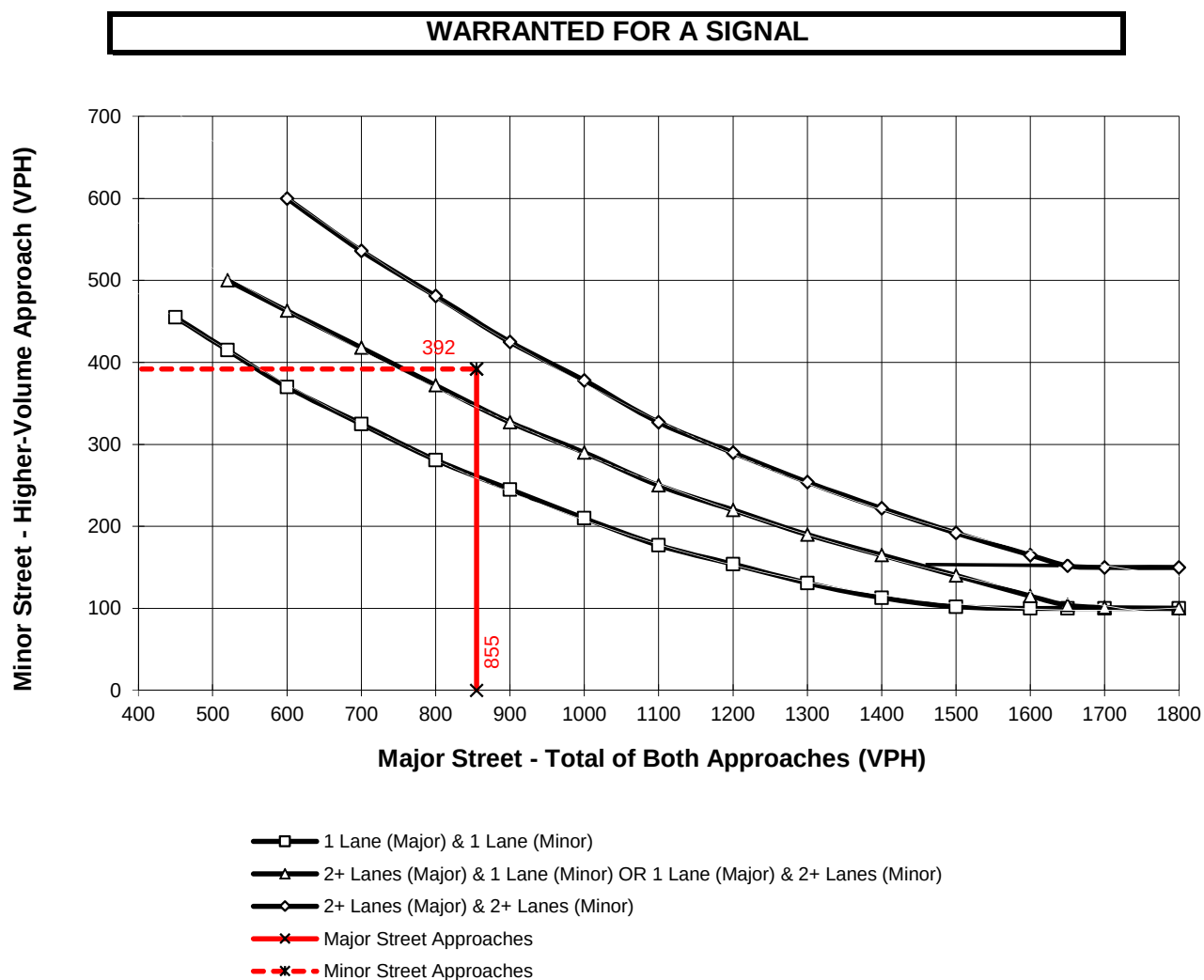
Total of Both Approaches (VPH) = **855**

Number of Approach Lanes on Major Street = **1**

Minor Street Name = **Carmela Ct.**

High Volume Approach (VPH) = **392**

Number of Approach Lanes On Minor Street = **1**



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes
and 100 vph applies as the lower threshold for a minor-street approach with one lane

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APPENDIX 3.4:

EXISTING (2018) CONDITIONS OFF-RAMP QUEUEING ANALYSIS WORKSHEETS

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Intersection

Intersection Delay, s/veh 15.4

Intersection LOS C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗	↖	↑						↕	
Traffic Vol, veh/h	0	228	267	56	215	0	0	0	0	164	6	62
Future Vol, veh/h	0	228	267	56	215	0	0	0	0	164	6	62
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles, %	0	3	3	25	3	0	0	0	0	8	67	13
Mvmt Flow	0	304	356	75	287	0	0	0	0	219	8	83
Number of Lanes	0	1	1	1	1	0	0	0	0	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	2
HCM Control Delay	15	15.1	16.6
HCM LOS	B	C	C

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	100%	0%	71%
Vol Thru, %	100%	0%	0%	100%	3%
Vol Right, %	0%	100%	0%	0%	27%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	228	267	56	215	232
LT Vol	0	0	56	0	164
Through Vol	228	0	0	215	6
RT Vol	0	267	0	0	62
Lane Flow Rate	304	356	75	287	309
Geometry Grp	7	7	7	7	2
Degree of Util (X)	0.522	0.541	0.153	0.516	0.542
Departure Headway (Hd)	6.179	5.467	7.375	6.483	6.303
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	581	659	485	553	572
Service Time	3.937	3.224	5.141	4.248	4.356
HCM Lane V/C Ratio	0.523	0.54	0.155	0.519	0.54
HCM Control Delay	15.5	14.5	11.5	16	16.6
HCM Lane LOS	C	B	B	C	C
HCM 95th-tile Q	3	3.3	0.5	2.9	3.2

Intersection												
Int Delay, s/veh	57.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	74	318	0	0	131	89	140	3	108	0	0	0
Future Vol, veh/h	74	318	0	0	131	89	140	3	108	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	230	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	62	62	62	62	62	62	62	62	62	62	62	62
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	119	513	0	0	211	144	226	5	174	0	0	0

Major/Minor	Major1		Major2		Minor1		
Conflicting Flow All	355	0	-	-	-	0	1034
Stage 1	-	-	-	-	-	-	751
Stage 2	-	-	-	-	-	-	283
Critical Hdwy	4.15	-	-	-	-	-	6.44
Critical Hdwy Stg 1	-	-	-	-	-	-	5.44
Critical Hdwy Stg 2	-	-	-	-	-	-	5.44
Follow-up Hdwy	2.245	-	-	-	-	-	3.536
Pot Cap-1 Maneuver	1187	-	0	0	-	-	255
Stage 1	-	-	0	0	-	-	463
Stage 2	-	-	0	0	-	-	760
Platoon blocked, %	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1187	-	-	-	-	-	230
Mov Cap-2 Maneuver	-	-	-	-	-	-	230
Stage 1	-	-	-	-	-	-	417
Stage 2	-	-	-	-	-	-	760

Approach	EB	WB	NB
HCM Control Delay, s	1.6	0	196.6
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR
Capacity (veh/h)	308	1187	-	-	-
HCM Lane V/C Ratio	1.314	0.101	-	-	-
HCM Control Delay (s)	196.6	8.4	-	-	-
HCM Lane LOS	F	A	-	-	-
HCM 95th %tile Q(veh)	19.8	0.3	-	-	-

Intersection

Intersection Delay, s/veh 13.4

Intersection LOS B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗	↖	↑						↕	
Traffic Vol, veh/h	0	239	268	25	339	0	0	0	0	78	2	132
Future Vol, veh/h	0	239	268	25	339	0	0	0	0	78	2	132
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	0	3	3	25	3	0	0	0	0	8	67	13
Mvmt Flow	0	254	285	27	361	0	0	0	0	83	2	140
Number of Lanes	0	1	1	1	1	0	0	0	0	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	2
HCM Control Delay	11.7	16.3	12.3
HCM LOS	B	C	B

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	100%	0%	37%
Vol Thru, %	100%	0%	0%	100%	1%
Vol Right, %	0%	100%	0%	0%	62%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	239	268	25	339	212
LT Vol	0	0	25	0	78
Through Vol	239	0	0	339	2
RT Vol	0	268	0	0	132
Lane Flow Rate	254	285	27	361	226
Geometry Grp	7	7	7	7	2
Degree of Util (X)	0.407	0.4	0.05	0.591	0.367
Departure Headway (Hd)	5.765	5.055	6.786	5.899	5.852
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	625	713	528	613	613
Service Time	3.499	2.789	4.522	3.636	3.891
HCM Lane V/C Ratio	0.406	0.4	0.051	0.589	0.369
HCM Control Delay	12.4	11.1	9.9	16.8	12.3
HCM Lane LOS	B	B	A	C	B
HCM 95th-tile Q	2	1.9	0.2	3.9	1.7

Intersection												
Int Delay, s/veh	12.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	140	177	0	0	112	39	252	1	30	0	0	0
Future Vol, veh/h	140	177	0	0	112	39	252	1	30	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	230	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	146	184	0	0	117	41	263	1	31	0	0	0

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	158	0	- - - 0 614 634 184
Stage 1	-	-	- - - 476 476 -
Stage 2	-	-	- - - 138 158 -
Critical Hdwy	4.15	-	- - - 6.44 6.5 6.26
Critical Hdwy Stg 1	-	-	- - - 5.44 5.5 -
Critical Hdwy Stg 2	-	-	- - - 5.44 5.5 -
Follow-up Hdwy	2.245	-	- - - 3.536 4 3.354
Pot Cap-1 Maneuver	1403	- 0 0	- - - 452 399 848
Stage 1	-	- 0 0	- - - 621 560 -
Stage 2	-	- 0 0	- - - 884 771 -
Platoon blocked, %	-	-	- -
Mov Cap-1 Maneuver	1403	- - -	- - - 405 0 848
Mov Cap-2 Maneuver	-	- - -	- - - 405 0 -
Stage 1	-	- - -	- - - 556 0 -
Stage 2	-	- - -	- - - 884 0 -

Approach	EB	WB	NB
HCM Control Delay, s	3.5	0	29.9
HCM LOS	D		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR
Capacity (veh/h)	429	1403	-	-	-
HCM Lane V/C Ratio	0.687	0.104	-	-	-
HCM Control Delay (s)	29.9	7.9	-	-	-
HCM Lane LOS	D	A	-	-	-
HCM 95th %tile Q(veh)	5.1	0.3	-	-	-

APPENDIX 3.5:

EXISTING (2018) CONDITIONS BASIC FREEWAY SEGMENT ANALYSIS WORKSHEETS

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HCS7 Basic Freeway Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	2018
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - N of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	4693	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1768
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.74
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	66.3
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	26.7
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	2018
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - S of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	4790	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1804
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.75
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	65.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	27.4
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	2018
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - N of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	4081	Heavy Vehicle Adjustment Factor (f_{HV})	0.980
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1509
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.63
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	68.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	21.9
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	2018
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - S of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	4166	Heavy Vehicle Adjustment Factor (f_{HV})	0.980
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1540
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.64
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	68.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	22.4
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	2018
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - N of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	5354	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	2016
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.84
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	62.3
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	32.4
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	2018
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - S of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	5437	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	2048
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.85
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	61.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	33.2
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	2018
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - N of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	3166	Heavy Vehicle Adjustment Factor (f_{HV})	0.980
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1171
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.49
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	70.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	16.7
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	2018
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - S of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	3269	Heavy Vehicle Adjustment Factor (f_{HV})	0.990
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1196
Total Trucks, %	1.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.50
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	70.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	17.1
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

APPENDIX 3.6:

EXISTING (2018) CONDITIONS FREEWAY MERGE/DIVERGE ANALYSIS WORKSHEETS

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HCS7 Freeway Diverge Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	2018
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - Off-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Deceleration Length (L _D), ft	1500	230
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V _i), veh/h	4693	232
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	4.00	11.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.962	0.901
Flow Rate (v _i), pc/h	5303	280
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.74	0.13

Speed and Density

Upstream Equilibrium Distance (L _{EQ}), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	31.2
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (D _S)	0.323
Downstream Equilibrium Distance (L _{EQ}), ft	-	Flow Outer Lanes (V _{OA}), pc/h/ln	1934
Distance to Downstream Ramp (L _{DOWN}), ft	-	Off-Ramp Influence Area Speed (S _R), mi/h	61.0
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FD})	0.615	Outer Lanes Freeway Speed (S _O), mi/h	73.1
Flow in Lanes 1 and 2 (v ₁₂), pc/h	3369	Ramp Junction Speed (S), mi/h	64.9
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	-	Average Density (D), pc/mi/ln	27.2
Level of Service (LOS)	D	3.6-1	

HCS7 Freeway Merge Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	2018
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - On-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Acceleration Length (LA), ft	1500	690
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi), veh/h	4461	329
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	4.00	8.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.962	0.926
Flow Rate (vi), pc/h	5040	386
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.75	0.18

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	27.5
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (M _s)	0.375
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	2031
Distance to Downstream Ramp (L _{DOWN}), ft	-	On-Ramp Influence Area Speed (S _R), mi/h	59.5
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FM})	0.597	Outer Lanes Freeway Speed (S _O), mi/h	64.5
Flow in Lanes 1 and 2 (v ₁₂), pc/h	3009	Ramp Junction Speed (S), mi/h	61.3
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	3395	Average Density (D), pc/mi/ln	29.5
Level of Service (LOS)	C	3.6-2	

HCS7 Freeway Merge Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	2018
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - On-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Acceleration Length (LA), ft	1500	760
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V _i), veh/h	3915	166
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	6.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.980	0.943
Flow Rate (v _i), pc/h	4342	191
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.63	0.09

Speed and Density

Upstream Equilibrium Distance (L _{EQ}), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	22.5
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (M _s)	0.316
Downstream Equilibrium Distance (L _{EQ}), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	1741
Distance to Downstream Ramp (L _{DOWN}), ft	-	On-Ramp Influence Area Speed (S _R), mi/h	61.2
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FM})	0.599	Outer Lanes Freeway Speed (S _O), mi/h	65.5
Flow in Lanes 1 and 2 (v ₁₂), pc/h	2601	Ramp Junction Speed (S), mi/h	62.8
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	2792	Average Density (D), pc/mi/ln	24.1
Level of Service (LOS)	C	3.6-3	

HCS7 Freeway Diverge Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	2018
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - Off-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Deceleration Length (L _D), ft	1500	260
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V _i), veh/h	4166	251
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	5.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.980	0.952
Flow Rate (v _i), pc/h	4621	287
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.64	0.14

Speed and Density

Upstream Equilibrium Distance (L _{EQ}), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	27.9
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (D _s)	0.324
Downstream Equilibrium Distance (L _{EQ}), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	1599
Distance to Downstream Ramp (L _{DOWN}), ft	-	Off-Ramp Influence Area Speed (S _R), mi/h	60.9
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FD})	0.631	Outer Lanes Freeway Speed (S _O), mi/h	74.5
Flow in Lanes 1 and 2 (v ₁₂), pc/h	3022	Ramp Junction Speed (S), mi/h	65.0
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	-	Average Density (D), pc/mi/ln	23.7
Level of Service (LOS)	C	3.6-4	

HCS7 Freeway Diverge Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	2018
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - Off-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Deceleration Length (L _D), ft	1500	230
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V _i), veh/h	5354	212
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	4.00	4.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.962	0.962
Flow Rate (v _i), pc/h	6049	240
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.84	0.11

Speed and Density

Upstream Equilibrium Distance (L _{EQ}), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	34.1
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (D _S)	0.320
Downstream Equilibrium Distance (L _{EQ}), ft	-	Flow Outer Lanes (V _{OA}), pc/h/ln	2335
Distance to Downstream Ramp (L _{DOWN}), ft	-	Off-Ramp Influence Area Speed (S _R), mi/h	61.0
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FD})	0.598	Outer Lanes Freeway Speed (S _O), mi/h	71.6
Flow in Lanes 1 and 2 (v ₁₂), pc/h	3714	Ramp Junction Speed (S), mi/h	64.7
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	-	Average Density (D), pc/mi/ln	31.2
Level of Service (LOS)	D	3.6-5	

HCS7 Freeway Merge Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	2018
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - On-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Acceleration Length (LA), ft	1500	690
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi), veh/h	5142	295
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	4.00	5.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.962	0.952
Flow Rate (vi), pc/h	5810	337
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.85	0.16

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	30.8
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (M _s)	0.434
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	2341
Distance to Downstream Ramp (L _{DOWN}), ft	-	On-Ramp Influence Area Speed (S _R), mi/h	57.8
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FM})	0.597	Outer Lanes Freeway Speed (S _O), mi/h	63.2
Flow in Lanes 1 and 2 (v ₁₂), pc/h	3469	Ramp Junction Speed (S), mi/h	59.7
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	3806	Average Density (D), pc/mi/ln	34.3
Level of Service (LOS)	D	3.6-6	

HCS7 Freeway Merge Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	2018
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - On-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Acceleration Length (LA), ft	1500	760
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi), veh/h	2986	180
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	16.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.980	0.862
Flow Rate (vi), pc/h	3312	227
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.49	0.11

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	17.9
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (M _s)	0.288
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	1328
Distance to Downstream Ramp (L _{DOWN}), ft	-	On-Ramp Influence Area Speed (S _R), mi/h	61.9
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FM})	0.599	Outer Lanes Freeway Speed (S _O), mi/h	67.0
Flow in Lanes 1 and 2 (v ₁₂), pc/h	1984	Ramp Junction Speed (S), mi/h	63.7
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	2211	Average Density (D), pc/mi/ln	18.5
Level of Service (LOS)	B	3.6-7	

HCS7 Freeway Diverge Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	2018
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - Off-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Deceleration Length (L _D), ft	1500	260
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V _i), veh/h	3269	283
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	1.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.990	0.990
Flow Rate (v _i), pc/h	3589	311
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.50	0.15

Speed and Density

Upstream Equilibrium Distance (L _{EQ}), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	23.1
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (D _s)	0.326
Downstream Equilibrium Distance (L _{EQ}), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	1128
Distance to Downstream Ramp (L _{DOWN}), ft	-	Off-Ramp Influence Area Speed (S _R), mi/h	60.9
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FD})	0.656	Outer Lanes Freeway Speed (S _O), mi/h	76.3
Flow in Lanes 1 and 2 (v ₁₂), pc/h	2461	Ramp Junction Speed (S), mi/h	65.0
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	-	Average Density (D), pc/mi/ln	18.4
Level of Service (LOS)	C	3.6-8	

APPENDIX 3.7:

**EXISTING (2018) CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS
WITH IMPROVEMENTS**

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Timings

S. Nichols Mixed-Use Development (JN 10878)

5: Strickland Av./Gunnerson St. & Riverside Dr. (SR-74)

05/18/2018



Lane Group	EBT	WBL	WBT	NBT	NBR	SBL	SBT	SBR
Lane Configurations	EB	WB	WB	EB	EB	SB	EB	EB
Traffic Volume (vph)	827	2	620	2	11	46	3	5
Future Volume (vph)	827	2	620	2	11	46	3	5
Turn Type	NA	Perm	NA	NA	Perm	Perm	NA	Perm
Protected Phases	4		8	2			6	
Permitted Phases		8			2	6		6
Detector Phase	4	8	8	2	2	6	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	23.4	23.4	23.4	22.6	22.6	23.4	23.4	23.4
Total Split (s)	93.0	93.0	93.0	27.0	27.0	27.0	27.0	27.0
Total Split (%)	77.5%	77.5%	77.5%	22.5%	22.5%	22.5%	22.5%	22.5%
Yellow Time (s)	4.4	4.4	4.4	3.6	3.6	4.4	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.4	5.4	5.4	4.6	4.6		5.4	5.4
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	Min	Min	Min	Min	Min
Act Effect Green (s)	29.9	29.9	29.9	12.3	12.3		11.5	11.5
Actuated g/C Ratio	0.57	0.57	0.57	0.23	0.23		0.22	0.22
v/c Ratio	0.81	0.01	0.64	0.00	0.03		0.17	0.01
Control Delay	16.1	5.0	10.7	20.5	6.3		22.0	1.6
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay	16.1	5.0	10.7	20.5	6.3		22.0	1.6
LOS	B	A	B	C	A		C	A
Approach Delay	16.1		10.6	8.5			20.1	
Approach LOS	B		B	A			C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 52.8

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 13.9

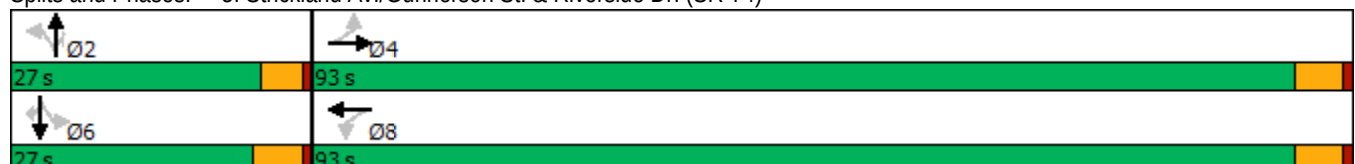
Intersection LOS: B

Intersection Capacity Utilization 73.2%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 5: Strickland Av./Gunnerson St. & Riverside Dr. (SR-74)



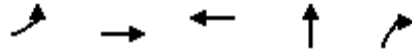
													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (veh/h)	0	827	3	2	620	35	0	2	11	46	3	5	
Future Volume (veh/h)	0	827	3	2	620	35	0	2	11	46	3	5	
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach	No			No			No			No			
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	
Adj Flow Rate, veh/h	0	853	3	2	639	36	0	2	0	47	3	0	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2	
Cap, veh/h	150	1055	4	279	993	56	0	390		424	23		
Arrive On Green	0.00	0.57	0.57	0.57	0.57	0.57	0.00	0.21	0.00	0.21	0.21	0.00	
Sat Flow, veh/h	764	1863	7	645	1754	99	0	1870	1585	1333	109	1585	
Grp Volume(v), veh/h	0	0	856	2	0	675	0	2	0	50	0	0	
Grp Sat Flow(s),veh/h/ln	764	0	1869	645	0	1853	0	1870	1585	1442	0	1585	
Q Serve(g_s), s	0.0	0.0	17.6	0.1	0.0	11.9	0.0	0.0	0.0	1.2	0.0	0.0	
Cycle Q Clear(g_c), s	0.0	0.0	17.6	17.7	0.0	11.9	0.0	0.0	0.0	1.3	0.0	0.0	
Prop In Lane	1.00		0.00	1.00		0.05	0.00		1.00	0.94		1.00	
Lane Grp Cap(c), veh/h	150	0	1058	279	0	1049	0	390		446	0		
V/C Ratio(X)	0.00	0.00	0.81	0.01	0.00	0.64	0.00	0.01		0.11	0.00		
Avail Cap(c_a), veh/h	1113	0	3415	1092	0	3385	0	874		794	0		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	
Uniform Delay (d), s/veh	0.0	0.0	8.3	15.4	0.0	7.1	0.0	15.0	0.0	15.5	0.0	0.0	
Incr Delay (d2), s/veh	0.0	0.0	1.5	0.0	0.0	0.7	0.0	0.0	0.0	0.1	0.0	0.0	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	0.0	0.0	4.3	0.0	0.0	2.8	0.0	0.0	0.0	0.4	0.0	0.0	
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	0.0	0.0	9.9	15.4	0.0	7.8	0.0	15.0	0.0	15.6	0.0	0.0	
LnGrp LOS	A	A	A	B	A	A	A	B		B	A		
Approach Vol, veh/h	856		677			2		A		50			A
Approach Delay, s/veh	9.9		7.8			15.0				15.6			
Approach LOS	A		A			B				B			
Timer - Assigned Phs	2		4		6		8						
Phs Duration (G+Y+Rc), s	15.4		32.5		15.4		32.5						
Change Period (Y+Rc), s	* 5.4		5.4		5.4		5.4						
Max Green Setting (Gmax), s	* 22		87.6		21.6		87.6						
Max Q Clear Time (g_c+I1), s	2.0		19.6		3.3		19.7						
Green Ext Time (p_c), s	0.0		7.6		0.1		5.1						
Intersection Summary													
HCM 6th Ctrl Delay	9.2												
HCM 6th LOS	A												
Notes													
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.													
Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.													

Timings

S. Nichols Mixed-Use Development (JN 10878)

10: I-15 NB Ramps & Nichols Rd.

07/03/2018

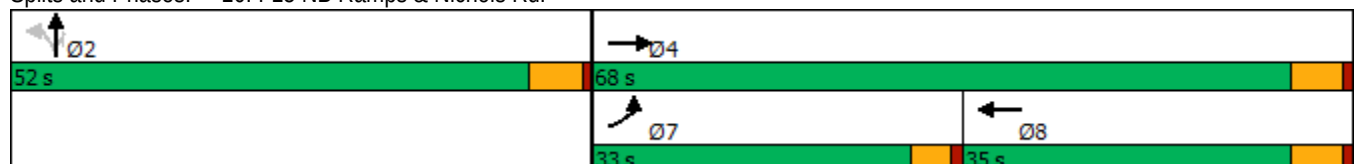


Lane Group	EBL	EBT	WBT	NBT	NBR
Lane Configurations					
Traffic Volume (vph)	74	318	131	3	108
Future Volume (vph)	74	318	131	3	108
Turn Type	Prot	NA	NA	NA	Perm
Protected Phases	7	4	8	2	
Permitted Phases					2
Detector Phase	7	4	8	2	2
Switch Phase					
Minimum Initial (s)	5.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	22.8	22.8	22.8	22.8
Total Split (s)	33.0	68.0	35.0	52.0	52.0
Total Split (%)	27.5%	56.7%	29.2%	43.3%	43.3%
Yellow Time (s)	3.6	4.8	4.8	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	5.8	5.8	5.8
Lead/Lag	Lead		Lag		
Lead-Lag Optimize?	Yes		Yes		
Recall Mode	None	None	None	Min	Min
Act Effect Green (s)	9.5	30.8	19.9	15.2	15.2
Actuated g/C Ratio	0.16	0.52	0.34	0.26	0.26
v/c Ratio	0.43	0.54	0.62	0.51	0.34
Control Delay	31.5	11.2	22.1	26.1	6.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	31.5	11.2	22.1	26.1	6.3
LOS	C	B	C	C	A
Approach Delay		15.0	22.1	17.6	
Approach LOS		B	C	B	

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 58.7
Natural Cycle: 60
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.62
Intersection Signal Delay: 17.6
Intersection LOS: B
Intersection Capacity Utilization 43.1%
ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 10: I-15 NB Ramps & Nichols Rd.



HCM 6th Signalized Intersection Summary
10: I-15 NB Ramps & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

07/03/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	74	318	0	0	131	89	140	3	108	0	0	0
Future Volume (veh/h)	74	318	0	0	131	89	140	3	108	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1826	1826	0	0	1737	1737	1811	1900	1811			
Adj Flow Rate, veh/h	119	513	0	0	211	144	226	5	174			
Peak Hour Factor	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62			
Percent Heavy Veh, %	5	5	0	0	11	11	6	0	6			
Cap, veh/h	155	893	0	0	280	191	419	9	355			
Arrive On Green	0.09	0.49	0.00	0.00	0.29	0.29	0.24	0.24	0.24			
Sat Flow, veh/h	1739	1826	0	0	962	657	1772	39	1502			
Grp Volume(v), veh/h	119	513	0	0	0	355	231	0	174			
Grp Sat Flow(s),veh/h/ln	1739	1826	0	0	0	1619	1811	0	1502			
Q Serve(g_s), s	2.8	8.4	0.0	0.0	0.0	8.4	4.7	0.0	4.2			
Cycle Q Clear(g_c), s	2.8	8.4	0.0	0.0	0.0	8.4	4.7	0.0	4.2			
Prop In Lane	1.00		0.00	0.00		0.41	0.98		1.00			
Lane Grp Cap(c), veh/h	155	893	0	0	0	471	429	0	355			
V/C Ratio(X)	0.77	0.57	0.00	0.00	0.00	0.75	0.54	0.00	0.49			
Avail Cap(c_a), veh/h	1168	2687	0	0	0	1118	1980	0	1641			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	0.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	18.8	7.7	0.0	0.0	0.0	13.6	14.1	0.0	13.9			
Incr Delay (d2), s/veh	3.0	0.6	0.0	0.0	0.0	2.5	1.1	0.0	1.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.0	1.9	0.0	0.0	0.0	2.5	1.6	0.0	1.2			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.8	8.3	0.0	0.0	0.0	16.1	15.2	0.0	15.0			
LnGrp LOS	C	A	A	A	A	B	B	A	B			
Approach Vol, veh/h	632		355			405						
Approach Delay, s/veh	10.8		16.1			15.1						
Approach LOS	B		B			B						
Timer - Assigned Phs	2		4		7		8					
Phs Duration (G+Y+Rc), s	15.8		26.5		8.4		18.1					
Change Period (Y+Rc), s	5.8		5.8		4.6		5.8					
Max Green Setting (Gmax), s	46.2		62.2		28.4		29.2					
Max Q Clear Time (g_c+l1), s	6.7		10.4		4.8		10.4					
Green Ext Time (p_c), s	1.9		3.3		0.1		1.9					
Intersection Summary												
HCM 6th Ctrl Delay	13.4											
HCM 6th LOS	B											

Intersection	
Intersection Delay, s/veh	61.2
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	↕
Traffic Vol, veh/h	129	0	263	6	0	15	166	104	6	8	343	228
Future Vol, veh/h	129	0	263	6	0	15	166	104	6	8	343	228
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	187	0	381	9	0	22	241	151	9	12	497	330
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	1	1
HCM Control Delay	80.6	12.9	37.7	61
HCM LOS	F	B	E	F

Lane	NBLn1	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	60%	33%	29%	2%	0%
Vol Thru, %	38%	0%	0%	98%	0%
Vol Right, %	2%	67%	71%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	276	392	21	351	228
LT Vol	166	129	6	8	0
Through Vol	104	0	0	343	0
RT Vol	6	263	15	0	228
Lane Flow Rate	400	568	30	509	330
Geometry Grp	5	2	2	7	7
Degree of Util (X)	0.823	1.056	0.074	1.061	0.624
Departure Headway (Hd)	7.764	6.8	9.175	7.861	7.126
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	468	540	393	468	509
Service Time	5.764	4.8	7.175	5.561	4.826
HCM Lane V/C Ratio	0.855	1.052	0.076	1.088	0.648
HCM Control Delay	37.7	80.6	12.9	87.1	20.9
HCM Lane LOS	E	F	B	F	C
HCM 95th-tile Q	7.9	16.5	0.2	15.4	4.2

Intersection

Intersection Delay, s/veh19.1

Intersection LOS C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	↗
Traffic Vol, veh/h	129	0	263	6	0	15	166	104	6	8	343	228
Future Vol, veh/h	129	0	263	6	0	15	166	104	6	8	343	228
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	140	0	286	7	0	16	180	113	7	9	373	248
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	1

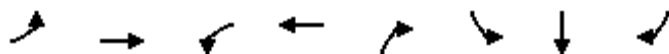
Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	1
Conflicting Approach Left SB		NB	EB	WB
Conflicting Lanes Left	2	1	1	1
Conflicting Approach Right NB		SB	WB	EB
Conflicting Lanes Right	1	2	1	1
HCM Control Delay	21.9	10.5	17	18.6
HCM LOS	C	B	C	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	60%	33%	29%	2%	0%
Vol Thru, %	38%	0%	0%	98%	0%
Vol Right, %	2%	67%	71%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	276	392	21	351	228
LT Vol	166	129	6	8	0
Through Vol	104	0	0	343	0
RT Vol	6	263	15	0	228
Lane Flow Rate	300	426	23	382	248
Geometry Grp	5	2	2	7	7
Degree of Util (X)	0.539	0.702	0.046	0.688	0.397
Departure Headway (Hd)	6.467	5.927	7.189	6.494	5.769
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	552	605	501	553	617
Service Time	4.566	4.009	5.189	4.289	3.563
HCM Lane V/C Ratio	0.543	0.704	0.046	0.691	0.402
HCM Control Delay	17	21.9	10.5	22.6	12.4
HCM Lane LOS	C	C	B	C	B
HCM 95th-tile Q	3.2	5.6	0.1	5.3	1.9

Timings

5: Strickland Av./Gunnerson St. & Riverside Dr. (SR-74)

05/18/2018



Lane Group	EBL	EBT	WBL	WBT	NBR	SBL	SBT	SBR
Lane Configurations	LT	RT	LT	RT	LT	LT	RT	LT
Traffic Volume (vph)	2	833	6	855	6	28	1	2
Future Volume (vph)	2	833	6	855	6	28	1	2
Turn Type	Perm	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		8			6	
Permitted Phases	4		8		2	6		6
Detector Phase	4	4	8	8	2	6	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	22.4	22.4	22.4	22.4	21.6	22.4	22.4	22.4
Total Split (s)	93.0	93.0	93.0	93.0	27.0	27.0	27.0	27.0
Total Split (%)	77.5%	77.5%	77.5%	77.5%	22.5%	22.5%	22.5%	22.5%
Yellow Time (s)	4.4	4.4	4.4	4.4	3.6	4.4	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.4	5.4	5.4	5.4	4.6		5.4	5.4
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	Min	Min	Min	Min
Act Effect Green (s)	40.5	40.5	40.5	40.5	12.5		11.7	11.7
Actuated g/C Ratio	0.63	0.63	0.63	0.63	0.20		0.18	0.18
v/c Ratio	0.01	0.73	0.02	0.86	0.01		0.12	0.01
Control Delay	4.0	11.5	4.0	17.3	0.0		29.4	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay	4.0	11.5	4.0	17.3	0.0		29.4	0.0
LOS	A	B	A	B	A		C	A
Approach Delay		11.5		17.3			27.5	
Approach LOS		B		B			C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 63.8

Natural Cycle: 75

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 14.8

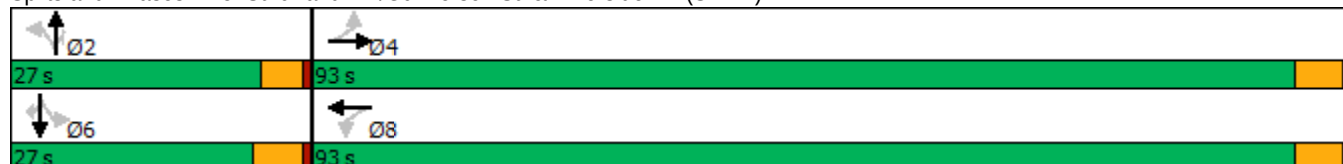
Intersection LOS: B

Intersection Capacity Utilization 73.6%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 5: Strickland Av./Gunnerson St. & Riverside Dr. (SR-74)



HCM 6th Signalized Intersection Summary

5: Strickland Av./Gunnerson St. & Riverside Dr. (SR-74)

05/18/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	833	4	6	855	115	0	0	6	28	1	2
Future Volume (veh/h)	2	833	4	6	855	115	0	0	6	28	1	2
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	2	859	4	6	881	119	0	0	0	29	1	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	245	1199	6	340	1039	140	0	320		356	10	
Arrive On Green	0.64	0.64	0.64	0.64	0.64	0.64	0.00	0.00	0.00	0.17	0.17	0.00
Sat Flow, veh/h	563	1860	9	641	1613	218	0	1870	1585	1372	60	1585
Grp Volume(v), veh/h	2	0	863	6	0	1000	0	0	0	30	0	0
Grp Sat Flow(s),veh/h/ln	563	0	1869	641	0	1831	0	1870	1585	1432	0	1585
Q Serve(g_s), s	0.2	0.0	17.8	0.4	0.0	25.0	0.0	0.0	0.0	0.9	0.0	0.0
Cycle Q Clear(g_c), s	25.2	0.0	17.8	18.2	0.0	25.0	0.0	0.0	0.0	1.0	0.0	0.0
Prop In Lane	1.00		0.00	1.00		0.12	0.00		1.00	0.97		1.00
Lane Grp Cap(c), veh/h	245	0	1204	340	0	1180	0	320		366	0	
V/C Ratio(X)	0.01	0.00	0.72	0.02	0.00	0.85	0.00	0.00		0.08	0.00	
Avail Cap(c_a), veh/h	726	0	2799	887	0	2743	0	716		649	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	18.0	0.0	6.9	12.9	0.0	8.2	0.0	0.0	0.0	20.5	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.8	0.0	0.0	1.8	0.0	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	4.2	0.0	0.0	6.0	0.0	0.0	0.0	0.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.0	0.0	7.7	12.9	0.0	9.9	0.0	0.0	0.0	20.6	0.0	0.0
LnGrp LOS	B	A	A	B	A	A	A	A		C	A	
Approach Vol, veh/h	865			1006			0			A	30	A
Approach Delay, s/veh	7.7			10.0			0.0				20.6	
Approach LOS	A			A							C	
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	15.4			43.1			15.4			43.1		
Change Period (Y+Rc), s	* 5.4			5.4			5.4			5.4		
Max Green Setting (Gmax), s	* 22			87.6			21.6			87.6		
Max Q Clear Time (g_c+I1), s	0.0			27.2			3.0			27.0		
Green Ext Time (p_c), s	0.0			7.7			0.1			10.6		

Intersection Summary

HCM 6th Ctrl Delay	9.1
HCM 6th LOS	A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

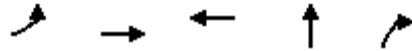
Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Timings

S. Nichols Mixed-Use Development (JN 10878)

10: I-15 NB Ramps & Nichols Rd.

07/03/2018

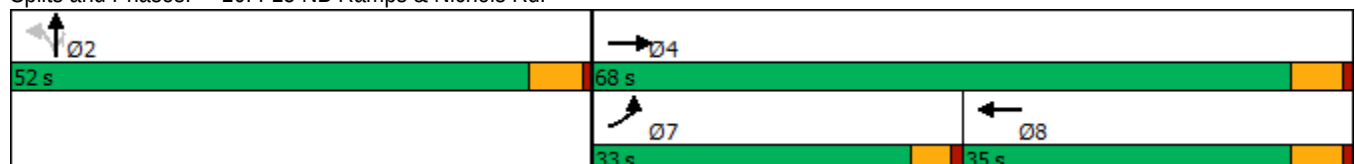


Lane Group	EBL	EBT	WBT	NBT	NBR
Lane Configurations					
Traffic Volume (vph)	140	177	112	1	30
Future Volume (vph)	140	177	112	1	30
Turn Type	Prot	NA	NA	NA	Perm
Protected Phases	7	4	8	2	
Permitted Phases					2
Detector Phase	7	4	8	2	2
Switch Phase					
Minimum Initial (s)	5.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	22.8	22.8	22.8	22.8
Total Split (s)	33.0	68.0	35.0	52.0	52.0
Total Split (%)	27.5%	56.7%	29.2%	43.3%	43.3%
Yellow Time (s)	3.6	4.8	4.8	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	5.8	5.8	5.8
Lead/Lag	Lead		Lag		
Lead-Lag Optimize?	Yes		Yes		
Recall Mode	None	None	None	Min	Min
Act Effect Green (s)	9.7	23.4	12.2	14.7	14.7
Actuated g/C Ratio	0.19	0.46	0.24	0.29	0.29
v/c Ratio	0.44	0.22	0.38	0.52	0.06
Control Delay	25.5	8.8	21.0	21.2	1.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	25.5	8.8	21.0	21.2	1.7
LOS	C	A	C	C	A
Approach Delay		16.2	21.0	19.1	
Approach LOS		B	C	B	

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 50.5
Natural Cycle: 60
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.52
Intersection Signal Delay: 18.2
Intersection LOS: B
Intersection Capacity Utilization 43.6%
ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 10: I-15 NB Ramps & Nichols Rd.



HCM 6th Signalized Intersection Summary
10: I-15 NB Ramps & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

07/03/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	140	177	0	0	112	39	252	1	30	0	0	0
Future Volume (veh/h)	140	177	0	0	112	39	252	1	30	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1826	1826	0	0	1737	1737	1811	1900	1811			
Adj Flow Rate, veh/h	146	184	0	0	117	41	262	1	31			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96			
Percent Heavy Veh, %	5	5	0	0	11	11	6	0	6			
Cap, veh/h	190	849	0	0	298	104	446	2	372			
Arrive On Green	0.11	0.47	0.00	0.00	0.24	0.24	0.25	0.25	0.25			
Sat Flow, veh/h	1739	1826	0	0	1229	431	1803	7	1502			
Grp Volume(v), veh/h	146	184	0	0	0	158	263	0	31			
Grp Sat Flow(s),veh/h/ln	1739	1826	0	0	0	1659	1810	0	1502			
Q Serve(g_s), s	3.3	2.4	0.0	0.0	0.0	3.2	5.2	0.0	0.6			
Cycle Q Clear(g_c), s	3.3	2.4	0.0	0.0	0.0	3.2	5.2	0.0	0.6			
Prop In Lane	1.00		0.00	0.00		0.26	1.00		1.00			
Lane Grp Cap(c), veh/h	190	849	0	0	0	402	448	0	372			
V/C Ratio(X)	0.77	0.22	0.00	0.00	0.00	0.39	0.59	0.00	0.08			
Avail Cap(c_a), veh/h	1223	2812	0	0	0	1200	2070	0	1718			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	0.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	17.5	6.4	0.0	0.0	0.0	12.8	13.4	0.0	11.7			
Incr Delay (d2), s/veh	2.5	0.1	0.0	0.0	0.0	0.6	1.2	0.0	0.1			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.2	0.5	0.0	0.0	0.0	0.9	1.6	0.0	0.2			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.0	6.5	0.0	0.0	0.0	13.4	14.6	0.0	11.8			
LnGrp LOS	B	A	A	A	A	B	B	A	B			
Approach Vol, veh/h	330			158			294					
Approach Delay, s/veh	12.5			13.4			14.3					
Approach LOS	B			B			B					
Timer - Assigned Phs	2			4			7			8		
Phs Duration (G+Y+Rc), s	15.8			24.6			9.0			15.6		
Change Period (Y+Rc), s	5.8			5.8			4.6			5.8		
Max Green Setting (Gmax), s	46.2			62.2			28.4			29.2		
Max Q Clear Time (g_c+l1), s	7.2			4.4			5.3			5.2		
Green Ext Time (p_c), s	1.6			1.0			0.2			0.8		
Intersection Summary												
HCM 6th Ctrl Delay	13.4											
HCM 6th LOS	B											

Intersection

Intersection Delay, s/veh 8.6

Intersection LOS A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	↔
Traffic Vol, veh/h	14	0	29	5	0	1	13	135	4	6	146	10
Future Vol, veh/h	14	0	29	5	0	1	13	135	4	6	146	10
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	17	0	35	6	0	1	15	161	5	7	174	12
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	1	1
HCM Control Delay	7.8	8	8.6	8.9
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	9%	33%	83%	4%	0%
Vol Thru, %	89%	0%	0%	96%	0%
Vol Right, %	3%	67%	17%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	152	43	6	152	10
LT Vol	13	14	5	6	0
Through Vol	135	0	0	146	0
RT Vol	4	29	1	0	10
Lane Flow Rate	181	51	7	181	12
Geometry Grp	5	2	2	7	7
Degree of Util (X)	0.22	0.064	0.01	0.239	0.013
Departure Headway (Hd)	4.383	4.466	4.93	4.749	4.027
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	822	805	728	747	877
Service Time	2.394	2.476	2.944	2.53	1.808
HCM Lane V/C Ratio	0.22	0.063	0.01	0.242	0.014
HCM Control Delay	8.6	7.8	8	9	6.9
HCM Lane LOS	A	A	A	A	A
HCM 95th-tile Q	0.8	0.2	0	0.9	0

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APPENDIX 4.1:

CUMULATIVE PROJECT TRIP GENERATION

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Appendix 4.1

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Cumulative Projects Trip Generation Rates

Land Use		ITE LU	AM Peak Hour			PM Peak Hour			Daily
	Units ¹	Code	In	Out	Total	In	Out	Total	
Trip Generation Rates									
Single Family Detached Residential	DU	210	0.19	0.56	0.74	0.62	0.37	0.99	9.44
Shopping Center	TSF	820	0.58	0.36	0.94	1.83	1.98	3.81	37.75
Multifamily Housing (low)	TSF	220	0.11	0.35	0.46	0.35	0.21	0.56	7.32
Warehouse (Truck)	TSF	150	0.03	0.01	0.04	0.01	0.03	0.04	0.35
Warehouse (Passenger Car)	TSF	150	0.10	0.03	0.14	0.04	0.11	0.15	1.39
Hotel	RM	310	0.28	0.19	0.47	0.31	0.29	0.60	8.36
Recreation Community Center	TSF	495	1.16	0.60	1.76	1.09	1.22	2.31	28.82
Senior Adult Housing Attached	DU	252	0.07	0.13	0.20	0.14	0.12	0.26	3.70
Mini Warehouse (Storage)	TSF	151	0.06	0.04	0.10	0.08	0.09	0.17	1.51
Automobile Sales	TSF	840	1.37	0.50	1.87	0.97	1.46	2.43	27.84
High Turnover Sit-Down Restaurant	TSF	932	5.47	4.47	9.94	6.06	3.71	9.77	112.18
Resort Hotel	RM	330	0.23	0.09	0.32	0.18	0.23	0.41	8.36
General Office	TSF	710	1.00	0.16	1.16	0.18	0.97	1.15	9.74
University	TSF	550	0.84	0.25	1.09	0.37	0.80	1.17	26.04
Recycling	TSF	897	4.89	4.89	9.78	5.25	4.85	10.10	101.00

¹ DU = Dwelling Units; TSF = thousand square feet; RM = Rooms

Cumulative Projects Trip Generation Summary

No.	Project Name	Land Use	Quantity	Units ¹	AM Peak Hour			PM Peak Hour			Daily
					In	Out	Total	In	Out	Total	
City of Lake Elsinore											
LE1	Greenwald ²	Shopping Center	104.450	TSF	61	37	98	143	155	298	2,957
LE2	Ramsgate	Single Family Residential	1,306	DU	242	725	966	815	478	1,293	12,329
		Condo/Townhomes	120	DU	13	43	55	42	25	67	878
LE3	Trieste Residential (Tract 36624)	Single Family Residential	75	DU	14	42	56	47	27	74	708
LE4	Fairway Business Park	Warehouse	279.445	TSF	29	9	38	11	31	42	389
LE5	Ness Industrial Garage	Warehouse	12.000	TSF	1	0	2	0	1	2	17
LE6	Spyglass Ranch ³	Single Family Residential	523	DU	97	290	387	326	192	518	4,937
		Condo/Townhomes	171	DU	18	61	79	60	35	96	1,252
		Shopping Center	145.000	TSF	85	52	136	265	287	552	5,474
LE7	South Shore I (Tract 31593)	Single Family Residential	521	DU	96	289	386	325	191	516	4,918
	South Shore II (Tract 36567)	Single Family Residential	147	DU	27	82	109	92	54	146	1,388
LE8	La Strada (Tract 32077)	Single Family Residential	134	DU	25	74	99	84	49	133	1,265
LE9	Tuscany West (Tract 25473)	Single Family Residential	164	DU	30	91	121	102	60	162	1,548
LE10	Marina Village Condos (Tract 33820) ⁶	Condo/Townhomes	94	DU	10	33	43	33	19	53	688
LE11	La Quinta Inn	Hotel	64	RM	18	12	30	20	19	38	535
LE12	LE Sports Complex	Recreational Community Center	525.000	TSF	610	314	924	570	643	1,213	924
LE13	TAG Property ⁴	New Car Sales	50.000	TSF	68	25	94	49	73	122	1,392
LE14	City Center Condos	Condo/Townhomes	144	DU	15	51	66	51	30	81	1,054
LE15	Central & Collier	Shopping Center	75.000	TSF	44	27	71	137	149	286	2,831
LE16	Diamond Specific Plan ⁵	Condo/Townhomes	600	DU	63	213	276	212	124	336	4,392
		Hotel	150	RM	42	29	71	46	44	90	1,254
		General Office	425.000	TSF	424	69	493	78	411	489	4,140
		Shopping Center	472.000	TSF	275	169	444	863	935	1,798	17,818
LE17	The Colony	Apartments	211	DU	22	75	97	74	44	118	1,545
	Back Basin Specific Plan & East Lake Specific Plan	Single Family Residential	2,407	DU	445	1,336	1,781	1,501	882	2,383	22,722
		Condo/Townhomes	324	DU	34	115	149	114	67	181	2,372
	John Laing Homes (Phase 2)	Single Family Residential	506	DU	94	281	374	316	185	501	4,777
		Condo/Townhomes	1,141	DU	121	404	525	403	236	639	8,352
		Apartments	308	DU	33	109	142	109	64	172	2,255
LE18	Canyon Hills Estates (Tract 34249)	Shopping Center	117.000	TSF	68	42	110	214	232	446	4,417
		Single Family Residential	302	DU	56	168	223	188	111	299	2,851
		Single Family Residential	2,700	DU	500	1,499	1,998	1,684	989	2,673	25,488
	Canyon Hills (Multiple Tracts)	Apartments	1,575	DU	167	558	725	556	326	882	11,529
		Audie Murphy (Tract 36484)	Single Family Residential	109	DU	20	60	81	68	40	108
	Audie Murphy (Tract 36485)	Single Family Residential	1,003	DU	186	557	742	626	367	993	9,468
LE19	Artisan Alley	Shopping Center	95.100	TSF	55	34	89	174	188	362	3,590
LE20	Quikrete Plant	Warehouse	163.900	TSF	17	5	22	7	18	25	228

Appendix 4.1

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Cumulative Projects Trip Generation Summary

No.	Project Name	Land Use	Quantity	Units ¹	AM Peak Hour			PM Peak Hour			Daily
					In	Out	Total	In	Out	Total	
LE21	Alberhill Ridge (Tract 35001)	Single Family Residential	1,056	DU	195	586	781	659	387	1,045	9,969
		Apartments	345	DU	37	122	159	122	71	193	2,525
		Shopping Center	679,000	TSF	396	243	638	1,242	1,345	2,587	25,632
		General Office	679,000	TSF	677	110	788	125	656	781	6,613
LE22	Alberhill Ranch	Single Family Residential	1,986	DU	367	1,102	1,470	1,239	727	1,966	18,748
LE23	Lake Elsinore Walmart ⁶	Free-Standing Discount Superstore	154,487	TSF	148	112	260	296	310	606	7,056
		Specialty Retail	4,600	TSF	3	2	5	4	6	10	184
		Fast Food w/Drive Thru	6,800	TSF	157	151	308	115	107	222	3,374
		Fast Food w/o Drive Thru	4,600	TSF	113	73	186	55	53	108	2,965
LE24	Circle K	Gas Station	4,500	TSF	46	46	91	50	50	101	892
LE25	Alberhill Villages	Single Family Residential	8,244	DU	1,525	4,575	6,101	5,142	3,020	8,162	77,823
		University	6,000	TSF	5	2	7	2	5	7	156
LE26	Terracina	Single Family Residential	365	DU	68	203	270	228	134	361	3,446
LE27	Lakeshore Senior Apartments	Senior Adult Housing Attached	121	DU	8	16	24	17	14	31	448
LE28	North Peak Plaza	Condo/Townhomes	92	DU	10	33	42	32	19	52	673
		Shopping Center	92,000	TSF	54	33	86	168	182	351	3,473
LE29	Running Deer (TR 31957)	Single Family Residential	101	DU	19	56	75	63	37	100	953
LE30	Wake Rider Beach Resort	Beach Resort	50	RM	12	5	16	9	12	21	418
LE31	Lakeshore Town Center	Town Center	237,400	TSF	138	85	223	434	470	904	8,962
LE32	Ortega	Single Family Residential	105	DU	19	58	78	65	38	104	991
LE33	Summerly	Single Family Residential	142	DU	26	79	105	89	52	141	1,340
LE34	Beazer, KB Homes, McMillin Homes, Richmond	Single Family Residential	395	DU	73	219	292	246	145	391	3,729
LE35	Village at Lake Elsinore SPA #1	Single Family Residential	163	DU	30	90	121	102	60	161	1,539
LE36	Lakeview Manor	Condo/Townhomes	104	DU	11	37	48	37	22	58	761
LE37	Golden Corral Restaurant	Restaurant	7,798	TSF	43	35	78	47	29	76	875
LE38	Tige Watersports	Shopping Center	34,500	TSF	20	12	32	63	68	131	1,302
LE39	Kassab Travel Center	Restaurant	17,200	TSF	94	77	171	104	64	168	1,929
LE40	Honda	Automobile Sales	53,400	TSF	73	27	100	52	78	130	1,487
County of Riverside											
RC1	Lennar (Tract 31792)	Single Family Residential	191	DU	35	106	141	119	70	189	1,803
RC2	PM33840	Single Family Residential	4	DU	1	2	3	2	1	3	38
RC3	PP20158R1	Storage Facility	103,727	TSF	6	4	10	8	9	18	157
RC4	CUP03651	Recycling Facility	0.504	TSF	2	2	4	3	2	5	51
Total:					8,535	16,279	24,814	21,343	16,026	37,370	364,022

¹ DU = Dwelling Units; TSF = thousand square feet; RM = Rooms

² Source: Greenwald Avenue Commercial Center TIA, Urban Crossroads, Inc., May 2008.

³ Source: Spyglass Ranch TIA (Revised), Kunzman Associates, February 2007.

⁴ Source: Lake Elsinore TAG Property TIA (Revised), Urban Crossroads, Inc., August 2008.

⁵ Source: The Diamond Specific Plan TIA, Urban Crossroads, Inc., April 2009.

⁶ Source: Lake Elsinore Walmart TIA, Urban Crossroads, Inc., April 2015.

APPENDIX 5.1:

E+P (PHASE 1) CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

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Timings
1: Lake St. & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

05/18/2018

									
Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBL	SBT	Ø5
Lane Configurations									
Traffic Volume (vph)	15	4	178	5	674	347	17	272	
Future Volume (vph)	15	4	178	5	674	347	17	272	
Turn Type	Perm	NA	Perm	NA	NA	Perm	Prot	NA	
Protected Phases		4		8	2		1	6	5
Permitted Phases	4		8			2			
Detector Phase	4	4	8	8	2	2	1	6	
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	5.0	10.0	5.0
Minimum Split (s)	14.6	14.6	16.2	16.2	16.2	16.2	9.6	16.2	9.6
Total Split (s)	42.2	42.2	42.2	42.2	42.2	42.2	35.6	42.2	35.6
Total Split (%)	35.2%	35.2%	35.2%	35.2%	35.2%	35.2%	29.7%	35.2%	30%
Yellow Time (s)	3.6	3.6	5.2	5.2	5.2	5.2	3.6	5.2	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		4.6		6.2	6.2	6.2	4.6	6.2	
Lead/Lag					Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	Max	Max	None	Max	None
Act Effect Green (s)		18.5		16.9	36.6	36.6	5.6	38.4	
Actuated g/C Ratio		0.27		0.25	0.54	0.54	0.08	0.57	
v/c Ratio		0.05		0.68	0.72	0.41	0.12	0.28	
Control Delay		18.8		33.2	20.2	8.9	34.8	9.4	
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay		18.8		33.2	20.2	8.9	34.8	9.4	
LOS		B		C	C	A	C	A	
Approach Delay		18.8		33.2	16.4			10.8	
Approach LOS		B		C	B			B	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 67.9

Natural Cycle: 70

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.72

Intersection Signal Delay: 17.8

Intersection LOS: B

Intersection Capacity Utilization 59.4%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 1: Lake St. & Nichols Rd.

		
Ø1	Ø2	Ø4
35.6 s	42.2 s	42.2 s
		
Ø5	Ø6	Ø8
35.6 s	42.2 s	42.2 s

HCM 6th Signalized Intersection Summary

1: Lake St. & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

05/18/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	4	0	178	5	38	0	674	347	17	272	4
Future Volume (veh/h)	15	4	0	178	5	38	0	674	347	17	272	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	16	4	0	191	5	29	0	725	0	18	292	4
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	331	73	0	335	6	36	3	1001		38	1150	16
Arrive On Green	0.19	0.19	0.00	0.19	0.19	0.19	0.00	0.54	0.00	0.02	0.62	0.62
Sat Flow, veh/h	1230	380	0	1237	32	188	1781	1870	1585	1781	1841	25
Grp Volume(v), veh/h	20	0	0	225	0	0	0	725	0	18	0	296
Grp Sat Flow(s),veh/h/ln	1611	0	0	1457	0	0	1781	1870	1585	1781	0	1866
Q Serve(g_s), s	0.0	0.0	0.0	9.3	0.0	0.0	0.0	19.8	0.0	0.7	0.0	4.8
Cycle Q Clear(g_c), s	0.6	0.0	0.0	9.9	0.0	0.0	0.0	19.8	0.0	0.7	0.0	4.8
Prop In Lane	0.80		0.00	0.85		0.13	1.00		1.00	1.00		0.01
Lane Grp Cap(c), veh/h	404	0	0	377	0	0	3	1001		38	0	1166
V/C Ratio(X)	0.05	0.00	0.00	0.60	0.00	0.00	0.00	0.72		0.48	0.00	0.25
Avail Cap(c_a), veh/h	938	0	0	873	0	0	821	1001		821	0	1166
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.3	0.0	0.0	26.0	0.0	0.0	0.0	11.9	0.0	32.6	0.0	5.6
Incr Delay (d2), s/veh	0.1	0.0	0.0	1.5	0.0	0.0	0.0	4.6	0.0	3.4	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.0	3.2	0.0	0.0	0.0	7.1	0.0	0.3	0.0	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.3	0.0	0.0	27.5	0.0	0.0	0.0	16.4	0.0	36.0	0.0	6.2
LnGrp LOS	C	A	A	C	A	A	A	B		D	A	A
Approach Vol, veh/h		20			225			725	A		314	
Approach Delay, s/veh		22.3			27.5			16.4			7.9	
Approach LOS		C			C			B			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.0	42.2		19.0	0.0	48.2		19.0				
Change Period (Y+Rc), s	4.6	6.2		* 6.2	4.6	6.2		6.2				
Max Green Setting (Gmax), s	31.0	36.0		* 38	31.0	36.0		36.0				
Max Q Clear Time (g_c+I1), s	2.7	21.8		2.6	0.0	6.8		11.9				
Green Ext Time (p_c), s	0.0	5.3		0.1	0.0	2.3		1.1				
Intersection Summary												
HCM 6th Ctrl Delay				16.4								
HCM 6th LOS				B								
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.												

Timings
2: Lake St. & Alberhill Ranch Rd.

S. Nichols Mixed-Use Development (JN 10878)

05/18/2018

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	57	47	1013	48	18	415
Future Volume (vph)	57	47	1013	48	18	415
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2		
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	15.1	15.1	16.2	16.2	11.2	16.2
Total Split (s)	15.1	15.1	93.7	93.7	11.2	104.9
Total Split (%)	12.6%	12.6%	78.1%	78.1%	9.3%	87.4%
Yellow Time (s)	4.1	4.1	5.2	5.2	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	6.2	6.2	6.2	6.2
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	Max	Max	None	Max
Act Effect Green (s)	10.0	10.0	98.5	98.5	5.0	103.0
Actuated g/C Ratio	0.08	0.08	0.82	0.82	0.04	0.86
v/c Ratio	0.41	0.28	0.71	0.04	0.26	0.28
Control Delay	61.4	18.5	10.6	1.5	64.7	2.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.4	18.5	10.6	1.5	64.7	2.7
LOS	E	B	B	A	E	A
Approach Delay	42.0		10.1			5.2
Approach LOS	D		B			A

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.71
 Intersection Signal Delay: 10.9
 Intersection LOS: B
 Intersection Capacity Utilization 71.1%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 2: Lake St. & Alberhill Ranch Rd.



HCM 6th Signalized Intersection Summary
2: Lake St. & Alberhill Ranch Rd.

S. Nichols Mixed-Use Development (JN 10878)

05/18/2018

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	57	47	1013	48	18	415
Future Volume (veh/h)	57	47	1013	48	18	415
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	61	26	1078	42	19	441
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	141	125	1412	1194	35	1546
Arrive On Green	0.08	0.08	0.75	0.75	0.02	0.83
Sat Flow, veh/h	1781	1585	1870	1582	1781	1870
Grp Volume(v), veh/h	61	26	1078	42	19	441
Grp Sat Flow(s),veh/h/ln	1781	1585	1870	1582	1781	1870
Q Serve(g_s), s	3.9	1.8	39.8	0.8	1.3	6.4
Cycle Q Clear(g_c), s	3.9	1.8	39.8	0.8	1.3	6.4
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	141	125	1412	1194	35	1546
V/C Ratio(X)	0.43	0.21	0.76	0.04	0.54	0.29
Avail Cap(c_a), veh/h	149	133	1412	1194	75	1546
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.4	51.5	8.5	3.7	58.0	2.4
Incr Delay (d2), s/veh	0.8	0.3	4.0	0.1	4.8	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.7	12.6	0.2	0.6	1.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	53.2	51.8	12.4	3.7	62.9	2.8
LnGrp LOS	D	D	B	A	E	A
Approach Vol, veh/h	87		1120			460
Approach Delay, s/veh	52.8		12.1			5.3
Approach LOS	D		B			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	8.5	96.4			104.9	14.5
Change Period (Y+Rc), s	6.2	6.2			6.2	5.1
Max Green Setting (Gmax), s	5.0	87.5			98.7	10.0
Max Q Clear Time (g_c+l1), s	3.3	41.8			8.4	5.9
Green Ext Time (p_c), s	0.0	10.9			2.6	0.0
Intersection Summary						
HCM 6th Ctrl Delay			12.4			
HCM 6th LOS			B			

Intersection

Intersection Delay, s/veh 11.4

Intersection LOS B

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	359	16	35	182	38	69
Future Vol, veh/h	359	16	35	182	38	69
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	408	18	40	207	43	78
Number of Lanes	1	0	0	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	1
HCM Control Delay	12.7	10.1	9.2
HCM LOS	B	B	A

Lane	NBLn1	NBLn2	EBLn1	WBLn1
Vol Left, %	100%	0%	0%	16%
Vol Thru, %	0%	0%	96%	84%
Vol Right, %	0%	100%	4%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	38	69	375	217
LT Vol	38	0	0	35
Through Vol	0	0	359	182
RT Vol	0	69	16	0
Lane Flow Rate	43	78	426	247
Geometry Grp	7	7	2	2
Degree of Util (X)	0.078	0.116	0.536	0.327
Departure Headway (Hd)	6.54	5.325	4.529	4.77
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	545	668	793	752
Service Time	4.315	3.099	2.568	2.818
HCM Lane V/C Ratio	0.079	0.117	0.537	0.328
HCM Control Delay	9.9	8.8	12.7	10.1
HCM Lane LOS	A	A	B	B
HCM 95th-tile Q	0.3	0.4	3.2	1.4

Timings

S. Nichols Mixed-Use Development (JN 10878)

4: Lakeshore Dr. & Riverside Dr. (SR-74)

05/18/2018

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	19	443	141	130	530	337	266	293	199	171	9
Future Volume (vph)	19	443	141	130	530	337	266	293	199	171	9
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2	1	6	
Permitted Phases			4			8					6
Detector Phase	7	4	4	3	8	8	5	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	32.4	32.4	9.6	33.4	33.4	9.6	34.7	9.6	32.7	32.7
Total Split (s)	9.6	35.0	35.0	22.6	48.0	48.0	28.0	38.4	24.0	34.4	34.4
Total Split (%)	8.0%	29.2%	29.2%	18.8%	40.0%	40.0%	23.3%	32.0%	20.0%	28.7%	28.7%
Yellow Time (s)	3.6	4.4	4.4	3.6	4.4	4.4	3.6	3.7	3.6	3.7	3.7
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.4	5.4	4.6	5.4	5.4	4.6	4.7	4.6	4.7	4.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	None	Max	Max
Act Effect Green (s)	5.1	24.5	24.5	13.1	38.8	38.8	21.3	34.5	16.9	30.1	30.1
Actuated g/C Ratio	0.05	0.23	0.23	0.12	0.36	0.36	0.20	0.32	0.16	0.28	0.28
v/c Ratio	0.26	0.62	0.33	0.69	0.89	0.49	0.86	0.41	0.81	0.20	0.02
Control Delay	62.3	42.0	7.6	63.9	51.3	7.5	67.8	29.3	68.9	33.2	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.3	42.0	7.6	63.9	51.3	7.5	67.8	29.3	68.9	33.2	0.1
LOS	E	D	A	E	D	A	E	C	E	C	A
Approach Delay		34.6			38.2			44.6		51.2	
Approach LOS		C			D			D		D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 108.5

Natural Cycle: 100

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.89

Intersection Signal Delay: 40.8

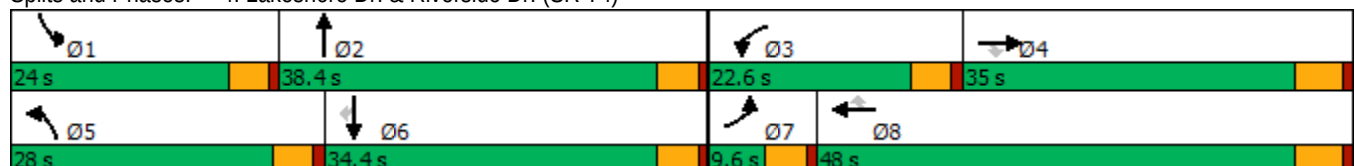
Intersection LOS: D

Intersection Capacity Utilization 84.2%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 4: Lakeshore Dr. & Riverside Dr. (SR-74)



HCM 6th Signalized Intersection Summary 4: Lakeshore Dr. & Riverside Dr. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

05/18/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	19	443	141	130	530	337	266	293	109	199	171	9
Future Volume (veh/h)	19	443	141	130	530	337	266	293	109	199	171	9
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	21	498	95	146	596	0	299	329	57	224	192	7
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	38	950	423	176	644	546	329	953	163	254	968	432
Arrive On Green	0.02	0.27	0.27	0.10	0.34	0.00	0.18	0.31	0.31	0.14	0.27	0.27
Sat Flow, veh/h	1781	3554	1581	1781	1870	1585	1781	3032	520	1781	3554	1585
Grp Volume(v), veh/h	21	498	95	146	596	0	299	191	195	224	192	7
Grp Sat Flow(s),veh/h/ln	1781	1777	1581	1781	1870	1585	1781	1777	1775	1781	1777	1585
Q Serve(g_s), s	1.3	13.0	5.1	8.8	33.4	0.0	17.9	9.0	9.2	13.4	4.5	0.4
Cycle Q Clear(g_c), s	1.3	13.0	5.1	8.8	33.4	0.0	17.9	9.0	9.2	13.4	4.5	0.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.29	1.00		1.00
Lane Grp Cap(c), veh/h	38	950	423	176	644	546	329	558	558	254	968	432
V/C Ratio(X)	0.55	0.52	0.22	0.83	0.93	0.00	0.91	0.34	0.35	0.88	0.20	0.02
Avail Cap(c_a), veh/h	82	965	430	294	731	620	382	558	558	317	968	432
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.8	34.0	31.1	48.2	34.4	0.0	43.6	28.7	28.8	45.8	30.5	29.0
Incr Delay (d2), s/veh	4.4	0.5	0.3	3.9	16.5	0.0	21.6	1.7	1.7	18.1	0.5	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	5.5	1.9	4.0	17.4	0.0	9.8	4.1	4.2	7.2	2.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.2	34.5	31.4	52.1	50.9	0.0	65.2	30.4	30.5	63.9	30.9	29.0
LnGrp LOS	E	C	C	D	D	A	E	C	C	E	C	C
Approach Vol, veh/h		614			742			685			423	
Approach Delay, s/veh		34.8			51.1			45.6			48.4	
Approach LOS		C			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	20.1	39.0	15.3	34.6	24.7	34.4	7.0	42.9				
Change Period (Y+Rc), s	4.6	* 4.7	4.6	5.4	4.6	* 4.7	4.6	5.4				
Max Green Setting (Gmax), s	19.4	* 34	18.0	29.6	23.4	* 30	5.0	42.6				
Max Q Clear Time (g_c+I1), s	15.4	11.2	10.8	15.0	19.9	6.5	3.3	35.4				
Green Ext Time (p_c), s	0.1	2.3	0.1	2.9	0.2	1.2	0.0	2.1				

Intersection Summary

HCM 6th Ctrl Delay 45.0

HCM 6th LOS D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection												
Int Delay, s/veh	2.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕	↕		↕	↕
Traffic Vol, veh/h	0	828	3	2	622	35	0	2	11	46	3	5
Future Vol, veh/h	0	828	3	2	622	35	0	2	11	46	3	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Stop	-	-	Stop
Storage Length	-	-	-	-	-	-	-	-	75	-	-	75
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	854	3	2	641	36	0	2	11	47	3	5
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	677	0	0	857	0	0	1521	1537	856	1520	1520	659
Stage 1	-	-	-	-	-	-	856	856	-	663	663	-
Stage 2	-	-	-	-	-	-	665	681	-	857	857	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	915	-	-	783	-	-	97	116	357	97	119	464
Stage 1	-	-	-	-	-	-	352	374	-	450	459	-
Stage 2	-	-	-	-	-	-	449	450	-	352	374	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	915	-	-	783	-	-	94	116	357	92	119	464
Mov Cap-2 Maneuver	-	-	-	-	-	-	94	116	-	92	119	-
Stage 1	-	-	-	-	-	-	352	374	-	450	457	-
Stage 2	-	-	-	-	-	-	439	448	-	339	374	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0			18.7			76		
HCM LOS							C			F		
Minor Lane/Major Mvmt	NBLn1		NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2	
Capacity (veh/h)	116		357	915	-	-	783	-	-	93	464	
HCM Lane V/C Ratio	0.018		0.032	-	-	-	0.003	-	-	0.543	0.011	
HCM Control Delay (s)	36.6		15.4	0	-	-	9.6	0	-	82.4	12.8	
HCM Lane LOS	E		C	A	-	-	A	A	-	F	B	
HCM 95th %tile Q(veh)	0.1		0.1	0	-	-	0	-	-	2.4	0	

Intersection						
Int Delay, s/veh	3.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	403	32	96	185	37	92
Future Vol, veh/h	403	32	96	185	37	92
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	120	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	463	37	110	213	43	106
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	500	0	915	482
Stage 1	-	-	-	-	482	-
Stage 2	-	-	-	-	433	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1064	-	303	584
Stage 1	-	-	-	-	621	-
Stage 2	-	-	-	-	654	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1064	-	272	584
Mov Cap-2 Maneuver	-	-	-	-	272	-
Stage 1	-	-	-	-	557	-
Stage 2	-	-	-	-	654	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		3		14.9	
HCM LOS					B	
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	272	584	-	-	1064	-
HCM Lane V/C Ratio	0.156	0.181	-	-	0.104	-
HCM Control Delay (s)	20.7	12.5	-	-	8.8	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile O(veh)	0.5	0.7	-	-	0.3	-

Timings

S. Nichols Mixed-Use Development (JN 10878)

7: Collier Av. (SR-74)/Collier Av. & Riverside Dr. (SR-74)/Riverside Dr.

05/18/2018

										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	75	10	800	5	1	611	72	1	54	47
Future Volume (vph)	75	10	800	5	1	611	72	1	54	47
Turn Type	Perm	NA	pm+ov	Perm	NA	Split	NA	Split	NA	Perm
Protected Phases		4	2		8	2	2	6	6	
Permitted Phases	4		4	8						6
Detector Phase	4	4	2	8	8	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	15.4	15.4	15.8	14.6	14.6	15.8	15.8	16.2	16.2	16.2
Total Split (s)	23.0	23.0	79.0	23.0	23.0	79.0	79.0	18.0	18.0	18.0
Total Split (%)	19.2%	19.2%	65.8%	19.2%	19.2%	65.8%	65.8%	15.0%	15.0%	15.0%
Yellow Time (s)	4.4	4.4	4.8	3.6	3.6	4.8	4.8	5.2	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.4	5.8		4.6	5.8	5.8	6.2	6.2	6.2
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	None	None	Max	None	None	Max	Max	Max	Max	Max
Act Effect Green (s)		13.1	88.6		13.7	73.6	73.6	11.9	11.9	11.9
Actuated g/C Ratio		0.12	0.79		0.12	0.65	0.65	0.11	0.11	0.11
v/c Ratio		0.56	0.62		0.04	0.56	0.07	0.01	0.29	0.21
Control Delay		61.8	3.7		39.4	14.2	7.8	48.0	53.4	6.7
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		61.8	3.7		39.4	14.2	7.8	48.0	53.4	6.7
LOS		E	A		D	B	A	D	D	A
Approach Delay		9.3			39.4		13.4		31.9	
Approach LOS		A			D		B		C	
Intersection Summary										
Cycle Length: 120										
Actuated Cycle Length: 112.5										
Natural Cycle: 65										
Control Type: Actuated-Uncoordinated										
Maximum v/c Ratio: 0.62										
Intersection Signal Delay: 12.5										
Intersection LOS: B										
Intersection Capacity Utilization 80.0%										
ICU Level of Service D										
Analysis Period (min) 15										

Splits and Phases: 7: Collier Av. (SR-74)/Collier Av. & Riverside Dr. (SR-74)/Riverside Dr.

								
79 s			18 s			23 s		
						23 s		

HCM 6th Signalized Intersection Summary S. Nichols Mixed-Use Development (JN 10878)
 7: Collier Av. (SR-74)/Collier Av. & Riverside Dr. (SR-74)/Riverside Dr. 05/18/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	75	10	800	5	1	2	611	72	10	1	54	47
Future Volume (veh/h)	75	10	800	5	1	2	611	72	10	1	54	47
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	79	11	776	5	1	0	643	76	10	1	57	9
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	250	31	1199	118	19	0	1087	988	130	175	184	156
Arrive On Green	0.15	0.15	0.15	0.15	0.15	0.00	0.61	0.61	0.61	0.10	0.10	0.10
Sat Flow, veh/h	1324	214	1585	432	129	0	1781	1619	213	1781	1870	1585
Grp Volume(v), veh/h	90	0	776	6	0	0	643	0	86	1	57	9
Grp Sat Flow(s),veh/h/ln	1538	0	1585	561	0	0	1781	0	1832	1781	1870	1585
Q Serve(g_s), s	0.0	0.0	17.6	0.0	0.0	0.0	26.4	0.0	2.3	0.1	3.4	0.6
Cycle Q Clear(g_c), s	5.7	0.0	17.6	5.8	0.0	0.0	26.4	0.0	2.3	0.1	3.4	0.6
Prop In Lane	0.88		1.00	0.83		0.00	1.00		0.12	1.00		1.00
Lane Grp Cap(c), veh/h	282	0	1199	137	0	0	1087	0	1118	175	184	156
V/C Ratio(X)	0.32	0.00	0.65	0.04	0.00	0.00	0.59	0.00	0.08	0.01	0.31	0.06
Avail Cap(c_a), veh/h	282	0	1199	142	0	0	1087	0	1118	175	184	156
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.1	0.0	5.7	44.0	0.0	0.0	14.3	0.0	9.6	48.8	50.3	49.1
Incr Delay (d2), s/veh	0.6	0.0	1.2	0.1	0.0	0.0	2.4	0.0	0.1	0.1	4.3	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	0.0	23.6	0.2	0.0	0.0	10.2	0.0	0.9	0.0	1.8	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.8	0.0	6.9	44.1	0.0	0.0	16.7	0.0	9.7	48.9	54.6	49.8
LnGrp LOS	D	A	A	D	A	A	B	A	A	D	D	D
Approach Vol, veh/h	866					6		729		67		
Approach Delay, s/veh	11.1					44.1		15.8		53.9		
Approach LOS	B					D		B		D		
Timer - Assigned Phs	2		4		6		8					
Phs Duration (G+Y+Rc), s	79.0		23.0		18.0		23.0					
Change Period (Y+Rc), s	5.8		5.4		6.2		* 5.4					
Max Green Setting (Gmax), s	73.2		17.6		11.8		* 18					
Max Q Clear Time (g_c+I1), s	28.4		19.6		5.4		7.8					
Green Ext Time (p_c), s	2.7		0.0		0.1		0.0					
Intersection Summary												
HCM 6th Ctrl Delay			15.0									
HCM 6th LOS			B									
Notes												

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Timings

S. Nichols Mixed-Use Development (JN 10878)

8: Collier Av./Collier Av. (SR-74) & Central Av./Central Av. (SR-74)

05/18/2018

											
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	33	87	499	275	591	29	53	274	757	58	12
Future Volume (vph)	33	87	499	275	591	29	53	274	757	58	12
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	7	4	3	8	1	5	2	3	1	6	
Permitted Phases					8			2			6
Detector Phase	7	4	3	8	1	5	2	3	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	5.0	10.0	5.0	5.0	10.0	10.0
Minimum Split (s)	9.6	14.7	9.6	42.8	9.6	9.6	15.8	9.6	9.6	29.8	29.8
Total Split (s)	10.0	21.0	34.0	45.0	46.0	12.0	19.0	34.0	46.0	53.0	53.0
Total Split (%)	8.3%	17.5%	28.3%	37.5%	38.3%	10.0%	15.8%	28.3%	38.3%	44.2%	44.2%
Yellow Time (s)	3.6	3.7	3.6	4.8	3.6	3.6	4.8	3.6	3.6	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.7	4.6	5.8	4.6	4.6	5.8	4.6	4.6	5.8	5.8
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	None	None	Max	Max
Act Effect Green (s)	5.3	11.0	19.9	28.9	58.5	6.2	21.2	42.3	28.4	47.9	47.9
Actuated g/C Ratio	0.05	0.11	0.20	0.29	0.58	0.06	0.21	0.42	0.28	0.48	0.48
v/c Ratio	0.19	0.31	0.78	0.55	0.34	0.28	0.14	0.38	0.83	0.04	0.02
Control Delay	52.6	35.1	47.5	36.5	1.0	56.0	39.3	9.8	42.1	17.8	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.6	35.1	47.5	36.5	1.0	56.0	39.3	9.8	42.1	17.8	0.0
LOS	D	D	D	D	A	E	D	A	D	B	A
Approach Delay		38.9		25.2			18.0			39.8	
Approach LOS		D		C			B			D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 100.5

Natural Cycle: 95

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 29.5

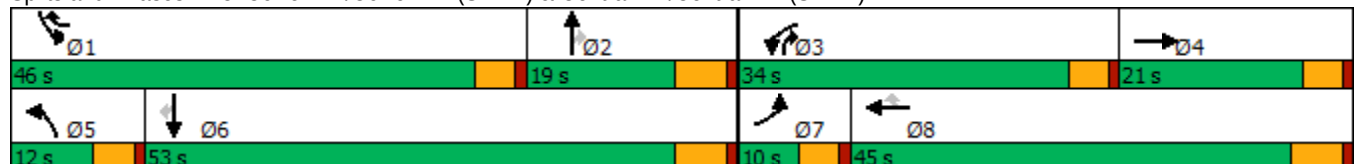
Intersection LOS: C

Intersection Capacity Utilization 59.2%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 8: Collier Av./Collier Av. (SR-74) & Central Av./Central Av. (SR-74)



HCM 6th Signalized Intersection Summary S. Nichols Mixed-Use Development (JN 10878)
 8: Collier Av./Collier Av. (SR-74) & Central Av./Central Av. (SR-74) 05/18/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	33	87	29	499	275	591	29	53	274	757	58	12
Future Volume (veh/h)	33	87	29	499	275	591	29	53	274	757	58	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	35	93	22	531	293	234	31	56	127	805	62	10
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	108	291	66	616	465	1403	52	465	671	899	1705	750
Arrive On Green	0.03	0.10	0.10	0.18	0.25	0.25	0.03	0.25	0.25	0.26	0.48	0.48
Sat Flow, veh/h	3456	2862	654	3456	1870	2724	1781	1870	1563	3456	3554	1562
Grp Volume(v), veh/h	35	57	58	531	293	234	31	56	127	805	62	10
Grp Sat Flow(s),veh/h/ln	1728	1777	1740	1728	1870	1362	1781	1870	1563	1728	1777	1562
Q Serve(g_s), s	1.0	2.9	3.1	14.7	13.7	4.5	1.7	2.3	5.0	22.1	0.9	0.3
Cycle Q Clear(g_c), s	1.0	2.9	3.1	14.7	13.7	4.5	1.7	2.3	5.0	22.1	0.9	0.3
Prop In Lane	1.00		0.38	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	108	181	177	616	465	1403	52	465	671	899	1705	750
V/C Ratio(X)	0.32	0.31	0.33	0.86	0.63	0.17	0.60	0.12	0.19	0.90	0.04	0.01
Avail Cap(c_a), veh/h	190	294	288	1033	745	1811	134	465	671	1454	1705	750
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.6	41.0	41.1	39.3	32.9	13.0	47.2	28.6	17.6	35.1	13.6	13.4
Incr Delay (d2), s/veh	0.6	1.0	1.1	1.9	1.4	0.1	4.1	0.5	0.6	2.9	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	1.3	1.4	6.1	6.1	1.3	0.8	1.0	1.8	9.1	0.3	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.3	42.0	42.2	41.1	34.4	13.0	51.3	29.2	18.2	38.0	13.6	13.4
LnGrp LOS	D	D	D	D	C	B	D	C	B	D	B	B
Approach Vol, veh/h		150			1058			214			877	
Approach Delay, s/veh		43.3			33.1			25.9			36.0	
Approach LOS		D			C			C			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	30.2	30.3	22.1	15.8	7.5	53.0	7.7	30.3				
Change Period (Y+Rc), s	4.6	5.8	4.6	* 5.8	4.6	5.8	4.6	5.8				
Max Green Setting (Gmax), s	41.4	13.2	29.4	* 16	7.4	47.2	5.4	39.2				
Max Q Clear Time (g_c+I1), s	24.1	7.0	16.7	5.1	3.7	2.9	3.0	15.7				
Green Ext Time (p_c), s	1.5	0.3	0.9	0.4	0.0	0.4	0.0	2.5				

Intersection Summary

HCM 6th Ctrl Delay	34.2
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection

Intersection Delay, s/veh 15.6

Intersection LOS C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗	↖	↑						↕	
Traffic Vol, veh/h	0	230	267	62	220	0	0	0	0	166	6	62
Future Vol, veh/h	0	230	267	62	220	0	0	0	0	166	6	62
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles, %	0	3	3	25	3	0	0	0	0	8	67	13
Mvmt Flow	0	307	356	83	293	0	0	0	0	221	8	83
Number of Lanes	0	1	1	1	1	0	0	0	0	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	2
HCM Control Delay	15.2	15.4	16.9
HCM LOS	C	C	C

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	100%	0%	71%
Vol Thru, %	100%	0%	0%	100%	3%
Vol Right, %	0%	100%	0%	0%	26%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	230	267	62	220	234
LT Vol	0	0	62	0	166
Through Vol	230	0	0	220	6
RT Vol	0	267	0	0	62
Lane Flow Rate	307	356	83	293	312
Geometry Grp	7	7	7	7	2
Degree of Util (X)	0.53	0.545	0.17	0.53	0.55
Departure Headway (Hd)	6.223	5.51	7.402	6.51	6.342
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	577	651	484	551	568
Service Time	3.982	3.268	5.169	4.276	4.395
HCM Lane V/C Ratio	0.532	0.547	0.171	0.532	0.549
HCM Control Delay	15.8	14.7	11.7	16.4	16.9
HCM Lane LOS	C	B	B	C	C
HCM 95th-tile Q	3.1	3.3	0.6	3.1	3.3

Intersection												
Int Delay, s/veh	62.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	74	322	0	0	141	95	140	3	110	0	0	0
Future Vol, veh/h	74	322	0	0	141	95	140	3	110	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	230	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	62	62	62	62	62	62	62	62	62	62	62	62
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	119	519	0	0	227	153	226	5	177	0	0	0
Major/Minor	Major1			Major2			Minor1					
Conflicting Flow All	380	0	-	-	-	0	1061	1137	519			
Stage 1	-	-	-	-	-	-	757	757	-			
Stage 2	-	-	-	-	-	-	304	380	-			
Critical Hdwy	4.15	-	-	-	-	-	6.44	6.5	6.26			
Critical Hdwy Stg 1	-	-	-	-	-	-	5.44	5.5	-			
Critical Hdwy Stg 2	-	-	-	-	-	-	5.44	5.5	-			
Follow-up Hdwy	2.245	-	-	-	-	-	3.536	4	3.354			
Pot Cap-1 Maneuver	1162	-	0	0	-	-	246	203	549			
Stage 1	-	-	0	0	-	-	460	419	-			
Stage 2	-	-	0	0	-	-	744	617	-			
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	1162	-	-	-	-	-	~ 221	0	549			
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 221	0	-			
Stage 1	-	-	-	-	-	-	413	0	-			
Stage 2	-	-	-	-	-	-	744	0	-			
Approach	EB			WB			NB					
HCM Control Delay, s	1.6			0			216					
HCM LOS							F					
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR							
Capacity (veh/h)	300	1162	-	-	-							
HCM Lane V/C Ratio	1.36	0.103	-	-	-							
HCM Control Delay (s)	216	8.5	-	-	-							
HCM Lane LOS	F	A	-	-	-							
HCM 95th %tile Q(veh)	20.8	0.3	-	-	-							
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s			+: Computation Not Defined				*: All major volume in platoon			

Intersection						
Int Delay, s/veh	2.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	218	214	0	117	119	0
Future Vol, veh/h	218	214	0	117	119	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	200	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	237	233	0	127	129	0
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	470	0	481	354
Stage 1	-	-	-	-	354	-
Stage 2	-	-	-	-	127	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1092	-	544	690
Stage 1	-	-	-	-	710	-
Stage 2	-	-	-	-	899	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1092	-	544	690
Mov Cap-2 Maneuver	-	-	-	-	544	-
Stage 1	-	-	-	-	710	-
Stage 2	-	-	-	-	899	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		13.7	
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	544	-	-	1092	-	
HCM Lane V/C Ratio	0.238	-	-	-	-	
HCM Control Delay (s)	13.7	-	-	0	-	
HCM Lane LOS	B	-	-	A	-	
HCM 95th %tile O(veh)	0.9	-	-	0	-	

Intersection

Int Delay, s/veh 0.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	6	208	103	1	3	16
Future Vol, veh/h	6	208	103	1	3	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	226	112	1	3	17

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	113	0	0 353 113
Stage 1	-	-	- 113 -
Stage 2	-	-	- 240 -
Critical Hdwy	4.12	-	- 6.42 6.22
Critical Hdwy Stg 1	-	-	- 5.42 -
Critical Hdwy Stg 2	-	-	- 5.42 -
Follow-up Hdwy	2.218	-	- 3.518 3.318
Pot Cap-1 Maneuver	1476	-	- 645 940
Stage 1	-	-	- 912 -
Stage 2	-	-	- 800 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1476	-	- 642 940
Mov Cap-2 Maneuver	-	-	- 642 -
Stage 1	-	-	- 907 -
Stage 2	-	-	- 800 -

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	9.2
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1476	-	-	-	876
HCM Lane V/C Ratio	0.004	-	-	-	0.024
HCM Control Delay (s)	7.5	0	-	-	9.2
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection						
Int Delay, s/veh	5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	211	104	103	223	0
Future Vol, veh/h	0	211	104	103	223	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	229	113	112	242	0
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	580	242	242	0	-	0
Stage 1	242	-	-	-	-	-
Stage 2	338	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	477	797	1324	-	-	-
Stage 1	798	-	-	-	-	-
Stage 2	722	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	434	797	1324	-	-	-
Mov Cap-2 Maneuver	434	-	-	-	-	-
Stage 1	725	-	-	-	-	-
Stage 2	722	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	11.3	4		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1324	-	797	-	-	
HCM Lane V/C Ratio	0.085	-	0.288	-	-	
HCM Control Delay (s)	8	0	11.3	-	-	
HCM Lane LOS	A	A	B	-	-	
HCM 95th %tile Q(veh)	0.3	-	1.2	-	-	

Intersection						
Int Delay, s/veh	23.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	166	23	184	65	18	416
Future Vol, veh/h	166	23	184	65	18	416
Conflicting Peds, #/hr	0	1	0	3	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	66	66	66	66	66	66
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	252	35	279	98	27	630
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1015	332	0	0	380	0
Stage 1	331	-	-	-	-	-
Stage 2	684	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	264	710	-	-	1178	-
Stage 1	728	-	-	-	-	-
Stage 2	501	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	254	707	-	-	1175	-
Mov Cap-2 Maneuver	254	-	-	-	-	-
Stage 1	700	-	-	-	-	-
Stage 2	501	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	106.3	0	0.3			
HCM LOS	F					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	275	1175	-	
HCM Lane V/C Ratio	-	-	1.041	0.023	-	
HCM Control Delay (s)	-	-	106.3	8.1	0	
HCM Lane LOS	-	-	F	A	A	
HCM 95th %tile Q(veh)	-	-	11.1	0.1	-	

Intersection						
Int Delay, s/veh	5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	166	23	184	65	18	416
Future Vol, veh/h	166	23	184	65	18	416
Conflicting Peds, #/hr	0	1	0	3	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	180	25	200	71	20	452
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	731	240	0	0	274	0
Stage 1	239	-	-	-	-	-
Stage 2	492	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	389	799	-	-	1289	-
Stage 1	801	-	-	-	-	-
Stage 2	615	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	380	796	-	-	1285	-
Mov Cap-2 Maneuver	380	-	-	-	-	-
Stage 1	782	-	-	-	-	-
Stage 2	615	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	22.6	0	0.3			
HCM LOS	C					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	406	1285	-	
HCM Lane V/C Ratio	-	-	0.506	0.015	-	
HCM Control Delay (s)	-	-	22.6	7.8	0	
HCM Lane LOS	-	-	C	A	A	
HCM 95th %tile Q(veh)	-	-	2.8	0	-	

Intersection												
Int Delay, s/veh	292.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	129	0	263	6	0	15	166	105	6	8	346	228
Future Vol, veh/h	129	0	263	6	0	15	166	105	6	8	346	228
Conflicting Peds, #/hr	0	0	0	0	0	21	0	0	14	0	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	69	69	69	69	69	69	69	69	69	69	69	69
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	187	0	381	9	0	22	241	152	9	12	501	330
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1362	1348	667	1534	1509	192	832	0	0	175	0	0
Stage 1	691	691	-	653	653	-	-	-	-	-	-	-
Stage 2	671	657	-	881	856	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	~ 125	151	459	95	120	850	801	-	-	1401	-	-
Stage 1	435	446	-	456	464	-	-	-	-	-	-	-
Stage 2	446	462	-	341	374	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 88	98	459	12	78	822	800	-	-	1382	-	-
Mov Cap-2 Maneuver	~ 88	98	-	12	78	-	-	-	-	-	-	-
Stage 1	291	438	-	301	306	-	-	-	-	-	-	-
Stage 2	285	305	-	57	367	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s\$	932.7		215.6		6.8		0.1					
HCM LOS	F		F									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	800	-	-	192	41	1382	-	-				
HCM Lane V/C Ratio	0.301	-	-	2.959	0.742	0.008	-	-				
HCM Control Delay (s)	11.4	0	-	\$ 932.7	215.6	7.6	0	-				
HCM Lane LOS	B	A	-	F	F	A	A	-				
HCM 95th %tile Q(veh)	1.3	-	-	51.2	2.8	0	-	-				
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s			+: Computation Not Defined				*: All major volume in platoon			

Intersection												
Int Delay, s/veh	62.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	129	0	263	6	0	15	166	105	6	8	346	228
Future Vol, veh/h	129	0	263	6	0	15	166	105	6	8	346	228
Conflicting Peds, #/hr	0	0	0	0	0	21	0	0	14	0	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	140	0	286	7	0	16	180	114	7	9	376	248

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1026	1014	501	1153	1135	153	625	0	0	135	0	0
Stage 1	519	519	-	492	492	-	-	-	-	-	-	-
Stage 2	507	495	-	661	643	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	213	239	570	174	202	893	956	-	-	1449	-	-
Stage 1	540	533	-	558	548	-	-	-	-	-	-	-
Stage 2	548	546	-	452	468	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	171	186	569	72	157	863	955	-	-	1430	-	-
Mov Cap-2 Maneuver	171	186	-	72	157	-	-	-	-	-	-	-
Stage 1	430	527	-	439	432	-	-	-	-	-	-	-
Stage 2	420	430	-	223	463	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	198.2		24.3		5.8		0.1	
HCM LOS	F		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	955	-	-	322	209	1430	-
HCM Lane V/C Ratio	0.189	-	-	1.323	0.109	0.006	-
HCM Control Delay (s)	9.6	0	-	198.2	24.3	7.5	0
HCM Lane LOS	A	A	-	F	C	A	A
HCM 95th %tile Q(veh)	0.7	-	-	20.7	0.4	0	-

Timings
19: Dexter Av. & Central Av. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

05/18/2018

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	227	886	124	121	1373	186	99	251	69	141	372
Future Volume (vph)	227	886	124	121	1373	186	99	251	69	141	372
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2	1	6	7
Permitted Phases			4			8					6
Detector Phase	7	4	4	3	8	8	5	2	1	6	7
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0	5.0
Minimum Split (s)	9.6	26.8	26.8	9.6	26.8	26.8	9.6	42.4	9.6	15.8	9.6
Total Split (s)	26.0	42.4	42.4	21.1	37.5	37.5	19.5	43.5	13.0	37.0	26.0
Total Split (%)	21.7%	35.3%	35.3%	17.6%	31.3%	31.3%	16.3%	36.3%	10.8%	30.8%	21.7%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	4.8	3.6	4.4	3.6	4.8	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	5.8	4.6	5.8	5.8	4.6	5.4	4.6	5.8	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	None	Max	None
Act Effect Green (s)	19.0	37.8	37.8	12.6	31.4	31.4	11.1	39.3	7.7	33.1	58.0
Actuated g/C Ratio	0.16	0.33	0.33	0.11	0.27	0.27	0.10	0.34	0.07	0.29	0.50
v/c Ratio	0.86	0.59	0.22	0.69	0.87	0.36	0.64	0.60	0.65	0.29	0.48
Control Delay	74.2	34.8	4.7	68.9	47.0	6.6	68.1	36.9	79.0	35.4	16.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	74.2	34.8	4.7	68.9	47.0	6.6	68.1	36.9	79.0	35.4	16.0
LOS	E	C	A	E	D	A	E	D	E	D	B
Approach Delay		39.0			44.1			44.0		28.2	
Approach LOS		D			D			D		C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 115.6

Natural Cycle: 100

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 40.1

Intersection LOS: D

Intersection Capacity Utilization 84.5%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 19: Dexter Av. & Central Av. (SR-74)

			
Ø1	Ø2	Ø3	Ø4
13 s	43.5 s	21.1 s	42.4 s
			
Ø5	Ø6	Ø7	Ø8
19.5 s	37 s	26 s	37.5 s

HCM 6th Signalized Intersection Summary
19: Dexter Av. & Central Av. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

05/18/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	227	886	124	121	1373	186	99	251	87	69	141	372
Future Volume (veh/h)	227	886	124	121	1373	186	99	251	87	69	141	372
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	249	974	93	133	1509	162	109	276	55	76	155	353
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	278	1716	533	161	1741	423	135	508	101	97	588	745
Arrive On Green	0.16	0.34	0.34	0.09	0.27	0.27	0.08	0.34	0.34	0.05	0.31	0.31
Sat Flow, veh/h	1781	5106	1585	1781	6434	1565	1781	1514	302	1781	1870	1585
Grp Volume(v), veh/h	249	974	93	133	1509	162	109	0	331	76	155	353
Grp Sat Flow(s),veh/h/ln	1781	1702	1585	1781	1609	1565	1781	0	1816	1781	1870	1585
Q Serve(g_s), s	15.6	17.8	4.7	8.3	25.4	9.6	6.8	0.0	16.8	4.8	7.0	17.2
Cycle Q Clear(g_c), s	15.6	17.8	4.7	8.3	25.4	9.6	6.8	0.0	16.8	4.8	7.0	17.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.17	1.00		1.00
Lane Grp Cap(c), veh/h	278	1716	533	161	1741	423	135	0	610	97	588	745
V/C Ratio(X)	0.90	0.57	0.17	0.83	0.87	0.38	0.81	0.00	0.54	0.78	0.26	0.47
Avail Cap(c_a), veh/h	336	1716	533	259	1798	437	234	0	610	132	588	745
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.0	30.9	26.6	50.7	39.4	33.7	51.6	0.0	30.6	53.0	29.1	20.5
Incr Delay (d2), s/veh	20.5	0.4	0.2	5.2	4.7	0.6	4.3	0.0	3.4	13.1	1.1	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.2	7.0	1.7	3.8	10.1	3.6	3.2	0.0	7.7	2.4	3.2	6.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.4	31.3	26.7	56.0	44.1	34.2	55.9	0.0	34.0	66.1	30.2	22.6
LnGrp LOS	E	C	C	E	D	C	E	A	C	E	C	C
Approach Vol, veh/h		1316			1804			440			584	
Approach Delay, s/veh		37.8			44.1			39.5			30.3	
Approach LOS		D			D			D			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.8	43.9	14.8	43.9	13.2	41.5	22.3	36.5				
Change Period (Y+Rc), s	4.6	* 5.8	4.6	5.8	4.6	5.8	4.6	5.8				
Max Green Setting (Gmax), s	8.4	* 38	16.5	36.6	14.9	31.2	21.4	31.7				
Max Q Clear Time (g_c+I1), s	6.8	18.8	10.3	19.8	8.8	19.2	17.6	27.4				
Green Ext Time (p_c), s	0.0	1.7	0.1	6.1	0.1	1.6	0.1	3.3				

Intersection Summary

HCM 6th Ctrl Delay	39.7
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Timings

S. Nichols Mixed-Use Development (JN 10878)

20: Cambern Av./Cambern Av & Central Av. (SR-74)

05/18/2018



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations	←←	→→	←	→→	←	←	→	←	→	←
Traffic Volume (vph)	123	1024	1	1605	111	3	2	126	4	86
Future Volume (vph)	123	1024	1	1605	111	3	2	126	4	86
Turn Type	Prot	NA	Prot	NA	Perm	Perm	NA	Perm	NA	Perm
Protected Phases	7	4	3	8			2		6	
Permitted Phases					8	2		6		6
Detector Phase	7	4	3	8	8	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	24.8	9.6	25.5	25.5	34.7	34.7	14.7	14.7	14.7
Total Split (s)	12.0	75.4	9.6	73.0	73.0	35.0	35.0	35.0	35.0	35.0
Total Split (%)	10.0%	62.8%	8.0%	60.8%	60.8%	29.2%	29.2%	29.2%	29.2%	29.2%
Yellow Time (s)	3.6	4.8	3.6	5.5	5.5	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.6	5.8	4.6	6.5	6.5	4.7	4.7		4.7	4.7
Lead/Lag	Lead	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	Max	None	None	None	None	Max	Max	Max	Max	Max
Act Effect Green (s)	7.4	75.9	5.0	65.1	65.1	30.3	30.3		30.3	30.3
Actuated g/C Ratio	0.06	0.64	0.04	0.55	0.55	0.26	0.26		0.26	0.26
v/c Ratio	0.63	0.50	0.01	0.91	0.13	0.01	0.01		0.41	0.20
Control Delay	68.5	12.6	56.0	32.3	2.6	34.0	30.0		41.5	9.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay	68.5	12.6	56.0	32.3	2.6	34.0	30.0		41.5	9.4
LOS	E	B	E	C	A	C	C		D	A
Approach Delay		18.6		30.4			32.0		28.6	
Approach LOS		B		C			C		C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 118.6

Natural Cycle: 100

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.91

Intersection Signal Delay: 25.9

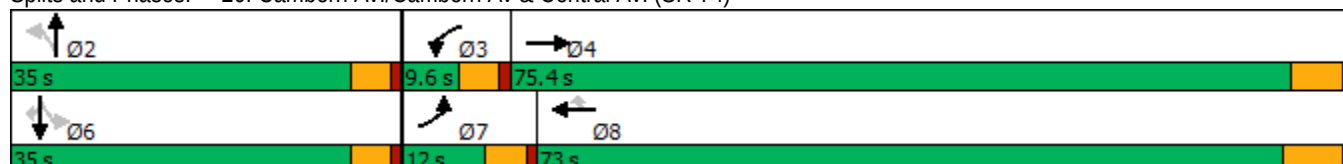
Intersection LOS: C

Intersection Capacity Utilization 90.9%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 20: Cambern Av./Cambern Av & Central Av. (SR-74)



HCM 6th Signalized Intersection Summary S. Nichols Mixed-Use Development (JN 10878)
 20: Cambern Av./Cambern Av & Central Av. (SR-74) 05/18/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	123	1024	1	1	1605	111	3	2	1	126	4	86
Future Volume (veh/h)	123	1024	1	1	1605	111	3	2	1	126	4	86
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	135	1125	1	1	1764	80	3	2	0	138	4	51
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	217	2216	2	2	1943	855	295	480	0	414	11	406
Arrive On Green	0.06	0.61	0.61	0.00	0.55	0.55	0.26	0.26	0.00	0.26	0.26	0.26
Sat Flow, veh/h	3456	3643	3	1781	3554	1564	1348	1870	0	1377	43	1583
Grp Volume(v), veh/h	135	549	577	1	1764	80	3	2	0	142	0	51
Grp Sat Flow(s),veh/h/ln	1728	1777	1870	1781	1777	1564	1348	1870	0	1421	0	1583
Q Serve(g_s), s	4.5	20.7	20.7	0.1	52.7	2.9	0.2	0.1	0.0	9.7	0.0	2.9
Cycle Q Clear(g_c), s	4.5	20.7	20.7	0.1	52.7	2.9	10.0	0.1	0.0	9.8	0.0	2.9
Prop In Lane	1.00		0.00	1.00		1.00	1.00		0.00	0.97		1.00
Lane Grp Cap(c), veh/h	217	1081	1137	2	1943	855	295	480	0	425	0	406
V/C Ratio(X)	0.62	0.51	0.51	0.41	0.91	0.09	0.01	0.00	0.00	0.33	0.00	0.13
Avail Cap(c_a), veh/h	217	1081	1137	75	2002	881	295	480	0	425	0	406
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	54.0	13.1	13.1	58.9	24.1	12.8	40.4	32.6	0.0	36.2	0.0	33.7
Incr Delay (d2), s/veh	12.8	0.5	0.5	36.4	6.6	0.1	0.1	0.0	0.0	2.1	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	7.5	7.9	0.1	20.8	0.9	0.1	0.0	0.0	3.6	0.0	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.7	13.7	13.6	95.3	30.7	12.8	40.4	32.7	0.0	38.4	0.0	34.3
LnGrp LOS	E	B	B	F	C	B	D	C	A	D	A	C
Approach Vol, veh/h		1261			1845			5			193	
Approach Delay, s/veh		19.3			29.9			37.3			37.3	
Approach LOS		B			C			D			D	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		35.0	4.8	78.3		35.0	12.0	71.0				
Change Period (Y+Rc), s		* 4.7	4.6	* 6.5		* 4.7	4.6	6.5				
Max Green Setting (Gmax), s		* 30	5.0	* 70		* 30	7.4	66.5				
Max Q Clear Time (g_c+I1), s		12.0	2.1	22.7		11.8	6.5	54.7				
Green Ext Time (p_c), s		0.0	0.0	13.2		0.8	0.0	9.8				
Intersection Summary												
HCM 6th Ctrl Delay			26.3									
HCM 6th LOS			C									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Timings
1: Lake St. & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

05/18/2018

									
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	1	6	228	0	1	362	165	29	845
Future Volume (vph)	1	6	228	0	1	362	165	29	845
Turn Type	Perm	NA	Perm	NA	Prot	NA	Perm	Prot	NA
Protected Phases		4		8	5	2		1	6
Permitted Phases	4		8				2		
Detector Phase	4	4	8	8	5	2	2	1	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	14.6	14.6	16.2	16.2	9.6	16.2	16.2	9.6	16.2
Total Split (s)	42.2	42.2	42.2	42.2	35.6	42.2	42.2	35.6	42.2
Total Split (%)	35.2%	35.2%	35.2%	35.2%	29.7%	35.2%	35.2%	29.7%	35.2%
Yellow Time (s)	3.6	3.6	5.2	5.2	3.6	5.2	5.2	3.6	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.6		6.2	4.6	6.2	6.2	4.6	6.2
Lead/Lag					Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	None	Max
Act Effect Green (s)		18.3		16.7	5.1	36.9	36.9	6.1	39.4
Actuated g/C Ratio		0.26		0.24	0.07	0.52	0.52	0.09	0.56
v/c Ratio		0.02		0.72	0.01	0.41	0.20	0.21	0.89
Control Delay		19.5		30.3	37.0	14.6	6.0	37.2	28.9
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		19.5		30.3	37.0	14.6	6.0	37.2	28.9
LOS		B		C	D	B	A	D	C
Approach Delay		19.5		30.3		12.0			29.2
Approach LOS		B		C		B			C

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 70.4

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.89

Intersection Signal Delay: 23.8

Intersection LOS: C

Intersection Capacity Utilization 75.3%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 1: Lake St. & Nichols Rd.

 Ø1	 Ø2	 Ø4
35.6 s	42.2 s	42.2 s
 Ø5	 Ø6	 Ø8
35.6 s	42.2 s	42.2 s

HCM 6th Signalized Intersection Summary
1: Lake St. & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

05/18/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	6	1	228	0	18	1	362	165	29	845	1
Future Volume (veh/h)	1	6	1	228	0	18	1	362	165	29	845	1
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1	7	1	251	0	12	1	398	0	32	929	1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	73	342	45	399	0	14	3	947		59	1005	1
Arrive On Green	0.22	0.22	0.22	0.22	0.00	0.22	0.00	0.51	0.00	0.03	0.54	0.54
Sat Flow, veh/h	78	1545	203	1356	0	65	1781	1870	1585	1781	1868	2
Grp Volume(v), veh/h	9	0	0	263	0	0	1	398	0	32	0	930
Grp Sat Flow(s),veh/h/ln	1826	0	0	1421	0	0	1781	1870	1585	1781	0	1870
Q Serve(g_s), s	0.0	0.0	0.0	12.3	0.0	0.0	0.0	9.5	0.0	1.3	0.0	32.5
Cycle Q Clear(g_c), s	0.3	0.0	0.0	12.6	0.0	0.0	0.0	9.5	0.0	1.3	0.0	32.5
Prop In Lane	0.11		0.11	0.95		0.05	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	460	0	0	413	0	0	3	947		59	0	1006
V/C Ratio(X)	0.02	0.00	0.00	0.64	0.00	0.00	0.40	0.42		0.55	0.00	0.92
Avail Cap(c_a), veh/h	1005	0	0	817	0	0	777	947		777	0	1006
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.7	0.0	0.0	26.4	0.0	0.0	35.5	11.0	0.0	33.8	0.0	15.1
Incr Delay (d2), s/veh	0.0	0.0	0.0	1.6	0.0	0.0	34.0	1.4	0.0	2.9	0.0	15.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.0	3.9	0.0	0.0	0.0	3.4	0.0	0.5	0.0	14.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.7	0.0	0.0	28.0	0.0	0.0	69.4	12.4	0.0	36.7	0.0	30.2
LnGrp LOS	C	A	A	C	A	A	E	B		D	A	C
Approach Vol, veh/h		9			263			399	A		962	
Approach Delay, s/veh		21.7			28.0			12.5			30.4	
Approach LOS		C			C			B			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.9	42.2		21.9	4.7	44.4		21.9				
Change Period (Y+Rc), s	4.6	6.2		* 6.2	4.6	6.2		6.2				
Max Green Setting (Gmax), s	31.0	36.0		* 38	31.0	36.0		36.0				
Max Q Clear Time (g_c+I1), s	3.3	11.5		2.3	2.0	34.5		14.6				
Green Ext Time (p_c), s	0.0	3.1		0.0	0.0	1.1		1.2				
Intersection Summary												
HCM 6th Ctrl Delay				25.6								
HCM 6th LOS				C								
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.												

Timings
2: Lake St. & Alberhill Ranch Rd.

S. Nichols Mixed-Use Development (JN 10878)

05/18/2018

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	35	19	482	30	23	1013
Future Volume (vph)	35	19	482	30	23	1013
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2		
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	15.1	15.1	16.2	16.2	11.2	16.2
Total Split (s)	16.0	16.0	91.0	91.0	13.0	104.0
Total Split (%)	13.3%	13.3%	75.8%	75.8%	10.8%	86.7%
Yellow Time (s)	4.1	4.1	5.2	5.2	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	6.2	6.2	6.2	6.2
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	Max	Max	None	Max
Act Effect Green (s)	10.0	10.0	94.4	94.4	5.9	102.1
Actuated g/C Ratio	0.08	0.08	0.79	0.79	0.05	0.86
v/c Ratio	0.24	0.13	0.33	0.03	0.26	0.65
Control Delay	55.5	22.6	5.9	1.7	61.6	6.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.5	22.6	5.9	1.7	61.6	6.1
LOS	E	C	A	A	E	A
Approach Delay	44.1		5.6			7.3
Approach LOS	D		A			A

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 119.1
 Natural Cycle: 60
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.65
 Intersection Signal Delay: 8.0
 Intersection LOS: A
 Intersection Capacity Utilization 71.1%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 2: Lake St. & Alberhill Ranch Rd.



HCM 6th Signalized Intersection Summary
2: Lake St. & Alberhill Ranch Rd.

S. Nichols Mixed-Use Development (JN 10878)

05/18/2018



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	35	19	482	30	23	1013
Future Volume (veh/h)	35	19	482	30	23	1013
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		0.98	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	36	6	492	28	23	1034
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	114	101	1428	1185	40	1570
Arrive On Green	0.06	0.06	0.76	0.76	0.02	0.84
Sat Flow, veh/h	1781	1585	1870	1553	1781	1870
Grp Volume(v), veh/h	36	6	492	28	23	1034
Grp Sat Flow(s),veh/h/ln	1781	1585	1870	1553	1781	1870
Q Serve(g_s), s	2.3	0.4	9.8	0.5	1.5	23.2
Cycle Q Clear(g_c), s	2.3	0.4	9.8	0.5	1.5	23.2
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	114	101	1428	1185	40	1570
V/C Ratio(X)	0.32	0.06	0.34	0.02	0.57	0.66
Avail Cap(c_a), veh/h	167	148	1428	1185	104	1570
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.1	51.3	4.4	3.3	56.4	3.4
Incr Delay (d2), s/veh	0.6	0.1	0.7	0.0	4.7	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.2	2.8	0.1	0.7	4.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	52.7	51.4	5.1	3.4	61.1	5.5
LnGrp LOS	D	D	A	A	E	A
Approach Vol, veh/h	42		520			1057
Approach Delay, s/veh	52.5		5.0			6.8
Approach LOS	D		A			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	8.8	95.2			104.0	12.5
Change Period (Y+Rc), s	6.2	6.2			6.2	5.1
Max Green Setting (Gmax), s	6.8	84.8			97.8	10.9
Max Q Clear Time (g_c+l1), s	3.5	11.8			25.2	4.3
Green Ext Time (p_c), s	0.0	3.1			10.1	0.0

Intersection Summary

HCM 6th Ctrl Delay	7.4
HCM 6th LOS	A

Intersection

Intersection Delay, s/veh 9.7

Intersection LOS A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	185	18	74	238	9	61
Future Vol, veh/h	185	18	74	238	9	61
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	197	19	79	253	10	65
Number of Lanes	1	0	0	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	1
HCM Control Delay	9	10.4	8.4
HCM LOS	A	B	A

Lane	NBLn1	NBLn2	EBLn1	WBLn1
Vol Left, %	100%	0%	0%	24%
Vol Thru, %	0%	0%	91%	76%
Vol Right, %	0%	100%	9%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	9	61	203	312
LT Vol	9	0	0	74
Through Vol	0	0	185	238
RT Vol	0	61	18	0
Lane Flow Rate	10	65	216	332
Geometry Grp	7	7	2	2
Degree of Util (X)	0.017	0.091	0.265	0.406
Departure Headway (Hd)	6.246	5.034	4.423	4.402
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	573	711	812	820
Service Time	3.983	2.77	2.446	2.422
HCM Lane V/C Ratio	0.017	0.091	0.266	0.405
HCM Control Delay	9.1	8.3	9	10.4
HCM Lane LOS	A	A	A	B
HCM 95th-tile Q	0.1	0.3	1.1	2

Timings
4: Lakeshore Dr. & Riverside Dr. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

05/18/2018

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	29	478	263	117	594	298	194	251	265	308	15
Future Volume (vph)	29	478	263	117	594	298	194	251	265	308	15
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2	1	6	
Permitted Phases			4			8					6
Detector Phase	7	4	4	3	8	8	5	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	32.4	32.4	9.6	33.4	33.4	9.6	34.7	9.6	32.7	32.7
Total Split (s)	9.6	38.3	38.3	20.3	49.0	49.0	27.6	35.4	26.0	33.8	33.8
Total Split (%)	8.0%	31.9%	31.9%	16.9%	40.8%	40.8%	23.0%	29.5%	21.7%	28.2%	28.2%
Yellow Time (s)	3.6	4.4	4.4	3.6	4.4	4.4	3.6	3.7	3.6	3.7	3.7
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.4	5.4	4.6	5.4	5.4	4.6	4.7	4.6	4.7	4.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	None	Max	Max
Act Effect Green (s)	5.1	28.8	28.8	11.7	39.8	39.8	16.8	31.1	19.6	34.0	34.0
Actuated g/C Ratio	0.05	0.26	0.26	0.11	0.36	0.36	0.15	0.28	0.18	0.31	0.31
v/c Ratio	0.38	0.54	0.44	0.65	0.91	0.42	0.75	0.42	0.87	0.29	0.03
Control Delay	68.8	37.8	6.5	65.7	54.5	7.4	63.4	26.8	73.2	33.2	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	68.8	37.8	6.5	65.7	54.5	7.4	63.4	26.8	73.2	33.2	0.1
LOS	E	D	A	E	D	A	E	C	E	C	A
Approach Delay		28.3			41.9			38.6		50.4	
Approach LOS		C			D			D		D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 110.8

Natural Cycle: 100

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.91

Intersection Signal Delay: 39.4

Intersection LOS: D

Intersection Capacity Utilization 91.2%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 4: Lakeshore Dr. & Riverside Dr. (SR-74)

			
Ø1	Ø2	Ø3	Ø4
26 s	35.4 s	20.3 s	38.3 s
			
Ø5	Ø6	Ø7	Ø8
27.6 s	33.8 s	9.6 s	49 s

HCM 6th Signalized Intersection Summary 4: Lakeshore Dr. & Riverside Dr. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

05/18/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	478	263	117	594	298	194	251	157	265	308	15
Future Volume (veh/h)	29	478	263	117	594	298	194	251	157	265	308	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	30	493	151	121	612	153	200	259	58	273	318	11
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	48	1058	472	148	662	553	231	799	176	302	1123	495
Arrive On Green	0.03	0.30	0.30	0.08	0.35	0.35	0.13	0.28	0.28	0.17	0.32	0.32
Sat Flow, veh/h	1781	3554	1585	1781	1870	1564	1781	2894	637	1781	3554	1565
Grp Volume(v), veh/h	30	493	151	121	612	153	200	157	160	273	318	11
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1870	1564	1781	1777	1754	1781	1777	1565
Q Serve(g_s), s	1.9	12.6	8.2	7.4	34.9	7.8	12.2	7.8	8.1	16.7	7.5	0.5
Cycle Q Clear(g_c), s	1.9	12.6	8.2	7.4	34.9	7.8	12.2	7.8	8.1	16.7	7.5	0.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.36	1.00		1.00
Lane Grp Cap(c), veh/h	48	1058	472	148	662	553	231	491	484	302	1123	495
V/C Ratio(X)	0.62	0.47	0.32	0.81	0.92	0.28	0.87	0.32	0.33	0.90	0.28	0.02
Avail Cap(c_a), veh/h	80	1058	472	251	733	613	368	491	484	343	1123	495
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.5	31.8	30.3	50.1	34.5	25.7	47.5	32.0	32.1	45.3	28.6	26.2
Incr Delay (d2), s/veh	4.7	0.3	0.4	4.1	16.6	0.3	7.2	1.7	1.8	23.0	0.6	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	5.3	3.1	3.4	18.2	2.9	5.9	3.6	3.7	9.3	3.3	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.3	32.2	30.7	54.2	51.1	26.0	54.7	33.7	33.9	68.4	29.2	26.3
LnGrp LOS	E	C	C	D	D	C	D	C	C	E	C	C
Approach Vol, veh/h		674			886			517			602	
Approach Delay, s/veh		33.0			47.2			41.9			46.9	
Approach LOS		C			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	23.4	35.4	13.9	38.5	19.0	39.8	7.6	44.7				
Change Period (Y+Rc), s	4.6	* 4.7	4.6	5.4	4.6	* 4.7	4.6	5.4				
Max Green Setting (Gmax), s	21.4	* 31	15.7	32.9	23.0	* 29	5.0	43.6				
Max Q Clear Time (g_c+I1), s	18.7	10.1	9.4	14.6	14.2	9.5	3.9	36.9				
Green Ext Time (p_c), s	0.1	1.8	0.1	3.4	0.2	2.0	0.0	2.4				
Intersection Summary												
HCM 6th Ctrl Delay			42.5									
HCM 6th LOS			D									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Intersection												
Int Delay, s/veh	2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕	↕		↕	↕
Traffic Vol, veh/h	2	835	4	6	856	115	0	0	6	28	1	2
Future Vol, veh/h	2	835	4	6	856	115	0	0	6	28	1	2
Conflicting Peds, #/hr	0	0	0	0	0	1	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Stop	-	-	Stop
Storage Length	-	-	-	-	-	-	-	-	75	-	-	75
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	861	4	6	882	119	0	0	6	29	1	2
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1002	0	0	865	0	0	1821	1881	863	1822	1824	943
Stage 1	-	-	-	-	-	-	867	867	-	955	955	-
Stage 2	-	-	-	-	-	-	954	1014	-	867	869	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	691	-	-	778	-	-	60	71	354	60	77	318
Stage 1	-	-	-	-	-	-	348	370	-	310	337	-
Stage 2	-	-	-	-	-	-	311	316	-	348	369	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	690	-	-	778	-	-	58	69	354	58	75	318
Mov Cap-2 Maneuver	-	-	-	-	-	-	58	69	-	58	75	-
Stage 1	-	-	-	-	-	-	346	368	-	308	331	-
Stage 2	-	-	-	-	-	-	302	310	-	340	367	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.1			15.4			113.5		
HCM LOS							C			F		
Minor Lane/Major Mvmt	NBLn1 NBLn2		EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2		
Capacity (veh/h)	-	354	690	-	-	778	-	-	58	318		
HCM Lane V/C Ratio	-	0.017	0.003	-	-	0.008	-	-	0.515	0.006		
HCM Control Delay (s)	0	15.4	10.2	0	-	9.7	0	-	120.2	16.4		
HCM Lane LOS	A	C	B	A	-	A	A	-	F	C		
HCM 95th %tile Q(veh)	-	0.1	0	-	-	0	-	-	2	0		

Intersection						
Int Delay, s/veh	6.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	189	54	224	250	78	258
Future Vol, veh/h	189	54	224	250	78	258
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	120	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	201	57	238	266	83	274

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	258
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.12
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.218
Pot Cap-1 Maneuver	-	-	1307
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1307
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	4	15.8
HCM LOS			C

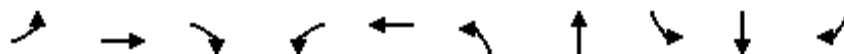
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	229	809	-	-	1307	-
HCM Lane V/C Ratio	0.362	0.339	-	-	0.182	-
HCM Control Delay (s)	29.4	11.7	-	-	8.4	-
HCM Lane LOS	D	B	-	-	A	-
HCM 95th %tile Q(veh)	1.6	1.5	-	-	0.7	-

Timings

S. Nichols Mixed-Use Development (JN 10878)

7: Collier Av. (SR-74)/Collier Av. & Riverside Dr. (SR-74)/Riverside Dr.

05/18/2018



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations		↔	↔		↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	101	11	757	20	17	867	224	3	179	93
Future Volume (vph)	101	11	757	20	17	867	224	3	179	93
Turn Type	Perm	NA	pm+ov	Perm	NA	Split	NA	Split	NA	Perm
Protected Phases		4	2		8	2	2	6	6	
Permitted Phases	4		4	8						6
Detector Phase	4	4	2	8	8	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	15.4	15.4	15.8	14.6	14.6	15.8	15.8	16.2	16.2	16.2
Total Split (s)	19.0	19.0	79.0	19.0	19.0	79.0	79.0	22.0	22.0	22.0
Total Split (%)	15.8%	15.8%	65.8%	15.8%	15.8%	65.8%	65.8%	18.3%	18.3%	18.3%
Yellow Time (s)	4.4	4.4	4.8	3.6	3.6	4.8	4.8	5.2	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.4	5.8		4.6	5.8	5.8	6.2	6.2	6.2
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	None	None	Max	None	None	Max	Max	Max	Max	Max
Act Effect Green (s)		12.7	85.6		13.5	73.2	73.2	15.8	15.8	15.8
Actuated g/C Ratio		0.11	0.72		0.11	0.61	0.61	0.13	0.13	0.13
v/c Ratio		0.75	0.67		0.26	0.83	0.22	0.01	0.75	0.33
Control Delay		80.7	9.1		47.1	26.7	10.7	45.7	69.8	12.4
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		80.7	9.1		47.1	26.7	10.7	45.7	69.8	12.4
LOS		F	A		D	C	B	D	E	B
Approach Delay		18.3			47.1		23.2		50.1	
Approach LOS		B			D		C		D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 119.2

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 25.0

Intersection LOS: C

Intersection Capacity Utilization 83.1%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 7: Collier Av. (SR-74)/Collier Av. & Riverside Dr. (SR-74)/Riverside Dr.

↖ ↗ Ø2	↖ ↗ Ø6	↖ ↗ Ø4
79 s	22 s	19 s
		↖ ↗ Ø8
		19 s

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	101	11	757	20	17	7	867	224	19	3	179	93
Future Volume (veh/h)	101	11	757	20	17	7	867	224	19	3	179	93
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	105	11	741	21	18	1	903	233	19	3	186	24
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	174	12	1145	53	33	1	1079	1032	84	233	245	207
Arrive On Green	0.12	0.12	0.12	0.12	0.12	0.12	0.61	0.61	0.61	0.13	0.13	0.13
Sat Flow, veh/h	983	103	1548	60	278	9	1781	1703	139	1781	1870	1585
Grp Volume(v), veh/h	116	0	741	40	0	0	903	0	252	3	186	24
Grp Sat Flow(s),veh/h/ln	1086	0	1548	346	0	0	1781	0	1842	1781	1870	1585
Q Serve(g_s), s	0.0	0.0	14.4	1.5	0.0	0.0	48.9	0.0	7.5	0.2	11.6	1.6
Cycle Q Clear(g_c), s	12.8	0.0	14.4	14.2	0.0	0.0	48.9	0.0	7.5	0.2	11.6	1.6
Prop In Lane	0.91		1.00	0.52		0.02	1.00		0.08	1.00		1.00
Lane Grp Cap(c), veh/h	186	0	1145	87	0	0	1079	0	1116	233	245	207
V/C Ratio(X)	0.62	0.00	0.65	0.46	0.00	0.00	0.84	0.00	0.23	0.01	0.76	0.12
Avail Cap(c_a), veh/h	186	0	1145	87	0	0	1079	0	1116	233	245	207
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.5	0.0	6.5	50.8	0.0	0.0	19.0	0.0	10.9	45.7	50.7	46.3
Incr Delay (d2), s/veh	6.3	0.0	1.3	3.8	0.0	0.0	7.7	0.0	0.5	0.1	19.7	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.7	0.0	22.8	1.3	0.0	0.0	20.1	0.0	3.0	0.1	6.6	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.8	0.0	7.8	54.5	0.0	0.0	26.7	0.0	11.3	45.8	70.4	47.5
LnGrp LOS	E	A	A	D	A	A	C	A	B	D	E	D
Approach Vol, veh/h		857			40			1155			213	
Approach Delay, s/veh		14.7			54.5			23.4			67.5	
Approach LOS		B			D			C			E	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		79.0		19.8		22.0		19.8				
Change Period (Y+Rc), s		5.8		5.4		6.2		* 5.4				
Max Green Setting (Gmax), s		73.2		13.6		15.8		* 14				
Max Q Clear Time (g_c+I1), s		50.9		16.4		13.6		16.2				
Green Ext Time (p_c), s		5.0		0.0		0.2		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			24.8									
HCM 6th LOS			C									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Timings

S. Nichols Mixed-Use Development (JN 10878)

8: Collier Av./Collier Av. (SR-74) & Central Av./Central Av. (SR-74)

05/18/2018

											
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 		 		 			 	 		
Traffic Volume (vph)	188	315	203	191	712	49	118	336	902	133	32
Future Volume (vph)	188	315	203	191	712	49	118	336	902	133	32
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	7	4	3	8	1	5	2	3	1	6	
Permitted Phases					8			2			6
Detector Phase	7	4	3	8	1	5	2	3	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	5.0	10.0	5.0	5.0	10.0	10.0
Minimum Split (s)	9.6	14.7	9.6	42.8	9.6	9.6	15.8	9.6	9.6	29.8	29.8
Total Split (s)	14.0	28.8	28.0	42.8	43.0	13.6	20.2	28.0	43.0	49.6	49.6
Total Split (%)	11.7%	24.0%	23.3%	35.7%	35.8%	11.3%	16.8%	23.3%	35.8%	41.3%	41.3%
Yellow Time (s)	3.6	3.7	3.6	4.8	3.6	3.6	4.8	3.6	3.6	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.7	4.6	5.8	4.6	4.6	5.8	4.6	4.6	5.8	5.8
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	None	None	Max	Max
Act Effect Green (s)	8.8	16.9	11.1	18.1	49.6	7.1	19.1	31.4	30.3	44.7	44.7
Actuated g/C Ratio	0.09	0.17	0.11	0.19	0.51	0.07	0.20	0.32	0.31	0.46	0.46
v/c Ratio	0.63	0.62	0.53	0.57	0.47	0.40	0.33	0.60	0.87	0.08	0.04
Control Delay	55.0	41.3	47.4	43.0	6.8	56.6	42.0	23.4	42.5	18.6	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.0	41.3	47.4	43.0	6.8	56.6	42.0	23.4	42.5	18.6	0.1
LOS	D	D	D	D	A	E	D	C	D	B	A
Approach Delay		45.9		20.5			31.0			38.2	
Approach LOS		D		C			C			D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 97.5

Natural Cycle: 95

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 32.4

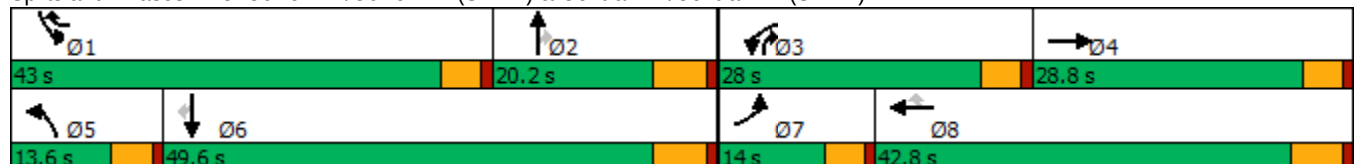
Intersection LOS: C

Intersection Capacity Utilization 70.0%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 8: Collier Av./Collier Av. (SR-74) & Central Av./Central Av. (SR-74)



HCM 6th Signalized Intersection Summary S. Nichols Mixed-Use Development (JN 10878)
 8: Collier Av./Collier Av. (SR-74) & Central Av./Central Av. (SR-74) 05/18/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	188	315	50	203	191	712	49	118	336	902	133	32
Future Volume (veh/h)	188	315	50	203	191	712	49	118	336	902	133	32
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	194	325	48	209	197	211	51	122	118	930	137	20
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	268	473	69	291	297	1271	72	433	495	1034	1743	767
Arrive On Green	0.08	0.15	0.15	0.08	0.16	0.16	0.04	0.23	0.23	0.30	0.49	0.49
Sat Flow, veh/h	3456	3110	455	3456	1870	2746	1781	1870	1561	3456	3554	1563
Grp Volume(v), veh/h	194	184	189	209	197	211	51	122	118	930	137	20
Grp Sat Flow(s),veh/h/ln	1728	1777	1788	1728	1870	1373	1781	1870	1561	1728	1777	1563
Q Serve(g_s), s	4.9	8.8	8.9	5.3	8.8	4.0	2.5	4.8	5.0	23.0	1.8	0.6
Cycle Q Clear(g_c), s	4.9	8.8	8.9	5.3	8.8	4.0	2.5	4.8	5.0	23.0	1.8	0.6
Prop In Lane	1.00		0.25	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	268	270	272	291	297	1271	72	433	495	1034	1743	767
V/C Ratio(X)	0.72	0.68	0.69	0.72	0.66	0.17	0.71	0.28	0.24	0.90	0.08	0.03
Avail Cap(c_a), veh/h	364	480	483	906	775	1973	180	433	495	1486	1743	767
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.2	35.8	35.9	39.8	35.3	14.2	42.3	28.2	22.6	30.0	12.1	11.7
Incr Delay (d2), s/veh	2.4	3.0	3.2	1.2	2.5	0.1	4.8	1.6	1.1	4.4	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	4.0	4.1	2.2	4.0	1.1	1.2	2.2	1.9	9.4	0.7	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.7	38.8	39.1	41.1	37.9	14.3	47.2	29.8	23.7	34.4	12.1	11.8
LnGrp LOS	D	D	D	D	D	B	D	C	C	C	B	B
Approach Vol, veh/h		567			617			291			1087	
Approach Delay, s/veh		40.2			30.9			30.4			31.2	
Approach LOS		D			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	31.3	26.5	12.1	19.4	8.2	49.6	11.5	20.0				
Change Period (Y+Rc), s	4.6	5.8	4.6	* 5.8	4.6	5.8	4.6	5.8				
Max Green Setting (Gmax), s	38.4	14.4	23.4	* 24	9.0	43.8	9.4	37.0				
Max Q Clear Time (g_c+I1), s	25.0	7.0	7.3	10.9	4.5	3.8	6.9	10.8				
Green Ext Time (p_c), s	1.7	0.5	0.3	1.8	0.0	0.9	0.1	1.8				
Intersection Summary												
HCM 6th Ctrl Delay			33.0									
HCM 6th LOS			C									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Intersection

Intersection Delay, s/veh 13.7

Intersection LOS B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗	↖	↑						↕	
Traffic Vol, veh/h	0	245	268	29	342	0	0	0	0	85	2	132
Future Vol, veh/h	0	245	268	29	342	0	0	0	0	85	2	132
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	0	3	3	25	3	0	0	0	0	8	67	13
Mvmt Flow	0	261	285	31	364	0	0	0	0	90	2	140
Number of Lanes	0	1	1	1	1	0	0	0	0	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	2
HCM Control Delay	12	16.7	12.6
HCM LOS	B	C	B

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	100%	0%	39%
Vol Thru, %	100%	0%	0%	100%	1%
Vol Right, %	0%	100%	0%	0%	60%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	245	268	29	342	219
LT Vol	0	0	29	0	85
Through Vol	245	0	0	342	2
RT Vol	0	268	0	0	132
Lane Flow Rate	261	285	31	364	233
Geometry Grp	7	7	7	7	2
Degree of Util (X)	0.421	0.404	0.059	0.601	0.382
Departure Headway (Hd)	5.815	5.105	6.834	5.947	5.902
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	620	704	524	608	610
Service Time	3.551	2.84	4.572	3.685	3.943
HCM Lane V/C Ratio	0.421	0.405	0.059	0.599	0.382
HCM Control Delay	12.7	11.3	10	17.3	12.6
HCM Lane LOS	B	B	A	C	B
HCM 95th-tile Q	2.1	2	0.2	4	1.8

Intersection												
Int Delay, s/veh	13.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	140	189	0	0	119	43	252	1	37	0	0	0
Future Vol, veh/h	140	189	0	0	119	43	252	1	37	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	230	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	146	197	0	0	124	45	263	1	39	0	0	0

Major/Minor	Major1		Major2		Minor1					
Conflicting Flow All	169	0	-	-	-	0	636	658	197	
Stage 1	-	-	-	-	-	-	489	489	-	
Stage 2	-	-	-	-	-	-	147	169	-	
Critical Hdwy	4.15	-	-	-	-	-	6.44	6.5	6.26	
Critical Hdwy Stg 1	-	-	-	-	-	-	5.44	5.5	-	
Critical Hdwy Stg 2	-	-	-	-	-	-	5.44	5.5	-	
Follow-up Hdwy	2.245	-	-	-	-	-	3.536	4	3.354	
Pot Cap-1 Maneuver	1390	-	0	0	-	-	439	387	834	
Stage 1	-	-	0	0	-	-	612	553	-	
Stage 2	-	-	0	0	-	-	876	763	-	
Platoon blocked, %	-	-	-	-	-	-	-	-	-	
Mov Cap-1 Maneuver	1390	-	-	-	-	-	393	0	834	
Mov Cap-2 Maneuver	-	-	-	-	-	-	393	0	-	
Stage 1	-	-	-	-	-	-	548	0	-	
Stage 2	-	-	-	-	-	-	876	0	-	

Approach	EB	WB	NB
HCM Control Delay, s	3.4	0	32.3
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR
Capacity (veh/h)	422	1390	-	-	-
HCM Lane V/C Ratio	0.716	0.105	-	-	-
HCM Control Delay (s)	32.3	7.9	-	-	-
HCM Lane LOS	D	A	-	-	-
HCM 95th %tile Q(veh)	5.5	0.4	-	-	-

Intersection						
Int Delay, s/veh	2.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	116	110	0	80	83	0
Future Vol, veh/h	116	110	0	80	83	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	200	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	126	120	0	87	90	0
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	246	0	273	186
Stage 1	-	-	-	-	186	-
Stage 2	-	-	-	-	87	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1320	-	716	856
Stage 1	-	-	-	-	846	-
Stage 2	-	-	-	-	936	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1320	-	716	856
Mov Cap-2 Maneuver	-	-	-	-	716	-
Stage 1	-	-	-	-	846	-
Stage 2	-	-	-	-	936	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		10.8	
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	716	-	-	1320	-	
HCM Lane V/C Ratio	0.126	-	-	-	-	
HCM Control Delay (s)	10.8	-	-	0	-	
HCM Lane LOS	B	-	-	A	-	
HCM 95th %tile O(veh)	0.4	-	-	0	-	

Intersection

Int Delay, s/veh 1.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	19	91	72	3	2	11
Future Vol, veh/h	19	91	72	3	2	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	21	99	78	3	2	12

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	81	0	0 221 80
Stage 1	-	-	- 80 -
Stage 2	-	-	- 141 -
Critical Hdwy	4.12	-	- 6.42 6.22
Critical Hdwy Stg 1	-	-	- 5.42 -
Critical Hdwy Stg 2	-	-	- 5.42 -
Follow-up Hdwy	2.218	-	- 3.518 3.318
Pot Cap-1 Maneuver	1517	-	- 767 980
Stage 1	-	-	- 943 -
Stage 2	-	-	- 886 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1517	-	- 755 980
Mov Cap-2 Maneuver	-	-	- 755 -
Stage 1	-	-	- 929 -
Stage 2	-	-	- 886 -

Approach	EB	WB	SB
HCM Control Delay, s	1.3	0	8.9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1517	-	-	-	937
HCM Lane V/C Ratio	0.014	-	-	-	0.015
HCM Control Delay (s)	7.4	0	-	-	8.9
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection						
Int Delay, s/veh	4.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	93	75	72	107	0
Future Vol, veh/h	0	93	75	72	107	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	101	82	78	116	0
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	358	116	116	0	-	0
Stage 1	116	-	-	-	-	-
Stage 2	242	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	640	936	1473	-	-	-
Stage 1	909	-	-	-	-	-
Stage 2	798	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	603	936	1473	-	-	-
Mov Cap-2 Maneuver	603	-	-	-	-	-
Stage 1	856	-	-	-	-	-
Stage 2	798	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	9.3	3.9		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1473	-	936	-	-	
HCM Lane V/C Ratio	0.055	-	0.108	-	-	
HCM Control Delay (s)	7.6	0	9.3	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0.2	-	0.4	-	-	

Intersection

Int Delay, s/veh 1.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	12	17	129	24	48	152
Future Vol, veh/h	12	17	129	24	48	152
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	13	18	140	26	52	165

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	422	153	0
Stage 1	153	-	-
Stage 2	269	-	-
Critical Hdwy	6.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	-
Pot Cap-1 Maneuver	588	893	-
Stage 1	875	-	-
Stage 2	776	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	564	893	-
Mov Cap-2 Maneuver	564	-	-
Stage 1	839	-	-
Stage 2	776	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.2	0	1.8
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	719	1412
HCM Lane V/C Ratio	-	-	0.044	0.037
HCM Control Delay (s)	-	-	10.2	7.6
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.1	0.1

Intersection												
Int Delay, s/veh	1.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	14	0	29	5	0	1	13	138	4	6	148	10
Future Vol, veh/h	14	0	29	5	0	1	13	138	4	6	148	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	3
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	17	0	35	6	0	1	15	164	5	7	176	12
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	396	398	185	411	402	167	191	0	0	169	0	0
Stage 1	199	199	-	197	197	-	-	-	-	-	-	-
Stage 2	197	199	-	214	205	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	564	540	857	551	537	877	1383	-	-	1409	-	-
Stage 1	803	736	-	805	738	-	-	-	-	-	-	-
Stage 2	805	736	-	788	732	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	554	529	855	521	526	877	1379	-	-	1409	-	-
Mov Cap-2 Maneuver	554	529	-	521	526	-	-	-	-	-	-	-
Stage 1	791	729	-	795	729	-	-	-	-	-	-	-
Stage 2	794	727	-	752	725	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	10.3		11.5		0.6		0.3					
HCM LOS	B		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1379	-	-	726	559	1409	-	-				
HCM Lane V/C Ratio	0.011	-	-	0.071	0.013	0.005	-	-				
HCM Control Delay (s)	7.6	0	-	10.3	11.5	7.6	0	-				
HCM Lane LOS	A	A	-	B	B	A	A	-				
HCM 95th %tile O(veh)	0	-	-	0.2	0	0	-	-				

Timings
19: Dexter Av. & Central Av. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

05/18/2018

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations		  			  			 			
Traffic Volume (vph)	338	1617	161	156	1112	68	119	130	67	91	315
Future Volume (vph)	338	1617	161	156	1112	68	119	130	67	91	315
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2	1	6	7
Permitted Phases			4			8					6
Detector Phase	7	4	4	3	8	8	5	2	1	6	7
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0	5.0
Minimum Split (s)	9.6	26.8	26.8	9.6	26.8	26.8	9.6	42.4	9.6	15.8	9.6
Total Split (s)	33.3	47.0	47.0	18.0	31.7	31.7	20.3	44.0	11.0	34.7	33.3
Total Split (%)	27.8%	39.2%	39.2%	15.0%	26.4%	26.4%	16.9%	36.7%	9.2%	28.9%	27.8%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	4.8	3.6	4.4	3.6	4.8	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	5.8	4.6	5.8	5.8	4.6	5.4	4.6	5.8	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	None	Max	None
Act Effect Green (s)	25.7	41.1	41.1	12.6	28.0	28.0	12.0	39.2	6.3	30.8	57.7
Actuated g/C Ratio	0.22	0.35	0.35	0.11	0.24	0.24	0.10	0.33	0.05	0.26	0.49
v/c Ratio	0.89	0.93	0.26	0.84	0.74	0.13	0.67	0.50	0.72	0.19	0.39
Control Delay	70.2	47.3	6.6	86.1	45.7	0.5	69.2	29.4	94.8	36.2	11.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	70.2	47.3	6.6	86.1	45.7	0.5	69.2	29.4	94.8	36.2	11.7
LOS	E	D	A	F	D	A	E	C	F	D	B
Approach Delay		47.9			48.2			40.7		28.1	
Approach LOS		D			D			D		C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 117.3

Natural Cycle: 110

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.93

Intersection Signal Delay: 45.1

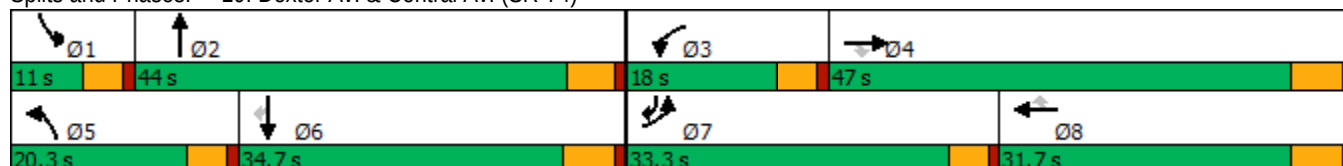
Intersection LOS: D

Intersection Capacity Utilization 91.9%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 19: Dexter Av. & Central Av. (SR-74)



HCM 6th Signalized Intersection Summary
19: Dexter Av. & Central Av. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

05/18/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  						 	
Traffic Volume (veh/h)	338	1617	161	156	1112	68	119	130	168	67	91	315
Future Volume (veh/h)	338	1617	161	156	1112	68	119	130	168	67	91	315
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	345	1650	122	159	1135	45	121	133	111	68	93	258
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	372	1762	533	186	1548	375	147	305	254	87	547	788
Arrive On Green	0.21	0.35	0.35	0.10	0.24	0.24	0.08	0.33	0.33	0.05	0.29	0.29
Sat Flow, veh/h	1781	5106	1545	1781	6434	1560	1781	935	780	1781	1870	1565
Grp Volume(v), veh/h	345	1650	122	159	1135	45	121	0	244	68	93	258
Grp Sat Flow(s),veh/h/ln	1781	1702	1545	1781	1609	1560	1781	0	1715	1781	1870	1565
Q Serve(g_s), s	22.5	37.0	6.6	10.4	19.3	2.7	7.9	0.0	13.2	4.5	4.4	11.7
Cycle Q Clear(g_c), s	22.5	37.0	6.6	10.4	19.3	2.7	7.9	0.0	13.2	4.5	4.4	11.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.45	1.00		1.00
Lane Grp Cap(c), veh/h	372	1762	533	186	1548	375	147	0	559	87	547	788
V/C Ratio(X)	0.93	0.94	0.23	0.86	0.73	0.12	0.82	0.00	0.44	0.78	0.17	0.33
Avail Cap(c_a), veh/h	432	1777	538	202	1548	375	236	0	559	96	547	788
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.9	37.5	27.6	52.1	41.4	35.2	53.4	0.0	31.3	55.7	31.2	17.6
Incr Delay (d2), s/veh	22.9	9.9	0.2	25.3	1.8	0.1	5.4	0.0	2.5	26.8	0.7	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.0	16.2	2.4	5.8	7.6	1.0	3.7	0.0	5.7	2.6	2.0	4.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.8	47.4	27.8	77.4	43.3	35.3	58.8	0.0	33.8	82.5	31.9	18.7
LnGrp LOS	E	D	C	E	D	D	E	A	C	F	C	B
Approach Vol, veh/h		2117			1339			365			419	
Approach Delay, s/veh		49.8			47.1			42.1			32.0	
Approach LOS		D			D			D			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.4	44.4	16.9	46.6	14.4	40.4	29.3	34.3				
Change Period (Y+Rc), s	4.6	* 5.8	4.6	5.8	4.6	5.8	4.6	5.8				
Max Green Setting (Gmax), s	6.4	* 39	13.4	41.2	15.7	28.9	28.7	25.9				
Max Q Clear Time (g_c+I1), s	6.5	15.2	12.4	39.0	9.9	13.7	24.5	21.3				
Green Ext Time (p_c), s	0.0	1.3	0.0	1.8	0.1	1.1	0.2	2.8				
Intersection Summary												
HCM 6th Ctrl Delay			46.5									
HCM 6th LOS			D									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Timings

S. Nichols Mixed-Use Development (JN 10878)

20: Cambern Av./Cambern Av & Central Av. (SR-74)

05/18/2018



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT	SBR	Ø3
Lane Configurations	↔↔	↕↕	↕↕	↔	↔	↕		↕	↔	
Traffic Volume (vph)	252	1736	1120	143	1	3	230	3	83	
Future Volume (vph)	252	1736	1120	143	1	3	230	3	83	
Turn Type	Prot	NA	NA	Perm	Perm	NA	Perm	NA	Perm	
Protected Phases	7	4	8			2		6		3
Permitted Phases				8	2		6		6	
Detector Phase	7	4	8	8	2	2	6	6	6	
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	5.0
Minimum Split (s)	9.6	24.8	25.5	25.5	34.7	34.7	14.7	14.7	14.7	9.6
Total Split (s)	19.8	74.0	63.8	63.8	36.4	36.4	36.4	36.4	36.4	9.6
Total Split (%)	16.5%	61.7%	53.2%	53.2%	30.3%	30.3%	30.3%	30.3%	30.3%	8%
Yellow Time (s)	3.6	4.8	5.5	5.5	3.7	3.7	3.7	3.7	3.7	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.6	5.8	6.5	6.5	4.7	4.7		4.7	4.7	
Lead/Lag	Lead	Lag	Lag	Lag						Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes						Yes
Recall Mode	Max	None	None	None	Max	Max	Max	Max	Max	None
Act Effect Green (s)	15.3	68.2	47.6	47.6	31.9	31.9		31.9	31.9	
Actuated g/C Ratio	0.14	0.62	0.43	0.43	0.29	0.29		0.29	0.29	
v/c Ratio	0.56	0.83	0.77	0.20	0.00	0.01		0.62	0.16	
Control Delay	50.9	20.5	30.3	3.5	32.0	28.5		44.2	3.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	50.9	20.5	30.3	3.5	32.0	28.5		44.2	3.5	
LOS	D	C	C	A	C	C		D	A	
Approach Delay		24.4	27.3			29.2		33.5		
Approach LOS		C	C			C		C		

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 110.6

Natural Cycle: 100

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 26.2

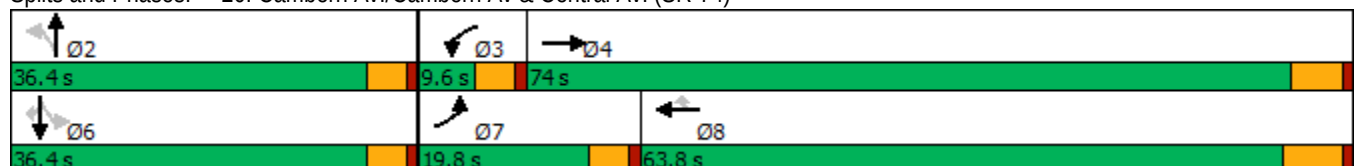
Intersection LOS: C

Intersection Capacity Utilization 84.3%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 20: Cambern Av./Cambern Av & Central Av. (SR-74)



HCM 6th Signalized Intersection Summary S. Nichols Mixed-Use Development (JN 10878)
 20: Cambern Av./Cambern Av & Central Av. (SR-74) 05/18/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	252	1736	1	0	1120	143	1	3	1	230	3	83
Future Volume (veh/h)	252	1736	1	0	1120	143	1	3	1	230	3	83
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	262	1808	1	0	1167	97	1	3	1	240	3	33
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	490	2186	1	2	1475	648	270	397	132	478	5	463
Arrive On Green	0.14	0.60	0.60	0.00	0.42	0.42	0.30	0.30	0.30	0.30	0.30	0.30
Sat Flow, veh/h	3456	3645	2	1781	3554	1561	1372	1342	447	1392	17	1565
Grp Volume(v), veh/h	262	881	928	0	1167	97	1	0	4	243	0	33
Grp Sat Flow(s),veh/h/ln	1728	1777	1870	1781	1777	1561	1372	0	1790	1409	0	1565
Q Serve(g_s), s	7.5	42.2	42.2	0.0	30.7	4.2	0.1	0.0	0.2	15.7	0.0	1.6
Cycle Q Clear(g_c), s	7.5	42.2	42.2	0.0	30.7	4.2	15.9	0.0	0.2	15.8	0.0	1.6
Prop In Lane	1.00		0.00	1.00		1.00	1.00		0.25	0.99		1.00
Lane Grp Cap(c), veh/h	490	1066	1121	2	1475	648	270	0	529	484	0	463
V/C Ratio(X)	0.53	0.83	0.83	0.00	0.79	0.15	0.00	0.00	0.01	0.50	0.00	0.07
Avail Cap(c_a), veh/h	490	1131	1190	83	1900	835	270	0	529	484	0	463
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	42.7	17.0	17.0	0.0	27.3	19.6	38.9	0.0	26.6	32.2	0.0	27.2
Incr Delay (d2), s/veh	4.1	5.3	5.0	0.0	2.1	0.2	0.0	0.0	0.0	3.7	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.4	16.2	16.9	0.0	12.1	1.4	0.0	0.0	0.1	5.8	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.8	22.3	22.1	0.0	29.4	19.7	38.9	0.0	26.7	35.9	0.0	27.4
LnGrp LOS	D	C	C	A	C	B	D	A	C	D	A	C
Approach Vol, veh/h	2071				1264				5			
Approach Delay, s/veh	25.3				28.7				29.1			
Approach LOS	C				C				C			
Timer - Assigned Phs	2			3		4		6		7		8
Phs Duration (G+Y+Rc), s	36.4			0.0		70.8		36.4		19.8		51.0
Change Period (Y+Rc), s	* 4.7			4.6		* 6.5		* 4.7		4.6		6.5
Max Green Setting (Gmax), s	* 32			5.0		* 68		* 32		15.2		57.3
Max Q Clear Time (g_c+I1), s	17.9			0.0		44.2		17.8		9.5		32.7
Green Ext Time (p_c), s	0.0			0.0		18.1		1.2		0.2		11.8

Intersection Summary

HCM 6th Ctrl Delay	27.2
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

APPENDIX 5.2:

E+P (PHASE 2) CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

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Timings
1: Lake St. & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

05/18/2018

									
Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBL	SBT	Ø5
Lane Configurations									
Traffic Volume (vph)	15	4	182	5	674	349	18	272	
Future Volume (vph)	15	4	182	5	674	349	18	272	
Turn Type	Perm	NA	Perm	NA	NA	Perm	Prot	NA	
Protected Phases		4		8	2		1	6	5
Permitted Phases	4		8			2			
Detector Phase	4	4	8	8	2	2	1	6	
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	5.0	10.0	5.0
Minimum Split (s)	14.6	14.6	16.2	16.2	16.2	16.2	9.6	16.2	9.6
Total Split (s)	42.2	42.2	42.2	42.2	42.2	42.2	35.6	42.2	35.6
Total Split (%)	35.2%	35.2%	35.2%	35.2%	35.2%	35.2%	29.7%	35.2%	30%
Yellow Time (s)	3.6	3.6	5.2	5.2	5.2	5.2	3.6	5.2	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		4.6		6.2	6.2	6.2	4.6	6.2	
Lead/Lag					Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	Max	Max	None	Max	None
Act Effect Green (s)		18.9		17.2	36.8	36.8	5.7	40.6	
Actuated g/C Ratio		0.27		0.24	0.52	0.52	0.08	0.58	
v/c Ratio		0.05		0.71	0.75	0.42	0.13	0.28	
Control Delay		20.3		36.3	22.9	10.1	36.8	9.2	
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay		20.3		36.3	22.9	10.1	36.8	9.2	
LOS		C		D	C	B	D	A	
Approach Delay		20.3		36.3	18.5			10.9	
Approach LOS		C		D	B			B	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 70.5

Natural Cycle: 70

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.75

Intersection Signal Delay: 19.7

Intersection LOS: B

Intersection Capacity Utilization 59.8%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 1: Lake St. & Nichols Rd.

 Ø1	 Ø2	 Ø4
35.6 s	42.2 s	42.2 s
 Ø5	 Ø6	 Ø8
35.6 s	42.2 s	42.2 s

HCM 6th Signalized Intersection Summary

1: Lake St. & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

05/18/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	4	0	182	5	40	0	674	349	18	272	4
Future Volume (veh/h)	15	4	0	182	5	40	0	674	349	18	272	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	16	4	0	196	5	31	0	725	0	19	292	4
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	336	74	0	339	6	38	3	993		40	1143	16
Arrive On Green	0.20	0.20	0.00	0.20	0.20	0.20	0.00	0.53	0.00	0.02	0.62	0.62
Sat Flow, veh/h	1228	377	0	1231	31	195	1781	1870	1585	1781	1841	25
Grp Volume(v), veh/h	20	0	0	232	0	0	0	725	0	19	0	296
Grp Sat Flow(s),veh/h/ln	1605	0	0	1457	0	0	1781	1870	1585	1781	0	1866
Q Serve(g_s), s	0.0	0.0	0.0	9.7	0.0	0.0	0.0	20.1	0.0	0.7	0.0	4.8
Cycle Q Clear(g_c), s	0.6	0.0	0.0	10.3	0.0	0.0	0.0	20.1	0.0	0.7	0.0	4.8
Prop In Lane	0.80		0.00	0.84		0.13	1.00		1.00	1.00		0.01
Lane Grp Cap(c), veh/h	410	0	0	383	0	0	3	993		40	0	1159
V/C Ratio(X)	0.05	0.00	0.00	0.61	0.00	0.00	0.00	0.73		0.48	0.00	0.26
Avail Cap(c_a), veh/h	930	0	0	866	0	0	815	993		815	0	1159
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.2	0.0	0.0	26.0	0.0	0.0	0.0	12.2	0.0	32.8	0.0	5.8
Incr Delay (d2), s/veh	0.0	0.0	0.0	1.5	0.0	0.0	0.0	4.7	0.0	3.3	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.0	3.3	0.0	0.0	0.0	7.3	0.0	0.3	0.0	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.2	0.0	0.0	27.5	0.0	0.0	0.0	16.9	0.0	36.1	0.0	6.3
LnGrp LOS	C	A	A	C	A	A	A	B		D	A	A
Approach Vol, veh/h		20			232			725	A		315	
Approach Delay, s/veh		22.2			27.5			16.9			8.1	
Approach LOS		C			C			B			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.1	42.2		19.5	0.0	48.3		19.5				
Change Period (Y+Rc), s	4.6	6.2		* 6.2	4.6	6.2		6.2				
Max Green Setting (Gmax), s	31.0	36.0		* 38	31.0	36.0		36.0				
Max Q Clear Time (g_c+I1), s	2.7	22.1		2.6	0.0	6.8		12.3				
Green Ext Time (p_c), s	0.0	5.2		0.1	0.0	2.3		1.1				

Intersection Summary

HCM 6th Ctrl Delay 16.7

HCM 6th LOS B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Timings
2: Lake St. & Alberhill Ranch Rd.

S. Nichols Mixed-Use Development (JN 10878)

05/18/2018

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	57	47	1015	48	18	419
Future Volume (vph)	57	47	1015	48	18	419
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2		
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	15.1	15.1	16.2	16.2	11.2	16.2
Total Split (s)	15.1	15.1	93.7	93.7	11.2	104.9
Total Split (%)	12.6%	12.6%	78.1%	78.1%	9.3%	87.4%
Yellow Time (s)	4.1	4.1	5.2	5.2	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	6.2	6.2	6.2	6.2
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	Max	Max	None	Max
Act Effect Green (s)	10.0	10.0	98.5	98.5	5.0	103.0
Actuated g/C Ratio	0.08	0.08	0.82	0.82	0.04	0.86
v/c Ratio	0.41	0.28	0.71	0.04	0.26	0.28
Control Delay	61.4	18.5	10.6	1.5	64.7	2.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.4	18.5	10.6	1.5	64.7	2.7
LOS	E	B	B	A	E	A
Approach Delay	42.0		10.2			5.2
Approach LOS	D		B			A

Intersection Summary

Cycle Length: 120	
Actuated Cycle Length: 120	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.71	
Intersection Signal Delay: 10.9	Intersection LOS: B
Intersection Capacity Utilization 71.2%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 2: Lake St. & Alberhill Ranch Rd.



HCM 6th Signalized Intersection Summary
2: Lake St. & Alberhill Ranch Rd.

S. Nichols Mixed-Use Development (JN 10878)

05/18/2018

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	57	47	1015	48	18	419
Future Volume (veh/h)	57	47	1015	48	18	419
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	61	26	1080	42	19	446
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	141	125	1412	1194	35	1546
Arrive On Green	0.08	0.08	0.75	0.75	0.02	0.83
Sat Flow, veh/h	1781	1585	1870	1582	1781	1870
Grp Volume(v), veh/h	61	26	1080	42	19	446
Grp Sat Flow(s),veh/h/ln	1781	1585	1870	1582	1781	1870
Q Serve(g_s), s	3.9	1.8	40.0	0.8	1.3	6.5
Cycle Q Clear(g_c), s	3.9	1.8	40.0	0.8	1.3	6.5
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	141	125	1412	1194	35	1546
V/C Ratio(X)	0.43	0.21	0.76	0.04	0.54	0.29
Avail Cap(c_a), veh/h	149	133	1412	1194	75	1546
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.4	51.5	8.5	3.7	58.0	2.4
Incr Delay (d2), s/veh	0.8	0.3	4.0	0.1	4.8	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.7	12.7	0.2	0.6	1.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	53.2	51.8	12.5	3.7	62.9	2.8
LnGrp LOS	D	D	B	A	E	A
Approach Vol, veh/h	87		1122			465
Approach Delay, s/veh	52.8		12.2			5.3
Approach LOS	D		B			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	8.5	96.4			104.9	14.5
Change Period (Y+Rc), s	6.2	6.2			6.2	5.1
Max Green Setting (Gmax), s	5.0	87.5			98.7	10.0
Max Q Clear Time (g_c+l1), s	3.3	42.0			8.5	5.9
Green Ext Time (p_c), s	0.0	10.9			2.6	0.0
Intersection Summary						
HCM 6th Ctrl Delay			12.4			
HCM 6th LOS			B			

Intersection

Intersection Delay, s/veh 11.4

Intersection LOS B

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	361	16	35	188	38	69
Future Vol, veh/h	361	16	35	188	38	69
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	410	18	40	214	43	78
Number of Lanes	1	0	0	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	1
HCM Control Delay	12.8	10.2	9.2
HCM LOS	B	B	A

Lane	NBLn1	NBLn2	EBLn1	WBLn1
Vol Left, %	100%	0%	0%	16%
Vol Thru, %	0%	0%	96%	84%
Vol Right, %	0%	100%	4%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	38	69	377	223
LT Vol	38	0	0	35
Through Vol	0	0	361	188
RT Vol	0	69	16	0
Lane Flow Rate	43	78	428	253
Geometry Grp	7	7	2	2
Degree of Util (X)	0.079	0.116	0.54	0.336
Departure Headway (Hd)	6.559	5.343	4.536	4.772
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	543	666	793	750
Service Time	4.336	3.12	2.579	2.823
HCM Lane V/C Ratio	0.079	0.117	0.54	0.337
HCM Control Delay	9.9	8.8	12.8	10.2
HCM Lane LOS	A	A	B	B
HCM 95th-tile Q	0.3	0.4	3.3	1.5

Timings

S. Nichols Mixed-Use Development (JN 10878)

4: Lakeshore Dr. & Riverside Dr. (SR-74)

05/18/2018

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	19	445	141	132	536	337	266	293	199	171	9
Future Volume (vph)	19	445	141	132	536	337	266	293	199	171	9
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2	1	6	
Permitted Phases			4			8					6
Detector Phase	7	4	4	3	8	8	5	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	32.4	32.4	9.6	33.4	33.4	9.6	34.7	9.6	32.7	32.7
Total Split (s)	9.6	35.0	35.0	22.6	48.0	48.0	28.0	38.4	24.0	34.4	34.4
Total Split (%)	8.0%	29.2%	29.2%	18.8%	40.0%	40.0%	23.3%	32.0%	20.0%	28.7%	28.7%
Yellow Time (s)	3.6	4.4	4.4	3.6	4.4	4.4	3.6	3.7	3.6	3.7	3.7
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.4	5.4	4.6	5.4	5.4	4.6	4.7	4.6	4.7	4.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	None	Max	Max
Act Effect Green (s)	5.1	24.7	24.7	13.2	39.1	39.1	21.3	34.5	16.9	30.0	30.0
Actuated g/C Ratio	0.05	0.23	0.23	0.12	0.36	0.36	0.20	0.32	0.16	0.28	0.28
v/c Ratio	0.26	0.62	0.33	0.69	0.90	0.49	0.86	0.41	0.82	0.20	0.02
Control Delay	62.4	42.0	7.6	64.2	51.9	7.7	68.1	29.3	69.3	33.3	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.4	42.0	7.6	64.2	51.9	7.7	68.1	29.3	69.3	33.3	0.1
LOS	E	D	A	E	D	A	E	C	E	C	A
Approach Delay		34.6			38.6			44.7		51.4	
Approach LOS		C			D			D		D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 108.8

Natural Cycle: 100

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 41.1

Intersection LOS: D

Intersection Capacity Utilization 84.5%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 4: Lakeshore Dr. & Riverside Dr. (SR-74)

			
Ø1	Ø2	Ø3	Ø4
24 s	38.4 s	22.6 s	35 s
			
Ø5	Ø6	Ø7	Ø8
28 s	34.4 s	9.6 s	48 s

HCM 6th Signalized Intersection Summary 4: Lakeshore Dr. & Riverside Dr. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

05/18/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	19	445	141	132	536	337	266	293	110	199	171	9
Future Volume (veh/h)	19	445	141	132	536	337	266	293	110	199	171	9
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	21	500	95	148	602	0	299	329	59	224	192	7
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	38	955	425	177	649	550	328	943	167	254	964	430
Arrive On Green	0.02	0.27	0.27	0.10	0.35	0.00	0.18	0.31	0.31	0.14	0.27	0.27
Sat Flow, veh/h	1781	3554	1582	1781	1870	1585	1781	3015	535	1781	3554	1585
Grp Volume(v), veh/h	21	500	95	148	602	0	299	192	196	224	192	7
Grp Sat Flow(s),veh/h/ln	1781	1777	1582	1781	1870	1585	1781	1777	1772	1781	1777	1585
Q Serve(g_s), s	1.3	13.1	5.1	8.9	34.0	0.0	18.0	9.1	9.3	13.5	4.6	0.4
Cycle Q Clear(g_c), s	1.3	13.1	5.1	8.9	34.0	0.0	18.0	9.1	9.3	13.5	4.6	0.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.30	1.00		1.00
Lane Grp Cap(c), veh/h	38	955	425	177	649	550	328	556	555	254	964	430
V/C Ratio(X)	0.55	0.52	0.22	0.83	0.93	0.00	0.91	0.35	0.35	0.88	0.20	0.02
Avail Cap(c_a), veh/h	81	960	427	293	727	616	381	556	555	315	964	430
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.1	34.1	31.2	48.4	34.5	0.0	43.8	29.0	29.1	46.1	30.8	29.2
Incr Delay (d2), s/veh	4.4	0.5	0.3	4.4	17.1	0.0	21.9	1.7	1.8	18.4	0.5	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	5.6	1.9	4.1	17.7	0.0	9.9	4.1	4.2	7.2	2.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.5	34.6	31.4	52.8	51.6	0.0	65.7	30.7	30.8	64.4	31.2	29.3
LnGrp LOS	E	C	C	D	D	A	E	C	C	E	C	C
Approach Vol, veh/h		616			750			687			423	
Approach Delay, s/veh		34.9			51.8			46.0			48.8	
Approach LOS		C			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	20.2	39.0	15.5	34.8	24.8	34.4	7.0	43.4				
Change Period (Y+Rc), s	4.6	* 4.7	4.6	5.4	4.6	* 4.7	4.6	5.4				
Max Green Setting (Gmax), s	19.4	* 34	18.0	29.6	23.4	* 30	5.0	42.6				
Max Q Clear Time (g_c+I1), s	15.5	11.3	10.9	15.1	20.0	6.6	3.3	36.0				
Green Ext Time (p_c), s	0.1	2.3	0.1	2.9	0.2	1.2	0.0	2.0				

Intersection Summary

HCM 6th Ctrl Delay	45.5
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection												
Int Delay, s/veh	2.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	830	3	2	630	35	0	2	11	46	3	5
Future Vol, veh/h	0	830	3	2	630	35	0	2	11	46	3	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Stop	-	-	Stop
Storage Length	-	-	-	-	-	-	-	-	75	-	-	75
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	856	3	2	649	36	0	2	11	47	3	5
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	685	0	0	859	0	0	1531	1547	858	1530	1530	667
Stage 1	-	-	-	-	-	-	858	858	-	671	671	-
Stage 2	-	-	-	-	-	-	673	689	-	859	859	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	908	-	-	782	-	-	96	114	357	96	117	459
Stage 1	-	-	-	-	-	-	352	374	-	446	455	-
Stage 2	-	-	-	-	-	-	445	446	-	351	373	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	908	-	-	782	-	-	93	114	357	91	117	459
Mov Cap-2 Maneuver	-	-	-	-	-	-	93	114	-	91	117	-
Stage 1	-	-	-	-	-	-	352	374	-	446	453	-
Stage 2	-	-	-	-	-	-	435	444	-	338	373	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0			18.8			77.4		
HCM LOS							C			F		
Minor Lane/Major Mvmt	NBLn1 NBLn2		EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2		
Capacity (veh/h)	114	357	908	-	-	782	-	-	92	459		
HCM Lane V/C Ratio	0.018	0.032	-	-	-	0.003	-	-	0.549	0.011		
HCM Control Delay (s)	37.2	15.4	0	-	-	9.6	0	-	84	12.9		
HCM Lane LOS	E	C	A	-	-	A	A	-	F	B		
HCM 95th %tile Q(veh)	0.1	0.1	0	-	-	0	-	-	2.5	0		

Intersection						
Int Delay, s/veh	3.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	405	32	110	191	37	97
Future Vol, veh/h	405	32	110	191	37	97
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	120	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	466	37	126	220	43	111

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	503
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.12
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.218
Pot Cap-1 Maneuver	-	-	1061
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1061
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	3.2	15.3
HCM LOS			C

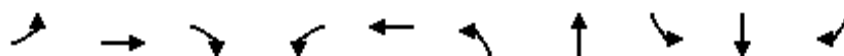
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	252	582	-	-	1061	-
HCM Lane V/C Ratio	0.169	0.192	-	-	0.119	-
HCM Control Delay (s)	22.2	12.6	-	-	8.9	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	0.6	0.7	-	-	0.4	-

Timings

S. Nichols Mixed-Use Development (JN 10878)

7: Collier Av. (SR-74)/Collier Av. & Riverside Dr. (SR-74)/Riverside Dr.

05/18/2018



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations		↩	↩		↩	↩	↩	↩	↩	↩
Traffic Volume (vph)	77	10	800	5	1	611	74	1	60	55
Future Volume (vph)	77	10	800	5	1	611	74	1	60	55
Turn Type	Perm	NA	pm+ov	Perm	NA	Split	NA	Split	NA	Perm
Protected Phases		4	2		8	2	2	6	6	
Permitted Phases	4		4	8						6
Detector Phase	4	4	2	8	8	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	15.4	15.4	15.8	14.6	14.6	15.8	15.8	16.2	16.2	16.2
Total Split (s)	23.0	23.0	79.0	23.0	23.0	79.0	79.0	18.0	18.0	18.0
Total Split (%)	19.2%	19.2%	65.8%	19.2%	19.2%	65.8%	65.8%	15.0%	15.0%	15.0%
Yellow Time (s)	4.4	4.4	4.8	3.6	3.6	4.8	4.8	5.2	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.4	5.8		4.6	5.8	5.8	6.2	6.2	6.2
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	None	None	Max	None	None	Max	Max	Max	Max	Max
Act Effect Green (s)		13.2	91.9		14.0	73.3	73.3	11.8	11.8	11.8
Actuated g/C Ratio		0.11	0.79		0.12	0.63	0.63	0.10	0.10	0.10
v/c Ratio		0.58	0.62		0.04	0.57	0.08	0.01	0.33	0.25
Control Delay		63.5	3.9		39.4	15.2	7.9	48.0	54.5	9.7
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		63.5	3.9		39.4	15.2	7.9	48.0	54.5	9.7
LOS		E	A		D	B	A	D	D	A
Approach Delay		9.8			39.4		14.3		33.2	
Approach LOS		A			D		B		C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 115.7

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.62

Intersection Signal Delay: 13.3

Intersection LOS: B

Intersection Capacity Utilization 80.0%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 7: Collier Av. (SR-74)/Collier Av. & Riverside Dr. (SR-74)/Riverside Dr.

↩ 02	↩ 06	↩ 04
79 s	18 s	23 s
		↩ 08
		23 s

HCM 6th Signalized Intersection Summary S. Nichols Mixed-Use Development (JN 10878)
 7: Collier Av. (SR-74)/Collier Av. & Riverside Dr. (SR-74)/Riverside Dr. 05/18/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	77	10	800	5	1	2	611	74	10	1	60	55
Future Volume (veh/h)	77	10	800	5	1	2	611	74	10	1	60	55
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	81	11	776	5	1	0	643	78	10	1	63	18
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	251	31	1199	117	19	0	1087	991	127	175	184	156
Arrive On Green	0.15	0.15	0.15	0.15	0.15	0.00	0.61	0.61	0.61	0.10	0.10	0.10
Sat Flow, veh/h	1327	209	1585	426	128	0	1781	1625	208	1781	1870	1585
Grp Volume(v), veh/h	92	0	776	6	0	0	643	0	88	1	63	18
Grp Sat Flow(s),veh/h/ln	1536	0	1585	554	0	0	1781	0	1833	1781	1870	1585
Q Serve(g_s), s	0.0	0.0	17.6	0.0	0.0	0.0	26.4	0.0	2.4	0.1	3.8	1.2
Cycle Q Clear(g_c), s	5.9	0.0	17.6	5.9	0.0	0.0	26.4	0.0	2.4	0.1	3.8	1.2
Prop In Lane	0.88		1.00	0.83		0.00	1.00		0.11	1.00		1.00
Lane Grp Cap(c), veh/h	282	0	1199	136	0	0	1087	0	1118	175	184	156
V/C Ratio(X)	0.33	0.00	0.65	0.04	0.00	0.00	0.59	0.00	0.08	0.01	0.34	0.12
Avail Cap(c_a), veh/h	282	0	1199	141	0	0	1087	0	1118	175	184	156
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.2	0.0	5.7	44.0	0.0	0.0	14.3	0.0	9.6	48.8	50.5	49.3
Incr Delay (d2), s/veh	0.7	0.0	1.2	0.1	0.0	0.0	2.4	0.0	0.1	0.1	5.0	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	0.0	23.6	0.2	0.0	0.0	10.2	0.0	0.9	0.0	2.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.9	0.0	6.9	44.1	0.0	0.0	16.7	0.0	9.7	48.9	55.5	50.8
LnGrp LOS	D	A	A	D	A	A	B	A	A	D	E	D
Approach Vol, veh/h	868		6				731				82	
Approach Delay, s/veh	11.1		44.1				15.8				54.4	
Approach LOS	B		D				B				D	
Timer - Assigned Phs	2		4		6		8					
Phs Duration (G+Y+Rc), s	79.0		23.0		18.0		23.0					
Change Period (Y+Rc), s	5.8		5.4		6.2		* 5.4					
Max Green Setting (Gmax), s	73.2		17.6		11.8		* 18					
Max Q Clear Time (g_c+I1), s	28.4		19.6		5.8		7.9					
Green Ext Time (p_c), s	2.7		0.0		0.1		0.0					
Intersection Summary												
HCM 6th Ctrl Delay			15.4									
HCM 6th LOS			B									
Notes												

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Timings

S. Nichols Mixed-Use Development (JN 10878)

8: Collier Av./Collier Av. (SR-74) & Central Av./Central Av. (SR-74)

05/18/2018

											
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	34	87	499	275	591	29	54	274	757	61	15
Future Volume (vph)	34	87	499	275	591	29	54	274	757	61	15
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	7	4	3	8	1	5	2	3	1	6	
Permitted Phases					8			2			6
Detector Phase	7	4	3	8	1	5	2	3	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	5.0	10.0	5.0	5.0	10.0	10.0
Minimum Split (s)	9.6	14.7	9.6	42.8	9.6	9.6	15.8	9.6	9.6	29.8	29.8
Total Split (s)	10.0	21.0	34.0	45.0	46.0	12.0	19.0	34.0	46.0	53.0	53.0
Total Split (%)	8.3%	17.5%	28.3%	37.5%	38.3%	10.0%	15.8%	28.3%	38.3%	44.2%	44.2%
Yellow Time (s)	3.6	3.7	3.6	4.8	3.6	3.6	4.8	3.6	3.6	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.7	4.6	5.8	4.6	4.6	5.8	4.6	4.6	5.8	5.8
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	None	None	Max	Max
Act Effect Green (s)	5.3	11.0	19.9	28.9	58.5	6.2	21.2	42.3	28.4	47.9	47.9
Actuated g/C Ratio	0.05	0.11	0.20	0.29	0.58	0.06	0.21	0.42	0.28	0.48	0.48
v/c Ratio	0.20	0.31	0.78	0.55	0.34	0.28	0.15	0.38	0.83	0.04	0.02
Control Delay	52.7	35.1	47.5	36.5	1.0	56.0	39.3	9.8	42.1	17.8	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.7	35.1	47.5	36.5	1.0	56.0	39.3	9.8	42.1	17.8	0.1
LOS	D	D	D	D	A	E	D	A	D	B	A
Approach Delay		39.1		25.2			18.0			39.5	
Approach LOS		D		C			B			D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 100.5

Natural Cycle: 95

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 29.4

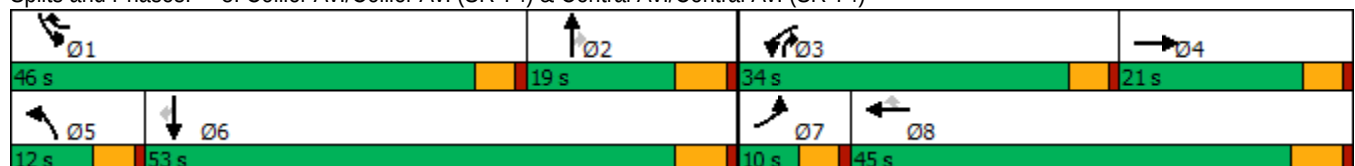
Intersection LOS: C

Intersection Capacity Utilization 59.2%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 8: Collier Av./Collier Av. (SR-74) & Central Av./Central Av. (SR-74)



HCM 6th Signalized Intersection Summary S. Nichols Mixed-Use Development (JN 10878)
 8: Collier Av./Collier Av. (SR-74) & Central Av./Central Av. (SR-74) 05/18/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	34	87	29	499	275	591	29	54	274	757	61	15
Future Volume (veh/h)	34	87	29	499	275	591	29	54	274	757	61	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	36	93	22	531	293	234	31	57	127	805	65	13
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	110	291	66	616	464	1401	52	465	671	899	1705	750
Arrive On Green	0.03	0.10	0.10	0.18	0.25	0.25	0.03	0.25	0.25	0.26	0.48	0.48
Sat Flow, veh/h	3456	2862	654	3456	1870	2724	1781	1870	1563	3456	3554	1562
Grp Volume(v), veh/h	36	57	58	531	293	234	31	57	127	805	65	13
Grp Sat Flow(s),veh/h/ln	1728	1777	1740	1728	1870	1362	1781	1870	1563	1728	1777	1562
Q Serve(g_s), s	1.0	2.9	3.1	14.7	13.7	4.5	1.7	2.3	5.0	22.1	1.0	0.4
Cycle Q Clear(g_c), s	1.0	2.9	3.1	14.7	13.7	4.5	1.7	2.3	5.0	22.1	1.0	0.4
Prop In Lane	1.00		0.38	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	110	181	177	616	464	1401	52	465	671	899	1705	750
V/C Ratio(X)	0.33	0.31	0.33	0.86	0.63	0.17	0.60	0.12	0.19	0.90	0.04	0.02
Avail Cap(c_a), veh/h	190	294	288	1033	745	1811	134	465	671	1454	1705	750
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.6	41.0	41.1	39.3	33.0	13.0	47.2	28.6	17.6	35.1	13.6	13.4
Incr Delay (d2), s/veh	0.6	1.0	1.1	1.9	1.4	0.1	4.1	0.5	0.6	2.9	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	1.3	1.4	6.1	6.1	1.3	0.8	1.1	1.8	9.1	0.4	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.2	42.0	42.2	41.1	34.4	13.1	51.3	29.2	18.2	38.0	13.6	13.5
LnGrp LOS	D	D	D	D	C	B	D	C	B	D	B	B
Approach Vol, veh/h		151			1058			215			883	
Approach Delay, s/veh		43.3			33.1			25.9			35.9	
Approach LOS		D			C			C			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	30.2	30.3	22.1	15.8	7.5	53.0	7.7	30.2				
Change Period (Y+Rc), s	4.6	5.8	4.6	* 5.8	4.6	5.8	4.6	5.8				
Max Green Setting (Gmax), s	41.4	13.2	29.4	* 16	7.4	47.2	5.4	39.2				
Max Q Clear Time (g_c+I1), s	24.1	7.0	16.7	5.1	3.7	3.0	3.0	15.7				
Green Ext Time (p_c), s	1.5	0.3	0.9	0.4	0.0	0.4	0.0	2.5				

Intersection Summary

HCM 6th Ctrl Delay	34.1
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection

Intersection Delay, s/veh 16.9

Intersection LOS C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗	↖	↑						↕	
Traffic Vol, veh/h	0	236	267	85	239	0	0	0	0	174	6	62
Future Vol, veh/h	0	236	267	85	239	0	0	0	0	174	6	62
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles, %	0	3	3	25	3	0	0	0	0	8	67	13
Mvmt Flow	0	315	356	113	319	0	0	0	0	232	8	83
Number of Lanes	0	1	1	1	1	0	0	0	0	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	2
HCM Control Delay	16.2	16.9	18.2
HCM LOS	C	C	C

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	100%	0%	72%
Vol Thru, %	100%	0%	0%	100%	2%
Vol Right, %	0%	100%	0%	0%	26%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	236	267	85	239	242
LT Vol	0	0	85	0	174
Through Vol	236	0	0	239	6
RT Vol	0	267	0	0	62
Lane Flow Rate	315	356	113	319	323
Geometry Grp	7	7	7	7	2
Degree of Util (X)	0.558	0.561	0.236	0.585	0.581
Departure Headway (Hd)	6.386	5.672	7.5	6.607	6.478
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	563	634	477	545	555
Service Time	4.155	3.441	5.275	4.382	4.537
HCM Lane V/C Ratio	0.56	0.562	0.237	0.585	0.582
HCM Control Delay	17	15.5	12.6	18.4	18.2
HCM Lane LOS	C	C	B	C	C
HCM 95th-tile Q	3.4	3.5	0.9	3.7	3.7

Intersection												
Int Delay, s/veh	84.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	74	336	0	0	183	118	140	3	118	0	0	0
Future Vol, veh/h	74	336	0	0	183	118	140	3	118	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	230	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	62	62	62	62	62	62	62	62	62	62	62	62
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	119	542	0	0	295	190	226	5	190	0	0	0

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	485	0	- - - 0 1170 1265 542
Stage 1	-	-	- - - 780 780 -
Stage 2	-	-	- - - 390 485 -
Critical Hdwy	4.15	-	- - - 6.44 6.5 6.26
Critical Hdwy Stg 1	-	-	- - - 5.44 5.5 -
Critical Hdwy Stg 2	-	-	- - - 5.44 5.5 -
Follow-up Hdwy	2.245	-	- - - 3.536 4 3.354
Pot Cap-1 Maneuver	1062	- 0 0	- - ~ 211 171 533
Stage 1	-	- 0 0	- - 448 409 -
Stage 2	-	- 0 0	- - 680 555 -
Platoon blocked, %	-	-	- -
Mov Cap-1 Maneuver	1062	- - -	- ~ 187 0 533
Mov Cap-2 Maneuver	-	- - -	- ~ 187 0 -
Stage 1	-	- - -	- 398 0 -
Stage 2	-	- - -	- 680 0 -

Approach	EB	WB	NB
HCM Control Delay, s	1.6	0	\$ 313.4
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR
Capacity (veh/h)	266	1062	-	-	-
HCM Lane V/C Ratio	1.583	0.112	-	-	-
HCM Control Delay (s)	\$ 313.4	8.8	-	-	-
HCM Lane LOS	F	A	-	-	-
HCM 95th %tile Q(veh)	25.6	0.4	-	-	-

Notes			
~: Volume exceeds capacity	\$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection						
Int Delay, s/veh	0.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	444	10	0	272	29	0
Future Vol, veh/h	444	10	0	272	29	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	200	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	483	11	0	296	32	0
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	494	0	785	489
Stage 1	-	-	-	-	489	-
Stage 2	-	-	-	-	296	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1070	-	361	579
Stage 1	-	-	-	-	616	-
Stage 2	-	-	-	-	755	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1070	-	361	579
Mov Cap-2 Maneuver	-	-	-	-	361	-
Stage 1	-	-	-	-	616	-
Stage 2	-	-	-	-	755	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		15.9	
HCM LOS					C	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	361	-	-	1070	-	
HCM Lane V/C Ratio	0.087	-	-	-	-	
HCM Control Delay (s)	15.9	-	-	0	-	
HCM Lane LOS	C	-	-	A	-	
HCM 95th %tile Q(veh)	0.3	-	-	0	-	

Intersection						
Int Delay, s/veh	3.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	218	226	0	117	155	0
Future Vol, veh/h	218	226	0	117	155	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	200	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	237	246	0	127	168	0
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	483	0	487	360
Stage 1	-	-	-	-	360	-
Stage 2	-	-	-	-	127	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1080	-	540	684
Stage 1	-	-	-	-	706	-
Stage 2	-	-	-	-	899	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1080	-	540	684
Mov Cap-2 Maneuver	-	-	-	-	540	-
Stage 1	-	-	-	-	706	-
Stage 2	-	-	-	-	899	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		14.7	
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	540	-	-	1080	-	
HCM Lane V/C Ratio	0.312	-	-	-	-	
HCM Control Delay (s)	14.7	-	-	0	-	
HCM Lane LOS	B	-	-	A	-	
HCM 95th %tile O(veh)	1.3	-	-	0	-	

Intersection												
Int Delay, s/veh	1.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	37	0	4	1	0	6	1	112	0	2	211	13
Future Vol, veh/h	37	0	4	1	0	6	1	112	0	2	211	13
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	40	0	4	1	0	7	1	122	0	2	229	14
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	368	364	236	366	371	122	243	0	0	122	0	0
Stage 1	240	240	-	124	124	-	-	-	-	-	-	-
Stage 2	128	124	-	242	247	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	588	564	803	590	559	929	1323	-	-	1465	-	-
Stage 1	763	707	-	880	793	-	-	-	-	-	-	-
Stage 2	876	793	-	762	702	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	583	562	803	585	557	929	1323	-	-	1465	-	-
Mov Cap-2 Maneuver	583	562	-	585	557	-	-	-	-	-	-	-
Stage 1	762	706	-	879	792	-	-	-	-	-	-	-
Stage 2	869	792	-	756	701	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	11.5		9.2		0.1		0.1					
HCM LOS	B		A									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1323	-	-	599	857	1465	-	-				
HCM Lane V/C Ratio	0.001	-	-	0.074	0.009	0.001	-	-				
HCM Control Delay (s)	7.7	0	-	11.5	9.2	7.5	0	-				
HCM Lane LOS	A	A	-	B	A	A	A	-				
HCM 95th %tile O(veh)	0	-	-	0.2	0	0	-	-				

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	114	216	0
Future Vol, veh/h	0	0	0	114	216	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	0	124	235	0
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	359	235	235	0	-	0
Stage 1	235	-	-	-	-	-
Stage 2	124	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	640	804	1332	-	-	-
Stage 1	804	-	-	-	-	-
Stage 2	902	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	640	804	1332	-	-	-
Mov Cap-2 Maneuver	640	-	-	-	-	-
Stage 1	804	-	-	-	-	-
Stage 2	902	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	0	0		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1332	-	-	-	-	
HCM Lane V/C Ratio	-	-	-	-	-	
HCM Control Delay (s)	0	-	0	-	-	
HCM Lane LOS	A	-	A	-	-	
HCM 95th %tile Q(veh)	0	-	-	-	-	

Intersection						
Int Delay, s/veh	0.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	3	213	105	3	10	9
Future Vol, veh/h	3	213	105	3	10	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	232	114	3	11	10
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	117	0	-	0	354	116
Stage 1	-	-	-	-	116	-
Stage 2	-	-	-	-	238	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1471	-	-	-	644	936
Stage 1	-	-	-	-	909	-
Stage 2	-	-	-	-	802	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1471	-	-	-	643	936
Mov Cap-2 Maneuver	-	-	-	-	643	-
Stage 1	-	-	-	-	907	-
Stage 2	-	-	-	-	802	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.1	0		9.9		
HCM LOS				A		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1471	-	-	-	755	
HCM Lane V/C Ratio	0.002	-	-	-	0.027	
HCM Control Delay (s)	7.5	0	-	-	9.9	
HCM Lane LOS	A	A	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	0.1	

Intersection						
Int Delay, s/veh	5.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	222	108	103	223	0
Future Vol, veh/h	0	222	108	103	223	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	241	117	112	242	0
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	588	242	242	0	-	0
Stage 1	242	-	-	-	-	-
Stage 2	346	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	471	797	1324	-	-	-
Stage 1	798	-	-	-	-	-
Stage 2	716	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	427	797	1324	-	-	-
Mov Cap-2 Maneuver	427	-	-	-	-	-
Stage 1	723	-	-	-	-	-
Stage 2	716	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	11.5	4.1		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1324	-	797	-	-	
HCM Lane V/C Ratio	0.089	-	0.303	-	-	
HCM Control Delay (s)	8	0	11.5	-	-	
HCM Lane LOS	A	A	B	-	-	
HCM 95th %tile Q(veh)	0.3	-	1.3	-	-	

Intersection						
Int Delay, s/veh	25.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	166	23	188	65	18	427
Future Vol, veh/h	166	23	188	65	18	427
Conflicting Peds, #/hr	0	1	0	3	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	66	66	66	66	66	66
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	252	35	285	98	27	647
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	1038	338	0	0	386	0
Stage 1	337	-	-	-	-	-
Stage 2	701	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	256	704	-	-	1172	-
Stage 1	723	-	-	-	-	-
Stage 2	492	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 246	701	-	-	1169	-
Mov Cap-2 Maneuver	~ 246	-	-	-	-	-
Stage 1	695	-	-	-	-	-
Stage 2	492	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	117.1	0		0.3		
HCM LOS	F					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	-	267	1169	-	
HCM Lane V/C Ratio	-	-	1.073	0.023	-	
HCM Control Delay (s)	-	-	117.1	8.2	0	
HCM Lane LOS	-	-	F	A	A	
HCM 95th %tile Q(veh)	-	-	11.6	0.1	-	
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

Intersection						
Int Delay, s/veh	5.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	166	23	188	65	18	427
Future Vol, veh/h	166	23	188	65	18	427
Conflicting Peds, #/hr	0	1	0	3	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	180	25	204	71	20	464
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	747	244	0	0	278	0
Stage 1	243	-	-	-	-	-
Stage 2	504	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	381	795	-	-	1285	-
Stage 1	797	-	-	-	-	-
Stage 2	607	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	372	792	-	-	1281	-
Mov Cap-2 Maneuver	372	-	-	-	-	-
Stage 1	778	-	-	-	-	-
Stage 2	607	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	23.3	0	0.3			
HCM LOS	C					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	398	1281	-	
HCM Lane V/C Ratio	-	-	0.516	0.015	-	
HCM Control Delay (s)	-	-	23.3	7.9	0	
HCM Lane LOS	-	-	C	A	A	
HCM 95th %tile Q(veh)	-	-	2.9	0	-	

Intersection												
Int Delay, s/veh	306.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	129	0	263	6	0	15	166	109	6	8	357	228
Future Vol, veh/h	129	0	263	6	0	15	166	109	6	8	357	228
Conflicting Peds, #/hr	0	0	0	0	0	21	0	0	14	0	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	69	69	69	69	69	69	69	69	69	69	69	69
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	187	0	381	9	0	22	241	158	9	12	517	330
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1384	1370	683	1556	1531	198	848	0	0	181	0	0
Stage 1	707	707	-	659	659	-	-	-	-	-	-	-
Stage 2	677	663	-	897	872	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	~ 121	146	449	92	117	843	790	-	-	1394	-	-
Stage 1	426	438	-	453	461	-	-	-	-	-	-	-
Stage 2	443	459	-	334	368	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	~ 84	94	449	10	75	815	789	-	-	1375	-	-
Mov Cap-2 Maneuver	~ 84	94	-	10	75	-	-	-	-	-	-	-
Stage 1	282	430	-	296	301	-	-	-	-	-	-	-
Stage 2	280	300	-	50	361	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s\$	984.4		295.2		6.8		0.1					
HCM LOS	F		F									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	789	-	-	185	34	1375	-	-				
HCM Lane V/C Ratio	0.305	-	-	3.071	0.895	0.008	-	-				
HCM Control Delay (s)	11.6	0	-	\$ 984.4	295.2	7.6	0	-				
HCM Lane LOS	B	A	-	F	F	A	A	-				
HCM 95th %tile Q(veh)	1.3	-	-	52	3.2	0	-	-				
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s			+: Computation Not Defined				*: All major volume in platoon			

Intersection												
Int Delay, s/veh	65.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	129	0	263	6	0	15	166	109	6	8	357	228
Future Vol, veh/h	129	0	263	6	0	15	166	109	6	8	357	228
Conflicting Peds, #/hr	0	0	0	0	0	21	0	0	14	0	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	140	0	286	7	0	16	180	118	7	9	388	248
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1042	1030	513	1169	1151	157	637	0	0	139	0	0
Stage 1	531	531	-	496	496	-	-	-	-	-	-	-
Stage 2	511	499	-	673	655	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	208	233	561	170	198	889	947	-	-	1445	-	-
Stage 1	532	526	-	556	545	-	-	-	-	-	-	-
Stage 2	545	544	-	445	463	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	167	181	560	69	154	860	946	-	-	1426	-	-
Mov Cap-2 Maneuver	167	181	-	69	154	-	-	-	-	-	-	-
Stage 1	422	520	-	436	428	-	-	-	-	-	-	-
Stage 2	417	427	-	216	458	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	209		25.2		5.7		0.1					
HCM LOS	F		D									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	946	-	-	316	201	1426	-	-				
HCM Lane V/C Ratio	0.191	-	-	1.348	0.114	0.006	-	-				
HCM Control Delay (s)	9.7	0	-	209	25.2	7.5	0	-				
HCM Lane LOS	A	A	-	F	D	A	A	-				
HCM 95th %tile O(veh)	0.7	-	-	21.3	0.4	0	-	-				

Timings
19: Dexter Av. & Central Av. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

05/18/2018

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	227	886	124	121	1373	187	99	252	71	143	372
Future Volume (vph)	227	886	124	121	1373	187	99	252	71	143	372
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2	1	6	7
Permitted Phases			4			8					6
Detector Phase	7	4	4	3	8	8	5	2	1	6	7
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0	5.0
Minimum Split (s)	9.6	26.8	26.8	9.6	26.8	26.8	9.6	42.4	9.6	15.8	9.6
Total Split (s)	26.0	42.4	42.4	21.1	37.5	37.5	19.5	43.5	13.0	37.0	26.0
Total Split (%)	21.7%	35.3%	35.3%	17.6%	31.3%	31.3%	16.3%	36.3%	10.8%	30.8%	21.7%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	4.8	3.6	4.4	3.6	4.8	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	5.8	4.6	5.8	5.8	4.6	5.4	4.6	5.8	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	None	Max	None
Act Effect Green (s)	19.0	37.9	37.9	12.6	31.4	31.4	11.2	39.3	7.8	33.2	58.1
Actuated g/C Ratio	0.16	0.33	0.33	0.11	0.27	0.27	0.10	0.34	0.07	0.29	0.50
v/c Ratio	0.86	0.59	0.22	0.69	0.87	0.36	0.64	0.61	0.66	0.29	0.48
Control Delay	74.2	34.8	4.7	68.8	47.1	6.6	68.1	37.0	79.9	35.5	16.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	74.2	34.8	4.7	68.8	47.1	6.6	68.1	37.0	79.9	35.5	16.0
LOS	E	C	A	E	D	A	E	D	E	D	B
Approach Delay		39.0			44.1			44.1		28.5	
Approach LOS		D			D			D		C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 115.7

Natural Cycle: 100

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 40.2

Intersection LOS: D

Intersection Capacity Utilization 84.5%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 19: Dexter Av. & Central Av. (SR-74)

			
Ø1	Ø2	Ø3	Ø4
13 s	43.5 s	21.1 s	42.4 s
			
Ø5	Ø6	Ø7	Ø8
19.5 s	37 s	26 s	37.5 s

HCM 6th Signalized Intersection Summary
19: Dexter Av. & Central Av. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

05/18/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  						 	
Traffic Volume (veh/h)	227	886	124	121	1373	187	99	252	87	71	143	372
Future Volume (veh/h)	227	886	124	121	1373	187	99	252	87	71	143	372
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	249	974	93	133	1509	163	109	277	55	78	157	353
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	278	1714	532	161	1738	423	135	508	101	99	589	747
Arrive On Green	0.16	0.34	0.34	0.09	0.27	0.27	0.08	0.34	0.34	0.06	0.32	0.32
Sat Flow, veh/h	1781	5106	1585	1781	6434	1565	1781	1515	301	1781	1870	1585
Grp Volume(v), veh/h	249	974	93	133	1509	163	109	0	332	78	157	353
Grp Sat Flow(s),veh/h/ln	1781	1702	1585	1781	1609	1565	1781	0	1816	1781	1870	1585
Q Serve(g_s), s	15.6	17.8	4.7	8.3	25.4	9.6	6.8	0.0	16.9	4.9	7.1	17.2
Cycle Q Clear(g_c), s	15.6	17.8	4.7	8.3	25.4	9.6	6.8	0.0	16.9	4.9	7.1	17.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.17	1.00		1.00
Lane Grp Cap(c), veh/h	278	1714	532	161	1738	423	135	0	609	99	589	747
V/C Ratio(X)	0.90	0.57	0.17	0.83	0.87	0.39	0.81	0.00	0.55	0.79	0.27	0.47
Avail Cap(c_a), veh/h	335	1714	532	259	1794	436	234	0	609	132	589	747
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.1	31.0	26.6	50.8	39.5	33.8	51.7	0.0	30.7	53.0	29.1	20.5
Incr Delay (d2), s/veh	20.6	0.4	0.2	5.3	4.7	0.6	4.3	0.0	3.5	14.5	1.1	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.3	7.0	1.7	3.9	10.2	3.6	3.2	0.0	7.8	2.5	3.3	6.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.6	31.4	26.8	56.2	44.3	34.4	56.0	0.0	34.2	67.5	30.2	22.6
LnGrp LOS	E	C	C	E	D	C	E	A	C	E	C	C
Approach Vol, veh/h		1316			1805			441			588	
Approach Delay, s/veh		38.0			44.3			39.6			30.6	
Approach LOS		D			D			D			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.9	43.9	14.9	44.0	13.2	41.6	22.3	36.5				
Change Period (Y+Rc), s	4.6	* 5.8	4.6	5.8	4.6	5.8	4.6	5.8				
Max Green Setting (Gmax), s	8.4	* 38	16.5	36.6	14.9	31.2	21.4	31.7				
Max Q Clear Time (g_c+I1), s	6.9	18.9	10.3	19.8	8.8	19.2	17.6	27.4				
Green Ext Time (p_c), s	0.0	1.7	0.1	6.1	0.1	1.6	0.1	3.3				

Intersection Summary

HCM 6th Ctrl Delay	39.8
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Timings

S. Nichols Mixed-Use Development (JN 10878)

20: Cambern Av./Cambern Av & Central Av. (SR-74)

05/18/2018

										
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	123	1026	1	1606	111	3	2	126	4	86
Future Volume (vph)	123	1026	1	1606	111	3	2	126	4	86
Turn Type	Prot	NA	Prot	NA	Perm	Perm	NA	Perm	NA	Perm
Protected Phases	7	4	3	8			2		6	
Permitted Phases					8	2		6		6
Detector Phase	7	4	3	8	8	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	24.8	9.6	25.5	25.5	34.7	34.7	14.7	14.7	14.7
Total Split (s)	12.0	75.4	9.6	73.0	73.0	35.0	35.0	35.0	35.0	35.0
Total Split (%)	10.0%	62.8%	8.0%	60.8%	60.8%	29.2%	29.2%	29.2%	29.2%	29.2%
Yellow Time (s)	3.6	4.8	3.6	5.5	5.5	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.6	5.8	4.6	6.5	6.5	4.7	4.7		4.7	4.7
Lead/Lag	Lead	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	Max	None	None	None	None	Max	Max	Max	Max	Max
Act Effect Green (s)	7.4	75.9	5.0	65.1	65.1	30.3	30.3		30.3	30.3
Actuated g/C Ratio	0.06	0.64	0.04	0.55	0.55	0.26	0.26		0.26	0.26
v/c Ratio	0.63	0.50	0.01	0.91	0.13	0.01	0.01		0.41	0.20
Control Delay	68.5	12.6	56.0	32.3	2.6	34.0	30.0		41.5	9.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay	68.5	12.6	56.0	32.3	2.6	34.0	30.0		41.5	9.4
LOS	E	B	E	C	A	C	C		D	A
Approach Delay		18.6		30.4			32.0		28.6	
Approach LOS		B		C			C		C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 118.6

Natural Cycle: 100

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.91

Intersection Signal Delay: 25.9

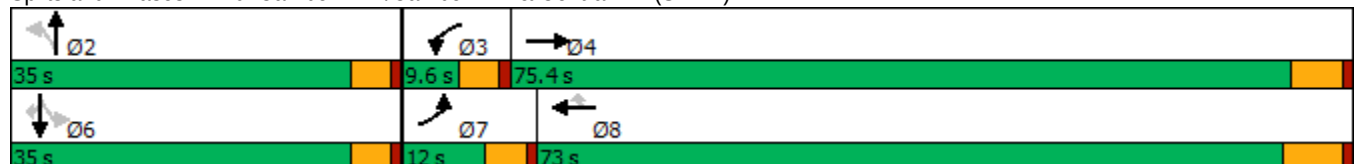
Intersection LOS: C

Intersection Capacity Utilization 91.0%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 20: Cambern Av./Cambern Av & Central Av. (SR-74)



HCM 6th Signalized Intersection Summary S. Nichols Mixed-Use Development (JN 10878)
 20: Cambern Av./Cambern Av & Central Av. (SR-74) 05/18/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	123	1026	1	1	1606	111	3	2	1	126	4	86
Future Volume (veh/h)	123	1026	1	1	1606	111	3	2	1	126	4	86
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	135	1127	1	1	1765	80	3	2	0	138	4	51
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	217	2216	2	2	1943	855	295	480	0	414	11	406
Arrive On Green	0.06	0.61	0.61	0.00	0.55	0.55	0.26	0.26	0.00	0.26	0.26	0.26
Sat Flow, veh/h	3456	3643	3	1781	3554	1564	1348	1870	0	1377	43	1583
Grp Volume(v), veh/h	135	550	578	1	1765	80	3	2	0	142	0	51
Grp Sat Flow(s),veh/h/ln	1728	1777	1870	1781	1777	1564	1348	1870	0	1421	0	1583
Q Serve(g_s), s	4.5	20.7	20.7	0.1	52.8	2.9	0.2	0.1	0.0	9.7	0.0	2.9
Cycle Q Clear(g_c), s	4.5	20.7	20.7	0.1	52.8	2.9	10.0	0.1	0.0	9.8	0.0	2.9
Prop In Lane	1.00		0.00	1.00		1.00	1.00		0.00	0.97		1.00
Lane Grp Cap(c), veh/h	217	1081	1137	2	1943	855	295	480	0	425	0	406
V/C Ratio(X)	0.62	0.51	0.51	0.41	0.91	0.09	0.01	0.00	0.00	0.33	0.00	0.13
Avail Cap(c_a), veh/h	217	1081	1137	75	2002	881	295	480	0	425	0	406
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	54.0	13.1	13.1	58.9	24.1	12.8	40.4	32.7	0.0	36.3	0.0	33.7
Incr Delay (d2), s/veh	12.8	0.6	0.5	36.4	6.6	0.1	0.1	0.0	0.0	2.1	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	7.6	8.0	0.1	20.8	0.9	0.1	0.0	0.0	3.6	0.0	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.8	13.7	13.6	95.3	30.7	12.8	40.4	32.7	0.0	38.4	0.0	34.3
LnGrp LOS	E	B	B	F	C	B	D	C	A	D	A	C
Approach Vol, veh/h		1263			1846			5			193	
Approach Delay, s/veh		19.3			30.0			37.3			37.3	
Approach LOS		B			C			D			D	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		35.0	4.8	78.3		35.0	12.0	71.1				
Change Period (Y+Rc), s		* 4.7	4.6	* 6.5		* 4.7	4.6	6.5				
Max Green Setting (Gmax), s		* 30	5.0	* 70		* 30	7.4	66.5				
Max Q Clear Time (g_c+I1), s		12.0	2.1	22.7		11.8	6.5	54.8				
Green Ext Time (p_c), s		0.0	0.0	13.2		0.8	0.0	9.8				
Intersection Summary												
HCM 6th Ctrl Delay			26.3									
HCM 6th LOS			C									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Timings
1: Lake St. & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

05/18/2018

									
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	1	6	230	0	1	362	169	31	845
Future Volume (vph)	1	6	230	0	1	362	169	31	845
Turn Type	Perm	NA	Perm	NA	Prot	NA	Perm	Prot	NA
Protected Phases		4		8	5	2		1	6
Permitted Phases	4		8				2		
Detector Phase	4	4	8	8	5	2	2	1	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	14.6	14.6	16.2	16.2	9.6	16.2	16.2	9.6	16.2
Total Split (s)	42.2	42.2	42.2	42.2	35.6	42.2	42.2	35.6	42.2
Total Split (%)	35.2%	35.2%	35.2%	35.2%	29.7%	35.2%	35.2%	29.7%	35.2%
Yellow Time (s)	3.6	3.6	5.2	5.2	3.6	5.2	5.2	3.6	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.6		6.2	4.6	6.2	6.2	4.6	6.2
Lead/Lag					Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	None	Max
Act Effect Green (s)		18.5		16.9	5.1	37.0	37.0	6.3	41.6
Actuated g/C Ratio		0.25		0.23	0.07	0.51	0.51	0.09	0.57
v/c Ratio		0.02		0.74	0.01	0.42	0.22	0.23	0.87
Control Delay		20.1		32.6	38.0	15.9	6.4	38.6	27.1
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		20.1		32.6	38.0	15.9	6.4	38.6	27.1
LOS		C		C	D	B	A	D	C
Approach Delay		20.1		32.6		12.9			27.5
Approach LOS		C		C		B			C

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 72.8

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 23.6

Intersection LOS: C

Intersection Capacity Utilization 75.4%

ICU Level of Service D

Analysis Period (min) 15

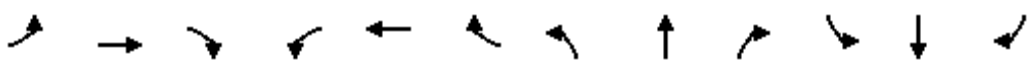
Splits and Phases: 1: Lake St. & Nichols Rd.

		
Ø1	Ø2	Ø4
35.6 s	42.2 s	42.2 s
		
Ø5	Ø6	Ø8
35.6 s	42.2 s	42.2 s

HCM 6th Signalized Intersection Summary
1: Lake St. & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

05/18/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↗	↖	↗	↖	↖	↖
Traffic Volume (veh/h)	1	6	1	230	0	19	1	362	169	31	845	1
Future Volume (veh/h)	1	6	1	230	0	19	1	362	169	31	845	1
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1	7	1	253	0	13	1	398	0	34	929	1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	74	345	45	400	0	16	2	943		61	1004	1
Arrive On Green	0.22	0.22	0.22	0.22	0.00	0.22	0.00	0.50	0.00	0.03	0.54	0.54
Sat Flow, veh/h	78	1545	203	1352	0	69	1781	1870	1585	1781	1868	2
Grp Volume(v), veh/h	9	0	0	266	0	0	1	398	0	34	0	930
Grp Sat Flow(s),veh/h/ln	1826	0	0	1421	0	0	1781	1870	1585	1781	0	1870
Q Serve(g_s), s	0.0	0.0	0.0	12.5	0.0	0.0	0.0	9.6	0.0	1.3	0.0	32.7
Cycle Q Clear(g_c), s	0.3	0.0	0.0	12.7	0.0	0.0	0.0	9.6	0.0	1.3	0.0	32.7
Prop In Lane	0.11		0.11	0.95		0.05	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	464	0	0	416	0	0	2	943		61	0	1005
V/C Ratio(X)	0.02	0.00	0.00	0.64	0.00	0.00	0.40	0.42		0.56	0.00	0.93
Avail Cap(c_a), veh/h	1000	0	0	813	0	0	773	943		773	0	1005
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.6	0.0	0.0	26.5	0.0	0.0	35.6	11.1	0.0	33.9	0.0	15.2
Incr Delay (d2), s/veh	0.0	0.0	0.0	1.6	0.0	0.0	34.3	1.4	0.0	2.9	0.0	15.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.0	4.0	0.0	0.0	0.0	3.4	0.0	0.6	0.0	14.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.7	0.0	0.0	28.1	0.0	0.0	70.0	12.5	0.0	36.8	0.0	30.5
LnGrp LOS	C	A	A	C	A	A	E	B		D	A	C
Approach Vol, veh/h		9			266			399	A		964	
Approach Delay, s/veh		21.7			28.1			12.7			30.7	
Approach LOS		C			C			B			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.1	42.2		22.1	4.7	44.6		22.1				
Change Period (Y+Rc), s	4.6	6.2		* 6.2	4.6	6.2		6.2				
Max Green Setting (Gmax), s	31.0	36.0		* 38	31.0	36.0		36.0				
Max Q Clear Time (g_c+I1), s	3.3	11.6		2.3	2.0	34.7		14.7				
Green Ext Time (p_c), s	0.0	3.1		0.0	0.0	0.9		1.3				

Intersection Summary

HCM 6th Ctrl Delay	25.9
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Timings
2: Lake St. & Alberhill Ranch Rd.

S. Nichols Mixed-Use Development (JN 10878)

05/18/2018

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	35	19	486	30	23	1015
Future Volume (vph)	35	19	486	30	23	1015
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2		
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	15.1	15.1	16.2	16.2	11.2	16.2
Total Split (s)	16.0	16.0	91.0	91.0	13.0	104.0
Total Split (%)	13.3%	13.3%	75.8%	75.8%	10.8%	86.7%
Yellow Time (s)	4.1	4.1	5.2	5.2	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	6.2	6.2	6.2	6.2
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	Max	Max	None	Max
Act Effect Green (s)	10.0	10.0	94.4	94.4	5.9	102.1
Actuated g/C Ratio	0.08	0.08	0.79	0.79	0.05	0.86
v/c Ratio	0.24	0.13	0.34	0.03	0.26	0.65
Control Delay	55.5	22.6	5.9	1.7	61.6	6.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.5	22.6	5.9	1.7	61.6	6.1
LOS	E	C	A	A	E	A
Approach Delay	44.1		5.7			7.3
Approach LOS	D		A			A

Intersection Summary

Cycle Length: 120	
Actuated Cycle Length: 119.1	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.65	
Intersection Signal Delay: 8.0	Intersection LOS: A
Intersection Capacity Utilization 71.2%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 2: Lake St. & Alberhill Ranch Rd.



HCM 6th Signalized Intersection Summary
2: Lake St. & Alberhill Ranch Rd.

S. Nichols Mixed-Use Development (JN 10878)

05/18/2018



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	35	19	486	30	23	1015
Future Volume (veh/h)	35	19	486	30	23	1015
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		0.98	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	36	6	496	28	23	1036
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	114	101	1428	1185	40	1570
Arrive On Green	0.06	0.06	0.76	0.76	0.02	0.84
Sat Flow, veh/h	1781	1585	1870	1553	1781	1870
Grp Volume(v), veh/h	36	6	496	28	23	1036
Grp Sat Flow(s),veh/h/ln	1781	1585	1870	1553	1781	1870
Q Serve(g_s), s	2.3	0.4	9.9	0.5	1.5	23.3
Cycle Q Clear(g_c), s	2.3	0.4	9.9	0.5	1.5	23.3
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	114	101	1428	1185	40	1570
V/C Ratio(X)	0.32	0.06	0.35	0.02	0.57	0.66
Avail Cap(c_a), veh/h	167	148	1428	1185	104	1570
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.1	51.3	4.4	3.3	56.4	3.4
Incr Delay (d2), s/veh	0.6	0.1	0.7	0.0	4.7	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.2	2.9	0.1	0.7	4.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	52.7	51.4	5.1	3.4	61.1	5.6
LnGrp LOS	D	D	A	A	E	A
Approach Vol, veh/h	42		524			1059
Approach Delay, s/veh	52.5		5.0			6.8
Approach LOS	D		A			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	8.8	95.2			104.0	12.5
Change Period (Y+Rc), s	6.2	6.2			6.2	5.1
Max Green Setting (Gmax), s	6.8	84.8			97.8	10.9
Max Q Clear Time (g_c+l1), s	3.5	11.9			25.3	4.3
Green Ext Time (p_c), s	0.0	3.1			10.1	0.0
Intersection Summary						
HCM 6th Ctrl Delay			7.4			
HCM 6th LOS			A			

Intersection

Intersection Delay, s/veh 9.8

Intersection LOS A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	190	18	74	241	9	61
Future Vol, veh/h	190	18	74	241	9	61
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	202	19	79	256	10	65
Number of Lanes	1	0	0	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	1
HCM Control Delay	9.1	10.5	8.4
HCM LOS	A	B	A

Lane	NBLn1	NBLn2	EBLn1	WBLn1
Vol Left, %	100%	0%	0%	23%
Vol Thru, %	0%	0%	91%	77%
Vol Right, %	0%	100%	9%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	9	61	208	315
LT Vol	9	0	0	74
Through Vol	0	0	190	241
RT Vol	0	61	18	0
Lane Flow Rate	10	65	221	335
Geometry Grp	7	7	2	2
Degree of Util (X)	0.017	0.091	0.272	0.41
Departure Headway (Hd)	6.263	5.051	4.427	4.407
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	571	709	812	818
Service Time	4.002	2.789	2.45	2.428
HCM Lane V/C Ratio	0.018	0.092	0.272	0.41
HCM Control Delay	9.1	8.3	9.1	10.5
HCM Lane LOS	A	A	A	B
HCM 95th-tile Q	0.1	0.3	1.1	2

Timings

S. Nichols Mixed-Use Development (JN 10878)

4: Lakeshore Dr. & Riverside Dr. (SR-74)

05/18/2018

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	29	483	263	119	597	298	194	251	265	308	15
Future Volume (vph)	29	483	263	119	597	298	194	251	265	308	15
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2	1	6	
Permitted Phases			4			8					6
Detector Phase	7	4	4	3	8	8	5	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	32.4	32.4	9.6	33.4	33.4	9.6	34.7	9.6	32.7	32.7
Total Split (s)	9.6	38.3	38.3	20.3	49.0	49.0	27.6	35.4	26.0	33.8	33.8
Total Split (%)	8.0%	31.9%	31.9%	16.9%	40.8%	40.8%	23.0%	29.5%	21.7%	28.2%	28.2%
Yellow Time (s)	3.6	4.4	4.4	3.6	4.4	4.4	3.6	3.7	3.6	3.7	3.7
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.4	5.4	4.6	5.4	5.4	4.6	4.7	4.6	4.7	4.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	None	Max	Max
Act Effect Green (s)	5.1	28.8	28.8	11.8	39.9	39.9	16.8	31.1	19.6	33.9	33.9
Actuated g/C Ratio	0.05	0.26	0.26	0.11	0.36	0.36	0.15	0.28	0.18	0.31	0.31
v/c Ratio	0.38	0.54	0.44	0.65	0.92	0.42	0.75	0.42	0.87	0.29	0.03
Control Delay	68.9	38.0	6.5	66.0	54.8	7.5	63.4	26.6	73.4	33.2	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	68.9	38.0	6.5	66.0	54.8	7.5	63.4	26.6	73.4	33.2	0.1
LOS	E	D	A	E	D	A	E	C	E	C	A
Approach Delay		28.4			42.2			38.4		50.5	
Approach LOS		C			D			D		D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 110.9

Natural Cycle: 100

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.92

Intersection Signal Delay: 39.5

Intersection LOS: D

Intersection Capacity Utilization 91.4%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 4: Lakeshore Dr. & Riverside Dr. (SR-74)

			
Ø1	Ø2	Ø3	Ø4
26 s	35.4 s	20.3 s	38.3 s
			
Ø5	Ø6	Ø7	Ø8
27.6 s	33.8 s	9.6 s	49 s

HCM 6th Signalized Intersection Summary 4: Lakeshore Dr. & Riverside Dr. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

05/18/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	483	263	119	597	298	194	251	159	265	308	15
Future Volume (veh/h)	29	483	263	119	597	298	194	251	159	265	308	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	30	498	151	123	615	153	200	259	60	273	318	11
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	48	1057	472	151	664	555	231	792	180	302	1121	493
Arrive On Green	0.03	0.30	0.30	0.08	0.35	0.35	0.13	0.28	0.28	0.17	0.32	0.32
Sat Flow, veh/h	1781	3554	1585	1781	1870	1564	1781	2874	654	1781	3554	1565
Grp Volume(v), veh/h	30	498	151	123	615	153	200	158	161	273	318	11
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1870	1564	1781	1777	1751	1781	1777	1565
Q Serve(g_s), s	1.9	12.8	8.2	7.6	35.2	7.8	12.3	7.9	8.2	16.8	7.5	0.5
Cycle Q Clear(g_c), s	1.9	12.8	8.2	7.6	35.2	7.8	12.3	7.9	8.2	16.8	7.5	0.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.37	1.00		1.00
Lane Grp Cap(c), veh/h	48	1057	472	151	664	555	231	489	482	302	1121	493
V/C Ratio(X)	0.62	0.47	0.32	0.82	0.93	0.28	0.87	0.32	0.33	0.91	0.28	0.02
Avail Cap(c_a), veh/h	80	1057	472	251	732	612	368	489	482	342	1121	493
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.7	32.0	30.4	50.2	34.6	25.7	47.6	32.1	32.2	45.4	28.7	26.3
Incr Delay (d2), s/veh	4.8	0.3	0.4	4.1	16.9	0.3	7.3	1.7	1.9	23.2	0.6	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	5.4	3.1	3.5	18.4	2.9	5.9	3.6	3.7	9.3	3.3	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.4	32.3	30.8	54.2	51.5	26.0	54.9	33.9	34.1	68.6	29.3	26.4
LnGrp LOS	E	C	C	D	D	C	D	C	C	E	C	C
Approach Vol, veh/h		679			891			519			602	
Approach Delay, s/veh		33.1			47.5			42.0			47.1	
Approach LOS		C			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	23.5	35.4	14.0	38.6	19.0	39.8	7.6	45.0				
Change Period (Y+Rc), s	4.6	* 4.7	4.6	5.4	4.6	* 4.7	4.6	5.4				
Max Green Setting (Gmax), s	21.4	* 31	15.7	32.9	23.0	* 29	5.0	43.6				
Max Q Clear Time (g_c+I1), s	18.8	10.2	9.6	14.8	14.3	9.5	3.9	37.2				
Green Ext Time (p_c), s	0.1	1.8	0.1	3.4	0.2	2.0	0.0	2.3				
Intersection Summary												
HCM 6th Ctrl Delay			42.7									
HCM 6th LOS			D									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Intersection												
Int Delay, s/veh	2.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕	↕		↕	↕
Traffic Vol, veh/h	2	844	4	6	861	115	0	0	6	28	1	2
Future Vol, veh/h	2	844	4	6	861	115	0	0	6	28	1	2
Conflicting Peds, #/hr	0	0	0	0	0	1	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Stop	-	-	Stop
Storage Length	-	-	-	-	-	-	-	-	75	-	-	75
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	870	4	6	888	119	0	0	6	29	1	2
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1008	0	0	874	0	0	1836	1896	872	1837	1839	949
Stage 1	-	-	-	-	-	-	876	876	-	961	961	-
Stage 2	-	-	-	-	-	-	960	1020	-	876	878	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	687	-	-	772	-	-	58	70	350	58	75	316
Stage 1	-	-	-	-	-	-	344	367	-	308	335	-
Stage 2	-	-	-	-	-	-	308	314	-	344	366	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	686	-	-	772	-	-	56	68	350	56	73	316
Mov Cap-2 Maneuver	-	-	-	-	-	-	56	68	-	56	73	-
Stage 1	-	-	-	-	-	-	342	365	-	306	329	-
Stage 2	-	-	-	-	-	-	300	308	-	336	364	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.1			15.5			119.9		
HCM LOS							C			F		
Minor Lane/Major Mvmt	NBLn1 NBLn2		EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2		
Capacity (veh/h)	-	350	686	-	-	772	-	-	56	316		
HCM Lane V/C Ratio	-	0.018	0.003	-	-	0.008	-	-	0.534	0.007		
HCM Control Delay (s)	0	15.5	10.3	0	-	9.7	0	-	127	16.5		
HCM Lane LOS	A	C	B	A	-	A	A	-	F	C		
HCM 95th %tile Q(veh)	-	0.1	0	-	-	0	-	-	2.1	0		

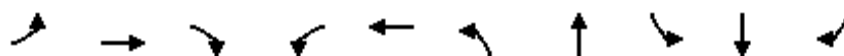
Intersection						
Int Delay, s/veh	7.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	194	54	233	253	78	273
Future Vol, veh/h	194	54	233	253	78	273
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	120	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	206	57	248	269	83	290
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	263	0	1000	235
Stage 1	-	-	-	-	235	-
Stage 2	-	-	-	-	765	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1301	-	270	804
Stage 1	-	-	-	-	804	-
Stage 2	-	-	-	-	459	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1301	-	218	804
Mov Cap-2 Maneuver	-	-	-	-	218	-
Stage 1	-	-	-	-	650	-
Stage 2	-	-	-	-	459	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		4		16.3	
HCM LOS	C					
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	218	804	-	-	1301	-
HCM Lane V/C Ratio	0.381	0.361	-	-	0.191	-
HCM Control Delay (s)	31.3	12	-	-	8.4	-
HCM Lane LOS	D	B	-	-	A	-
HCM 95th %tile O(veh)	1.7	1.7	-	-	0.7	-

Timings

S. Nichols Mixed-Use Development (JN 10878)

7: Collier Av. (SR-74)/Collier Av. & Riverside Dr. (SR-74)/Riverside Dr.

05/18/2018



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations		↔	↔		↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	110	11	757	20	17	867	230	3	183	98
Future Volume (vph)	110	11	757	20	17	867	230	3	183	98
Turn Type	Perm	NA	pm+ov	Perm	NA	Split	NA	Split	NA	Perm
Protected Phases		4	2		8	2	2	6	6	
Permitted Phases	4		4	8						6
Detector Phase	4	4	2	8	8	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	15.4	15.4	15.8	14.6	14.6	15.8	15.8	16.2	16.2	16.2
Total Split (s)	19.0	19.0	79.0	19.0	19.0	79.0	79.0	22.0	22.0	22.0
Total Split (%)	15.8%	15.8%	65.8%	15.8%	15.8%	65.8%	65.8%	18.3%	18.3%	18.3%
Yellow Time (s)	4.4	4.4	4.8	3.6	3.6	4.8	4.8	5.2	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.4	5.8		4.6	5.8	5.8	6.2	6.2	6.2
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	None	None	Max	None	None	Max	Max	Max	Max	Max
Act Effect Green (s)		12.9	85.7		13.7	73.2	73.2	15.8	15.8	15.8
Actuated g/C Ratio		0.11	0.72		0.11	0.61	0.61	0.13	0.13	0.13
v/c Ratio		0.81	0.67		0.26	0.83	0.23	0.01	0.78	0.34
Control Delay		87.4	9.2		47.2	26.9	10.9	45.7	71.8	12.4
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		87.4	9.2		47.2	26.9	10.9	45.7	71.8	12.4
LOS		F	A		D	C	B	D	E	B
Approach Delay		20.0			47.3		23.3		51.1	
Approach LOS		B			D		C		D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 119.3

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 25.9

Intersection LOS: C

Intersection Capacity Utilization 84.2%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 7: Collier Av. (SR-74)/Collier Av. & Riverside Dr. (SR-74)/Riverside Dr.

↖ ↗ Ø2	↖ ↗ Ø6	↖ ↗ Ø4
79 s	22 s	19 s
		↖ ↗ Ø8
		19 s

HCM 6th Signalized Intersection Summary S. Nichols Mixed-Use Development (JN 10878)
 7: Collier Av. (SR-74)/Collier Av. & Riverside Dr. (SR-74)/Riverside Dr. 05/18/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	110	11	757	20	17	7	867	230	19	3	183	98
Future Volume (veh/h)	110	11	757	20	17	7	867	230	19	3	183	98
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	115	11	741	21	18	1	903	240	19	3	191	29
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	174	11	1145	47	28	1	1079	1035	82	233	245	207
Arrive On Green	0.12	0.12	0.12	0.12	0.12	0.12	0.61	0.61	0.61	0.13	0.13	0.13
Sat Flow, veh/h	983	94	1548	11	236	6	1781	1707	135	1781	1870	1585
Grp Volume(v), veh/h	126	0	741	40	0	0	903	0	259	3	191	29
Grp Sat Flow(s),veh/h/ln	1077	0	1548	253	0	0	1781	0	1843	1781	1870	1585
Q Serve(g_s), s	0.0	0.0	14.4	0.3	0.0	0.0	48.9	0.0	7.8	0.2	11.9	2.0
Cycle Q Clear(g_c), s	14.1	0.0	14.4	14.4	0.0	0.0	48.9	0.0	7.8	0.2	11.9	2.0
Prop In Lane	0.91		1.00	0.52		0.02	1.00		0.07	1.00		1.00
Lane Grp Cap(c), veh/h	185	0	1145	76	0	0	1079	0	1117	233	245	207
V/C Ratio(X)	0.68	0.00	0.65	0.53	0.00	0.00	0.84	0.00	0.23	0.01	0.78	0.14
Avail Cap(c_a), veh/h	185	0	1145	76	0	0	1079	0	1117	233	245	207
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.1	0.0	6.5	51.0	0.0	0.0	19.0	0.0	10.9	45.7	50.8	46.5
Incr Delay (d2), s/veh	9.6	0.0	1.3	6.8	0.0	0.0	7.7	0.0	0.5	0.1	21.5	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.2	0.0	22.8	1.4	0.0	0.0	20.1	0.0	3.1	0.1	6.9	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.7	0.0	7.8	57.8	0.0	0.0	26.7	0.0	11.4	45.8	72.3	47.9
LnGrp LOS	E	A	A	E	A	A	C	A	B	D	E	D
Approach Vol, veh/h		867			40			1162			223	
Approach Delay, s/veh		15.8			57.8			23.3			68.8	
Approach LOS		B			E			C			E	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		79.0		19.8		22.0		19.8				
Change Period (Y+Rc), s		5.8		5.4		6.2		* 5.4				
Max Green Setting (Gmax), s		73.2		13.6		15.8		* 14				
Max Q Clear Time (g_c+I1), s		50.9		16.4		13.9		16.4				
Green Ext Time (p_c), s		5.1		0.0		0.2		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			25.5									
HCM 6th LOS			C									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Timings

S. Nichols Mixed-Use Development (JN 10878)

8: Collier Av./Collier Av. (SR-74) & Central Av./Central Av. (SR-74)

05/18/2018

											
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 	 		 			 	 	 	
Traffic Volume (vph)	191	315	203	191	712	49	121	336	902	135	34
Future Volume (vph)	191	315	203	191	712	49	121	336	902	135	34
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	7	4	3	8	1	5	2	3	1	6	
Permitted Phases					8			2			6
Detector Phase	7	4	3	8	1	5	2	3	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	5.0	10.0	5.0	5.0	10.0	10.0
Minimum Split (s)	9.6	14.7	9.6	42.8	9.6	9.6	15.8	9.6	9.6	29.8	29.8
Total Split (s)	14.0	28.8	28.0	42.8	43.0	13.6	20.2	28.0	43.0	49.6	49.6
Total Split (%)	11.7%	24.0%	23.3%	35.7%	35.8%	11.3%	16.8%	23.3%	35.8%	41.3%	41.3%
Yellow Time (s)	3.6	3.7	3.6	4.8	3.6	3.6	4.8	3.6	3.6	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.7	4.6	5.8	4.6	4.6	5.8	4.6	4.6	5.8	5.8
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	None	None	Max	Max
Act Effect Green (s)	8.9	17.0	11.1	18.1	49.6	7.1	19.1	31.5	30.3	44.7	44.7
Actuated g/C Ratio	0.09	0.17	0.11	0.19	0.51	0.07	0.20	0.32	0.31	0.46	0.46
v/c Ratio	0.63	0.62	0.54	0.57	0.47	0.40	0.34	0.60	0.87	0.09	0.04
Control Delay	55.2	41.3	47.5	43.0	7.1	56.6	42.2	23.4	42.5	18.6	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.2	41.3	47.5	43.0	7.1	56.6	42.2	23.4	42.5	18.6	0.1
LOS	E	D	D	D	A	E	D	C	D	B	A
Approach Delay		46.0		20.7			31.1			38.2	
Approach LOS		D		C			C			D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 97.6

Natural Cycle: 95

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 32.5

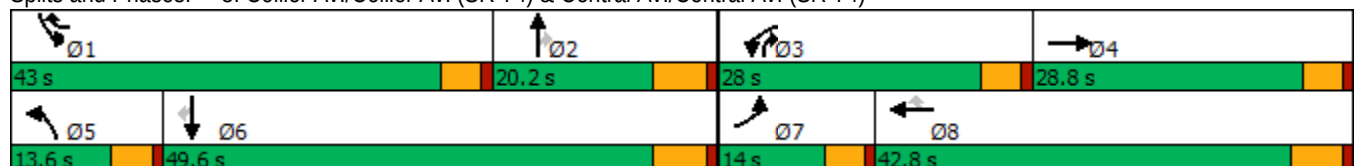
Intersection LOS: C

Intersection Capacity Utilization 70.1%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 8: Collier Av./Collier Av. (SR-74) & Central Av./Central Av. (SR-74)



HCM 6th Signalized Intersection Summary S. Nichols Mixed-Use Development (JN 10878)
 8: Collier Av./Collier Av. (SR-74) & Central Av./Central Av. (SR-74) 05/18/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	191	315	50	203	191	712	49	121	336	902	135	34
Future Volume (veh/h)	191	315	50	203	191	712	49	121	336	902	135	34
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	197	325	48	209	197	211	51	125	118	930	139	22
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	271	475	70	291	297	1270	72	432	494	1034	1741	766
Arrive On Green	0.08	0.15	0.15	0.08	0.16	0.16	0.04	0.23	0.23	0.30	0.49	0.49
Sat Flow, veh/h	3456	3110	455	3456	1870	2746	1781	1870	1561	3456	3554	1563
Grp Volume(v), veh/h	197	184	189	209	197	211	51	125	118	930	139	22
Grp Sat Flow(s),veh/h/ln	1728	1777	1788	1728	1870	1373	1781	1870	1561	1728	1777	1563
Q Serve(g_s), s	5.0	8.8	8.9	5.3	8.9	4.0	2.5	4.9	5.0	23.1	1.9	0.7
Cycle Q Clear(g_c), s	5.0	8.8	8.9	5.3	8.9	4.0	2.5	4.9	5.0	23.1	1.9	0.7
Prop In Lane	1.00		0.25	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	271	272	273	291	297	1270	72	432	494	1034	1741	766
V/C Ratio(X)	0.73	0.68	0.69	0.72	0.66	0.17	0.71	0.29	0.24	0.90	0.08	0.03
Avail Cap(c_a), veh/h	363	479	482	905	774	1971	179	432	494	1485	1741	766
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.2	35.8	35.9	39.9	35.4	14.2	42.4	28.3	22.7	30.0	12.1	11.8
Incr Delay (d2), s/veh	2.7	3.0	3.1	1.2	2.5	0.1	4.8	1.7	1.1	4.4	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	4.0	4.1	2.2	4.0	1.1	1.2	2.3	1.9	9.4	0.7	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.0	38.8	39.0	41.1	37.9	14.3	47.2	30.0	23.8	34.5	12.2	11.9
LnGrp LOS	D	D	D	D	D	B	D	C	C	C	B	B
Approach Vol, veh/h		570			617			294			1091	
Approach Delay, s/veh		40.3			30.9			30.5			31.2	
Approach LOS		D			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	31.3	26.4	12.1	19.5	8.2	49.6	11.6	20.0				
Change Period (Y+Rc), s	4.6	5.8	4.6	* 5.8	4.6	5.8	4.6	5.8				
Max Green Setting (Gmax), s	38.4	14.4	23.4	* 24	9.0	43.8	9.4	37.0				
Max Q Clear Time (g_c+I1), s	25.1	7.0	7.3	10.9	4.5	3.9	7.0	10.9				
Green Ext Time (p_c), s	1.7	0.5	0.3	1.8	0.0	0.9	0.1	1.8				

Intersection Summary

HCM 6th Ctrl Delay	33.1
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection

Intersection Delay, s/veh 14.9

Intersection LOS B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗	↖	↑						↕	
Traffic Vol, veh/h	0	266	268	44	355	0	0	0	0	110	2	132
Future Vol, veh/h	0	266	268	44	355	0	0	0	0	110	2	132
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	0	3	3	25	3	0	0	0	0	8	67	13
Mvmt Flow	0	283	285	47	378	0	0	0	0	117	2	140
Number of Lanes	0	1	1	1	1	0	0	0	0	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	2
HCM Control Delay	12.9	18.3	13.8
HCM LOS	B	C	B

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	100%	0%	45%
Vol Thru, %	100%	0%	0%	100%	1%
Vol Right, %	0%	100%	0%	0%	54%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	266	268	44	355	244
LT Vol	0	0	44	0	110
Through Vol	266	0	0	355	2
RT Vol	0	268	0	0	132
Lane Flow Rate	283	285	47	378	260
Geometry Grp	7	7	7	7	2
Degree of Util (X)	0.472	0.419	0.091	0.642	0.438
Departure Headway (Hd)	6	5.289	7.007	6.119	6.076
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	600	679	511	589	592
Service Time	3.747	3.036	4.758	3.869	4.127
HCM Lane V/C Ratio	0.472	0.42	0.092	0.642	0.439
HCM Control Delay	14	11.8	10.5	19.3	13.8
HCM Lane LOS	B	B	B	C	B
HCM 95th-tile Q	2.5	2.1	0.3	4.6	2.2

Intersection												
Int Delay, s/veh	17.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	140	235	0	0	147	58	252	1	62	0	0	0
Future Vol, veh/h	140	235	0	0	147	58	252	1	62	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	230	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	146	245	0	0	153	60	263	1	65	0	0	0
Major/Minor	Major1			Major2			Minor1					
Conflicting Flow All	213	0	-	-	-	0	720	750	245			
Stage 1	-	-	-	-	-	-	537	537	-			
Stage 2	-	-	-	-	-	-	183	213	-			
Critical Hdwy	4.15	-	-	-	-	-	6.44	6.5	6.26			
Critical Hdwy Stg 1	-	-	-	-	-	-	5.44	5.5	-			
Critical Hdwy Stg 2	-	-	-	-	-	-	5.44	5.5	-			
Follow-up Hdwy	2.245	-	-	-	-	-	3.536	4	3.354			
Pot Cap-1 Maneuver	1340	-	0	0	-	-	392	342	784			
Stage 1	-	-	0	0	-	-	582	526	-			
Stage 2	-	-	0	0	-	-	844	730	-			
Platoon blocked, %	-			-			-					
Mov Cap-1 Maneuver	1340	-	-	-	-	-	349	0	784			
Mov Cap-2 Maneuver	-	-	-	-	-	-	349	0	-			
Stage 1	-	-	-	-	-	-	519	0	-			
Stage 2	-	-	-	-	-	-	844	0	-			
Approach	EB			WB			NB					
HCM Control Delay, s	3			0			46.8					
HCM LOS							E					
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR							
Capacity (veh/h)	392	1340	-	-	-							
HCM Lane V/C Ratio	0.837	0.109	-	-	-							
HCM Control Delay (s)	46.8	8	-	-	-							
HCM Lane LOS	E	A	-	-	-							
HCM 95th %tile O(veh)	7.8	0.4	-	-	-							

Intersection						
Int Delay, s/veh	0.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	265	32	0	186	19	0
Future Vol, veh/h	265	32	0	186	19	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	200	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	288	35	0	202	21	0
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	323	0	508	306
Stage 1	-	-	-	-	306	-
Stage 2	-	-	-	-	202	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1237	-	525	734
Stage 1	-	-	-	-	747	-
Stage 2	-	-	-	-	832	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1237	-	525	734
Mov Cap-2 Maneuver	-	-	-	-	525	-
Stage 1	-	-	-	-	747	-
Stage 2	-	-	-	-	832	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		12.1	
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	525	-	-	1237	-	
HCM Lane V/C Ratio	0.039	-	-	-	-	
HCM Control Delay (s)	12.1	-	-	0	-	
HCM Lane LOS	B	-	-	A	-	
HCM 95th %tile O(veh)	0.1	-	-	0	-	

Intersection						
Int Delay, s/veh	2.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	116	149	0	80	107	0
Future Vol, veh/h	116	149	0	80	107	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	200	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	126	162	0	87	116	0
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	288	0	294	207
Stage 1	-	-	-	-	207	-
Stage 2	-	-	-	-	87	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1274	-	697	833
Stage 1	-	-	-	-	828	-
Stage 2	-	-	-	-	936	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1274	-	697	833
Mov Cap-2 Maneuver	-	-	-	-	697	-
Stage 1	-	-	-	-	828	-
Stage 2	-	-	-	-	936	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		11.2	
HCM LOS					B	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	697	-	-	1274	-	
HCM Lane V/C Ratio	0.167	-	-	-	-	
HCM Control Delay (s)	11.2	-	-	0	-	
HCM Lane LOS	B	-	-	A	-	
HCM 95th %tile O(veh)	0.6	-	-	0	-	

Intersection												
Int Delay, s/veh	1.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	25	0	3	1	0	4	4	78	1	6	101	41
Future Vol, veh/h	25	0	3	1	0	4	4	78	1	6	101	41
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	27	0	3	1	0	4	4	85	1	7	110	45
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	243	241	133	242	263	86	155	0	0	86	0	0
Stage 1	147	147	-	94	94	-	-	-	-	-	-	-
Stage 2	96	94	-	148	169	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	711	660	916	712	642	973	1425	-	-	1510	-	-
Stage 1	856	775	-	913	817	-	-	-	-	-	-	-
Stage 2	911	817	-	855	759	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	703	655	916	705	637	973	1425	-	-	1510	-	-
Mov Cap-2 Maneuver	703	655	-	705	637	-	-	-	-	-	-	-
Stage 1	853	771	-	910	815	-	-	-	-	-	-	-
Stage 2	904	815	-	848	755	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	10.2		9		0.4		0.3					
HCM LOS	B		A									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1425	-	-	721	904	1510	-	-				
HCM Lane V/C Ratio	0.003	-	-	0.042	0.006	0.004	-	-				
HCM Control Delay (s)	7.5	0	-	10.2	9	7.4	0	-				
HCM Lane LOS	A	A	-	B	A	A	A	-				
HCM 95th %tile O(veh)	0	-	-	0.1	0	0	-	-				

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	84	105	0
Future Vol, veh/h	0	0	0	84	105	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	0	91	114	0
Major/Minor		Major1		Minor2		
Conflicting Flow All		0	0	91	0	
Stage 1		-	-	0	-	
Stage 2		-	-	91	-	
Critical Hdwy		4.12	-	6.52	6.22	
Critical Hdwy Stg 1		-	-	-	-	
Critical Hdwy Stg 2		-	-	5.52	-	
Follow-up Hdwy		2.218	-	4.018	3.318	
Pot Cap-1 Maneuver		-	-	799	-	
Stage 1		-	-	-	-	
Stage 2		-	-	820	-	
Platoon blocked, %		-	-	-	-	
Mov Cap-1 Maneuver		-	-	0	-	
Mov Cap-2 Maneuver		-	-	0	-	
Stage 1		-	-	0	-	
Stage 2		-	-	0	-	
Approach		NB		SB		
HCM Control Delay, s		0				
HCM LOS				-		
Minor Lane/Major Mvmt	NBL	NBT	SBLn1			
Capacity (veh/h)	-	-	-			
HCM Lane V/C Ratio	-	-	-			
HCM Control Delay (s)	0	-	-			
HCM Lane LOS	A	-	-			
HCM 95th %tile Q(veh)	-	-	-			

Intersection

Int Delay, s/veh 0.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	94	77	11	6	6
Future Vol, veh/h	10	94	77	11	6	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	102	84	12	7	7

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	96	0	0 214 90
Stage 1	-	-	- 90 -
Stage 2	-	-	- 124 -
Critical Hdwy	4.12	-	- 6.42 6.22
Critical Hdwy Stg 1	-	-	- 5.42 -
Critical Hdwy Stg 2	-	-	- 5.42 -
Follow-up Hdwy	2.218	-	- 3.518 3.318
Pot Cap-1 Maneuver	1498	-	- 774 968
Stage 1	-	-	- 934 -
Stage 2	-	-	- 902 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1498	-	- 768 968
Mov Cap-2 Maneuver	-	-	- 768 -
Stage 1	-	-	- 927 -
Stage 2	-	-	- 902 -

Approach	EB	WB	SB
HCM Control Delay, s	0.7	0	9.3
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1498	-	-	-	856
HCM Lane V/C Ratio	0.007	-	-	-	0.015
HCM Control Delay (s)	7.4	0	-	-	9.3
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection						
Int Delay, s/veh	4.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	100	88	72	107	0
Future Vol, veh/h	0	100	88	72	107	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	109	96	78	116	0
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	386	116	116	0	-	0
Stage 1	116	-	-	-	-	-
Stage 2	270	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	617	936	1473	-	-	-
Stage 1	909	-	-	-	-	-
Stage 2	775	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	575	936	1473	-	-	-
Mov Cap-2 Maneuver	575	-	-	-	-	-
Stage 1	847	-	-	-	-	-
Stage 2	775	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	9.4	4.2		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1473	-	936	-	-	
HCM Lane V/C Ratio	0.065	-	0.116	-	-	
HCM Control Delay (s)	7.6	0	9.4	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0.2	-	0.4	-	-	

Intersection						
Int Delay, s/veh	1.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	12	17	142	24	48	159
Future Vol, veh/h	12	17	142	24	48	159
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	13	18	154	26	52	173
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	444	167	0	0	180	0
Stage 1	167	-	-	-	-	-
Stage 2	277	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	571	877	-	-	1396	-
Stage 1	863	-	-	-	-	-
Stage 2	770	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	548	877	-	-	1396	-
Mov Cap-2 Maneuver	548	-	-	-	-	-
Stage 1	828	-	-	-	-	-
Stage 2	770	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	10.4	0	1.8			
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	702	1396	-	
HCM Lane V/C Ratio	-	-	0.045	0.037	-	
HCM Control Delay (s)	-	-	10.4	7.7	0	
HCM Lane LOS	-	-	B	A	A	
HCM 95th %tile Q(veh)	-	-	0.1	0.1	-	

Intersection												
Int Delay, s/veh	1.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	14	0	29	5	0	1	13	151	4	6	155	10
Future Vol, veh/h	14	0	29	5	0	1	13	151	4	6	155	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	3
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	17	0	35	6	0	1	15	180	5	7	185	12
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	421	423	194	436	427	183	200	0	0	185	0	0
Stage 1	208	208	-	213	213	-	-	-	-	-	-	-
Stage 2	213	215	-	223	214	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	543	522	847	531	520	859	1372	-	-	1390	-	-
Stage 1	794	730	-	789	726	-	-	-	-	-	-	-
Stage 2	789	725	-	780	725	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	533	511	845	502	509	859	1368	-	-	1390	-	-
Mov Cap-2 Maneuver	533	511	-	502	509	-	-	-	-	-	-	-
Stage 1	782	723	-	780	717	-	-	-	-	-	-	-
Stage 2	778	716	-	744	718	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	10.5		11.8		0.6		0.3					
HCM LOS	B		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1368	-	-	710	539	1390	-	-				
HCM Lane V/C Ratio	0.011	-	-	0.072	0.013	0.005	-	-				
HCM Control Delay (s)	7.7	0	-	10.5	11.8	7.6	0	-				
HCM Lane LOS	A	A	-	B	B	A	A	-				
HCM 95th %tile O(veh)	0	-	-	0.2	0	0	-	-				

Timings
19: Dexter Av. & Central Av. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

05/18/2018

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	338	1617	161	156	1112	70	119	132	69	92	315
Future Volume (vph)	338	1617	161	156	1112	70	119	132	69	92	315
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2	1	6	7
Permitted Phases			4			8					6
Detector Phase	7	4	4	3	8	8	5	2	1	6	7
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0	5.0
Minimum Split (s)	9.6	26.8	26.8	9.6	26.8	26.8	9.6	42.4	9.6	15.8	9.6
Total Split (s)	33.3	47.0	47.0	18.0	31.7	31.7	20.3	44.0	11.0	34.7	33.3
Total Split (%)	27.8%	39.2%	39.2%	15.0%	26.4%	26.4%	16.9%	36.7%	9.2%	28.9%	27.8%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	4.8	3.6	4.4	3.6	4.8	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	5.8	4.6	5.8	5.8	4.6	5.4	4.6	5.8	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	None	Max	None
Act Effect Green (s)	26.0	41.2	41.2	12.7	28.0	28.0	12.1	38.6	6.3	32.4	59.6
Actuated g/C Ratio	0.22	0.35	0.35	0.11	0.23	0.23	0.10	0.32	0.05	0.27	0.50
v/c Ratio	0.90	0.94	0.26	0.85	0.76	0.14	0.68	0.52	0.75	0.19	0.38
Control Delay	71.3	49.5	6.6	87.6	46.8	0.6	70.0	30.4	98.6	36.0	11.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	71.3	49.5	6.6	87.6	46.8	0.6	70.0	30.4	98.6	36.0	11.6
LOS	E	D	A	F	D	A	E	C	F	D	B
Approach Delay		49.7			49.1			41.6		28.9	
Approach LOS		D			D			D		C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 119.3

Natural Cycle: 110

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.94

Intersection Signal Delay: 46.5

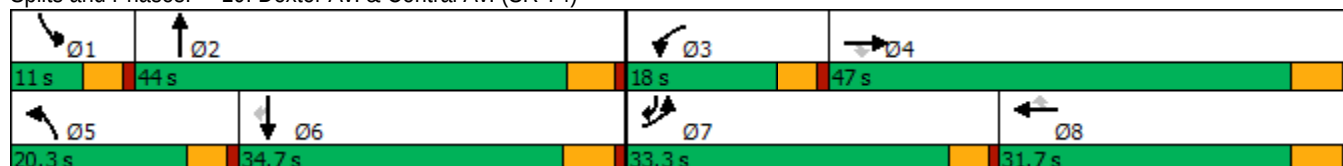
Intersection LOS: D

Intersection Capacity Utilization 91.9%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 19: Dexter Av. & Central Av. (SR-74)



HCM 6th Signalized Intersection Summary
19: Dexter Av. & Central Av. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

05/18/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  							
Traffic Volume (veh/h)	338	1617	161	156	1112	70	119	132	168	69	92	315
Future Volume (veh/h)	338	1617	161	156	1112	70	119	132	168	69	92	315
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	345	1650	122	159	1135	47	121	135	111	70	94	258
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	372	1760	532	186	1545	374	147	307	252	89	548	789
Arrive On Green	0.21	0.34	0.34	0.10	0.24	0.24	0.08	0.33	0.33	0.05	0.29	0.29
Sat Flow, veh/h	1781	5106	1545	1781	6434	1560	1781	942	774	1781	1870	1565
Grp Volume(v), veh/h	345	1650	122	159	1135	47	121	0	246	70	94	258
Grp Sat Flow(s),veh/h/ln	1781	1702	1545	1781	1609	1560	1781	0	1716	1781	1870	1565
Q Serve(g_s), s	22.5	37.1	6.7	10.4	19.3	2.8	7.9	0.0	13.4	4.6	4.4	11.7
Cycle Q Clear(g_c), s	22.5	37.1	6.7	10.4	19.3	2.8	7.9	0.0	13.4	4.6	4.4	11.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.45	1.00		1.00
Lane Grp Cap(c), veh/h	372	1760	532	186	1545	374	147	0	559	89	548	789
V/C Ratio(X)	0.93	0.94	0.23	0.86	0.73	0.13	0.82	0.00	0.44	0.78	0.17	0.33
Avail Cap(c_a), veh/h	431	1774	537	201	1545	374	236	0	559	96	548	789
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.0	37.6	27.6	52.2	41.6	35.3	53.5	0.0	31.5	55.7	31.2	17.6
Incr Delay (d2), s/veh	23.0	10.1	0.2	25.4	1.9	0.1	5.5	0.0	2.5	28.2	0.7	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.0	16.3	2.4	5.8	7.6	1.1	3.7	0.0	5.8	2.7	2.1	4.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	69.0	47.7	27.9	77.6	43.4	35.4	59.0	0.0	34.0	83.9	31.9	18.7
LnGrp LOS	E	D	C	E	D	D	E	A	C	F	C	B
Approach Vol, veh/h		2117			1341			367			422	
Approach Delay, s/veh		50.0			47.2			42.2			32.5	
Approach LOS		D			D			D			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.5	44.4	17.0	46.7	14.4	40.5	29.4	34.3				
Change Period (Y+Rc), s	4.6	* 5.8	4.6	5.8	4.6	5.8	4.6	5.8				
Max Green Setting (Gmax), s	6.4	* 39	13.4	41.2	15.7	28.9	28.7	25.9				
Max Q Clear Time (g_c+I1), s	6.6	15.4	12.4	39.1	9.9	13.7	24.5	21.3				
Green Ext Time (p_c), s	0.0	1.4	0.0	1.8	0.1	1.1	0.2	2.8				
Intersection Summary												
HCM 6th Ctrl Delay			46.7									
HCM 6th LOS			D									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Timings

S. Nichols Mixed-Use Development (JN 10878)

20: Cambern Av./Cambern Av & Central Av. (SR-74)

05/18/2018



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT	SBR	Ø3
Lane Configurations	↰↱	↰↱	↰↱	↰	↰	↰		↰↱	↰	
Traffic Volume (vph)	252	1738	1122	143	1	3	230	3	83	
Future Volume (vph)	252	1738	1122	143	1	3	230	3	83	
Turn Type	Prot	NA	NA	Perm	Perm	NA	Perm	NA	Perm	
Protected Phases	7	4	8			2		6		3
Permitted Phases				8	2		6		6	
Detector Phase	7	4	8	8	2	2	6	6	6	
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	5.0
Minimum Split (s)	9.6	24.8	25.5	25.5	34.7	34.7	14.7	14.7	14.7	9.6
Total Split (s)	19.8	74.0	63.8	63.8	36.4	36.4	36.4	36.4	36.4	9.6
Total Split (%)	16.5%	61.7%	53.2%	53.2%	30.3%	30.3%	30.3%	30.3%	30.3%	8%
Yellow Time (s)	3.6	4.8	5.5	5.5	3.7	3.7	3.7	3.7	3.7	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.6	5.8	6.5	6.5	4.7	4.7		4.7	4.7	
Lead/Lag	Lead	Lag	Lag	Lag						Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes						Yes
Recall Mode	Max	None	None	None	Max	Max	Max	Max	Max	None
Act Effect Green (s)	15.3	68.3	47.7	47.7	31.9	31.9		31.9	31.9	
Actuated g/C Ratio	0.14	0.62	0.43	0.43	0.29	0.29		0.29	0.29	
v/c Ratio	0.56	0.83	0.77	0.20	0.00	0.01		0.62	0.16	
Control Delay	50.9	20.5	30.3	3.5	32.0	28.8		44.2	3.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	50.9	20.5	30.3	3.5	32.0	28.8		44.2	3.5	
LOS	D	C	C	A	C	C		D	A	
Approach Delay		24.4	27.3			29.4		33.6		
Approach LOS		C	C			C		C		

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 110.7

Natural Cycle: 100

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 26.2

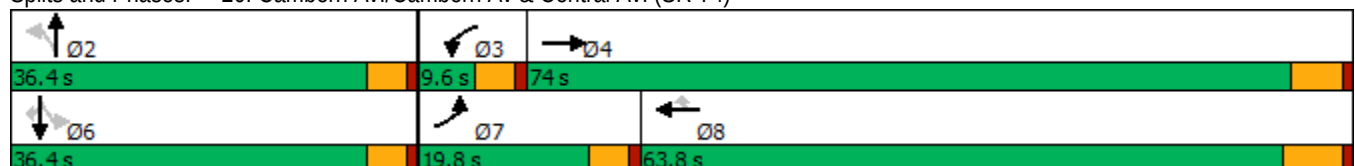
Intersection LOS: C

Intersection Capacity Utilization 84.4%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 20: Cambern Av./Cambern Av & Central Av. (SR-74)



HCM 6th Signalized Intersection Summary S. Nichols Mixed-Use Development (JN 10878)
 20: Cambern Av./Cambern Av & Central Av. (SR-74) 05/18/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	252	1738	1	0	1122	143	1	3	1	230	3	83
Future Volume (veh/h)	252	1738	1	0	1122	143	1	3	1	230	3	83
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	262	1810	1	0	1169	97	1	3	1	240	3	33
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	490	2187	1	2	1476	649	270	397	132	478	5	462
Arrive On Green	0.14	0.60	0.60	0.00	0.42	0.42	0.30	0.30	0.30	0.30	0.30	0.30
Sat Flow, veh/h	3456	3645	2	1781	3554	1561	1372	1342	447	1392	17	1565
Grp Volume(v), veh/h	262	882	929	0	1169	97	1	0	4	243	0	33
Grp Sat Flow(s),veh/h/ln	1728	1777	1870	1781	1777	1561	1372	0	1790	1409	0	1565
Q Serve(g_s), s	7.6	42.3	42.3	0.0	30.7	4.2	0.1	0.0	0.2	15.7	0.0	1.6
Cycle Q Clear(g_c), s	7.6	42.3	42.3	0.0	30.7	4.2	15.9	0.0	0.2	15.8	0.0	1.6
Prop In Lane	1.00		0.00	1.00		1.00	1.00		0.25	0.99		1.00
Lane Grp Cap(c), veh/h	490	1066	1122	2	1476	649	270	0	529	483	0	462
V/C Ratio(X)	0.54	0.83	0.83	0.00	0.79	0.15	0.00	0.00	0.01	0.50	0.00	0.07
Avail Cap(c_a), veh/h	490	1130	1189	83	1898	834	270	0	529	483	0	462
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	42.7	17.0	17.0	0.0	27.3	19.5	39.0	0.0	26.7	32.3	0.0	27.2
Incr Delay (d2), s/veh	4.1	5.3	5.0	0.0	2.1	0.2	0.0	0.0	0.0	3.7	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.4	16.2	16.9	0.0	12.1	1.4	0.0	0.0	0.1	5.8	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.9	22.3	22.1	0.0	29.4	19.7	39.0	0.0	26.7	36.0	0.0	27.5
LnGrp LOS	D	C	C	A	C	B	D	A	C	D	A	C
Approach Vol, veh/h	2073				1266				5			
Approach Delay, s/veh	25.3				28.7				29.2			
Approach LOS	C				C				C			
Timer - Assigned Phs	2			3		4		6		7		8
Phs Duration (G+Y+Rc), s	36.4			0.0		70.9		36.4		19.8		51.1
Change Period (Y+Rc), s	* 4.7			4.6		* 6.5		* 4.7		4.6		6.5
Max Green Setting (Gmax), s	* 32			5.0		* 68		* 32		15.2		57.3
Max Q Clear Time (g_c+I1), s	17.9			0.0		44.3		17.8		9.6		32.7
Green Ext Time (p_c), s	0.0			0.0		18.1		1.2		0.2		11.8

Intersection Summary

HCM 6th Ctrl Delay	27.2
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

APPENDIX 5.3:

E+P (BUILDOUT) CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

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Timings
1: Lake St. & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

05/18/2018

									
Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBL	SBT	Ø5
Lane Configurations									
Traffic Volume (vph)	15	4	204	5	674	382	35	272	
Future Volume (vph)	15	4	204	5	674	382	35	272	
Turn Type	Perm	NA	Perm	NA	NA	Perm	Prot	NA	
Protected Phases		4		8	2		1	6	5
Permitted Phases	4		8			2			
Detector Phase	4	4	8	8	2	2	1	6	
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	5.0	10.0	5.0
Minimum Split (s)	14.6	14.6	16.2	16.2	16.2	16.2	9.6	16.2	9.6
Total Split (s)	42.2	42.2	42.2	42.2	42.2	42.2	35.6	42.2	35.6
Total Split (%)	35.2%	35.2%	35.2%	35.2%	35.2%	35.2%	29.7%	35.2%	30%
Yellow Time (s)	3.6	3.6	5.2	5.2	5.2	5.2	3.6	5.2	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		4.6		6.2	6.2	6.2	4.6	6.2	
Lead/Lag					Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	Max	Max	None	Max	None
Act Effect Green (s)		21.7		20.0	37.0	37.0	6.5	43.4	
Actuated g/C Ratio		0.28		0.26	0.49	0.49	0.09	0.57	
v/c Ratio		0.05		0.76	0.80	0.49	0.25	0.28	
Control Delay		20.8		39.1	29.0	12.8	41.0	10.2	
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay		20.8		39.1	29.0	12.8	41.0	10.2	
LOS		C		D	C	B	D	B	
Approach Delay		20.8		39.1	23.2			13.7	
Approach LOS		C		D	C			B	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 76.2

Natural Cycle: 75

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.80

Intersection Signal Delay: 23.9

Intersection LOS: C

Intersection Capacity Utilization 61.8%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 1: Lake St. & Nichols Rd.

		
Ø1	Ø2	Ø4
35.6 s	42.2 s	42.2 s
		
Ø5	Ø6	Ø8
35.6 s	42.2 s	42.2 s

HCM 6th Signalized Intersection Summary

1: Lake St. & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

05/18/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	4	0	204	5	51	0	674	382	35	272	4
Future Volume (veh/h)	15	4	0	204	5	51	0	674	382	35	272	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	16	4	0	219	5	43	0	725	0	38	292	4
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	357	80	0	355	6	52	2	944		66	1116	15
Arrive On Green	0.22	0.22	0.00	0.22	0.22	0.22	0.00	0.50	0.00	0.04	0.61	0.61
Sat Flow, veh/h	1210	362	0	1196	27	235	1781	1870	1585	1781	1841	25
Grp Volume(v), veh/h	20	0	0	267	0	0	0	725	0	38	0	296
Grp Sat Flow(s),veh/h/ln	1572	0	0	1458	0	0	1781	1870	1585	1781	0	1866
Q Serve(g_s), s	0.0	0.0	0.0	11.8	0.0	0.0	0.0	22.4	0.0	1.5	0.0	5.3
Cycle Q Clear(g_c), s	0.6	0.0	0.0	12.4	0.0	0.0	0.0	22.4	0.0	1.5	0.0	5.3
Prop In Lane	0.80		0.00	0.82		0.16	1.00		1.00	1.00		0.01
Lane Grp Cap(c), veh/h	436	0	0	412	0	0	2	944		66	0	1131
V/C Ratio(X)	0.05	0.00	0.00	0.65	0.00	0.00	0.00	0.77		0.58	0.00	0.26
Avail Cap(c_a), veh/h	878	0	0	824	0	0	774	944		774	0	1131
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.9	0.0	0.0	26.5	0.0	0.0	0.0	14.3	0.0	33.8	0.0	6.6
Incr Delay (d2), s/veh	0.0	0.0	0.0	1.7	0.0	0.0	0.0	6.0	0.0	2.9	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.0	4.0	0.0	0.0	0.0	8.7	0.0	0.6	0.0	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.0	0.0	0.0	28.2	0.0	0.0	0.0	20.2	0.0	36.7	0.0	7.1
LnGrp LOS	C	A	A	C	A	A	A	C		D	A	A
Approach Vol, veh/h		20			267			725	A		334	
Approach Delay, s/veh		22.0			28.2			20.2			10.5	
Approach LOS		C			C			C			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.2	42.2		21.9	0.0	49.4		21.9				
Change Period (Y+Rc), s	4.6	6.2		* 6.2	4.6	6.2		6.2				
Max Green Setting (Gmax), s	31.0	36.0		* 38	31.0	36.0		36.0				
Max Q Clear Time (g_c+I1), s	3.5	24.4		2.6	0.0	7.3		14.4				
Green Ext Time (p_c), s	0.0	4.7		0.1	0.0	2.3		1.3				
Intersection Summary												
HCM 6th Ctrl Delay				19.4								
HCM 6th LOS				B								
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.												

Timings
2: Lake St. & Alberhill Ranch Rd.

S. Nichols Mixed-Use Development (JN 10878)

05/18/2018

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	57	57	1038	48	25	434
Future Volume (vph)	57	57	1038	48	25	434
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2		
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	15.1	15.1	16.2	16.2	11.2	16.2
Total Split (s)	15.1	15.1	93.7	93.7	11.2	104.9
Total Split (%)	12.6%	12.6%	78.1%	78.1%	9.3%	87.4%
Yellow Time (s)	4.1	4.1	5.2	5.2	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	6.2	6.2	6.2	6.2
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	Max	Max	None	Max
Act Effect Green (s)	10.0	10.0	96.2	96.2	5.0	103.0
Actuated g/C Ratio	0.08	0.08	0.80	0.80	0.04	0.86
v/c Ratio	0.41	0.33	0.74	0.04	0.37	0.29
Control Delay	61.4	17.7	12.7	1.6	70.4	2.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.4	17.7	12.7	1.6	70.4	2.7
LOS	E	B	B	A	E	A
Approach Delay	39.5		12.2			6.5
Approach LOS	D		B			A

Intersection Summary

Cycle Length: 120	
Actuated Cycle Length: 120	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.74	
Intersection Signal Delay: 12.5	Intersection LOS: B
Intersection Capacity Utilization 72.4%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 2: Lake St. & Alberhill Ranch Rd.



HCM 6th Signalized Intersection Summary 2: Lake St. & Alberhill Ranch Rd.

S. Nichols Mixed-Use Development (JN 10878)

05/18/2018

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	57	57	1038	48	25	434
Future Volume (veh/h)	57	57	1038	48	25	434
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	61	37	1104	42	27	462
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	143	127	1400	1184	44	1543
Arrive On Green	0.08	0.08	0.75	0.75	0.02	0.83
Sat Flow, veh/h	1781	1585	1870	1582	1781	1870
Grp Volume(v), veh/h	61	37	1104	42	27	462
Grp Sat Flow(s),veh/h/ln	1781	1585	1870	1582	1781	1870
Q Serve(g_s), s	3.9	2.6	43.3	0.8	1.8	6.9
Cycle Q Clear(g_c), s	3.9	2.6	43.3	0.8	1.8	6.9
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	143	127	1400	1184	44	1543
V/C Ratio(X)	0.43	0.29	0.79	0.04	0.61	0.30
Avail Cap(c_a), veh/h	149	133	1400	1184	74	1543
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.4	51.8	9.2	3.9	57.8	2.4
Incr Delay (d2), s/veh	0.7	0.5	4.6	0.1	5.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	1.1	14.1	0.2	0.8	1.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	53.1	52.3	13.8	3.9	62.8	2.9
LnGrp LOS	D	D	B	A	E	A
Approach Vol, veh/h	98		1146			489
Approach Delay, s/veh	52.8		13.4			6.2
Approach LOS	D		B			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	9.2	95.7			104.9	14.7
Change Period (Y+Rc), s	6.2	6.2			6.2	5.1
Max Green Setting (Gmax), s	5.0	87.5			98.7	10.0
Max Q Clear Time (g_c+I1), s	3.8	45.3			8.9	5.9
Green Ext Time (p_c), s	0.0	11.3			2.7	0.0
Intersection Summary						
HCM 6th Ctrl Delay			13.6			
HCM 6th LOS			B			

Intersection

Intersection Delay, s/veh 13.3

Intersection LOS B

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	412	16	47	222	38	86
Future Vol, veh/h	412	16	47	222	38	86
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	468	18	53	252	43	98
Number of Lanes	1	0	0	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	1
HCM Control Delay	15.5	11.5	9.6
HCM LOS	C	B	A

Lane	NBLn1	NBLn2	EBLn1	WBLn1
Vol Left, %	100%	0%	0%	17%
Vol Thru, %	0%	0%	96%	83%
Vol Right, %	0%	100%	4%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	38	86	428	269
LT Vol	38	0	0	47
Through Vol	0	0	412	222
RT Vol	0	86	16	0
Lane Flow Rate	43	98	486	306
Geometry Grp	7	7	2	2
Degree of Util (X)	0.083	0.155	0.631	0.417
Departure Headway (Hd)	6.92	5.7	4.671	4.916
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	521	633	768	724
Service Time	4.62	3.4	2.74	2.998
HCM Lane V/C Ratio	0.083	0.155	0.633	0.423
HCM Control Delay	10.2	9.4	15.5	11.5
HCM Lane LOS	B	A	C	B
HCM 95th-tile Q	0.3	0.5	4.5	2.1

Timings

S. Nichols Mixed-Use Development (JN 10878)

4: Lakeshore Dr. & Riverside Dr. (SR-74)

05/18/2018

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	19	457	141	136	542	344	266	293	209	171	9
Future Volume (vph)	19	457	141	136	542	344	266	293	209	171	9
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2	1	6	
Permitted Phases			4			8					6
Detector Phase	7	4	4	3	8	8	5	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	32.4	32.4	9.6	33.4	33.4	9.6	34.7	9.6	32.7	32.7
Total Split (s)	9.6	35.0	35.0	22.6	48.0	48.0	28.0	38.4	24.0	34.4	34.4
Total Split (%)	8.0%	29.2%	29.2%	18.8%	40.0%	40.0%	23.3%	32.0%	20.0%	28.7%	28.7%
Yellow Time (s)	3.6	4.4	4.4	3.6	4.4	4.4	3.6	3.7	3.6	3.7	3.7
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.4	5.4	4.6	5.4	5.4	4.6	4.7	4.6	4.7	4.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	None	Max	Max
Act Effect Green (s)	5.1	24.9	24.9	13.5	39.5	39.5	21.3	34.1	17.4	30.2	30.2
Actuated g/C Ratio	0.05	0.23	0.23	0.12	0.36	0.36	0.19	0.31	0.16	0.28	0.28
v/c Ratio	0.26	0.64	0.33	0.71	0.91	0.50	0.87	0.42	0.83	0.20	0.02
Control Delay	62.5	42.6	7.6	64.9	52.6	7.9	68.7	29.6	70.8	33.3	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.5	42.6	7.6	64.9	52.6	7.9	68.7	29.6	70.8	33.3	0.1
LOS	E	D	A	E	D	A	E	C	E	C	A
Approach Delay		35.2			39.2			45.0		52.7	
Approach LOS		D			D			D		D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 109.4

Natural Cycle: 100

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.91

Intersection Signal Delay: 41.7

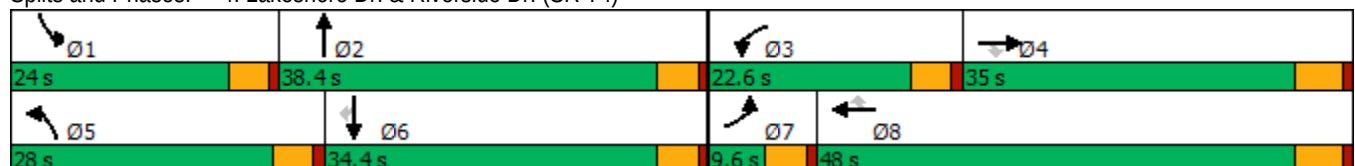
Intersection LOS: D

Intersection Capacity Utilization 85.4%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 4: Lakeshore Dr. & Riverside Dr. (SR-74)



HCM 6th Signalized Intersection Summary 4: Lakeshore Dr. & Riverside Dr. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

05/18/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	19	457	141	136	542	344	266	293	117	209	171	9
Future Volume (veh/h)	19	457	141	136	542	344	266	293	117	209	171	9
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	21	513	95	153	609	8	299	329	66	235	192	7
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	38	955	425	182	654	554	328	903	179	264	959	428
Arrive On Green	0.02	0.27	0.27	0.10	0.35	0.35	0.18	0.31	0.31	0.15	0.27	0.27
Sat Flow, veh/h	1781	3554	1582	1781	1870	1584	1781	2954	585	1781	3554	1585
Grp Volume(v), veh/h	21	513	95	153	609	8	299	196	199	235	192	7
Grp Sat Flow(s),veh/h/ln	1781	1777	1582	1781	1870	1584	1781	1777	1763	1781	1777	1585
Q Serve(g_s), s	1.3	13.6	5.2	9.3	34.6	0.4	18.2	9.5	9.7	14.3	4.6	0.4
Cycle Q Clear(g_c), s	1.3	13.6	5.2	9.3	34.6	0.4	18.2	9.5	9.7	14.3	4.6	0.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.33	1.00		1.00
Lane Grp Cap(c), veh/h	38	955	425	182	654	554	328	543	539	264	959	428
V/C Ratio(X)	0.55	0.54	0.22	0.84	0.93	0.01	0.91	0.36	0.37	0.89	0.20	0.02
Avail Cap(c_a), veh/h	81	955	425	291	722	612	378	543	539	313	959	428
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.4	34.5	31.4	48.6	34.6	23.5	44.1	29.9	30.0	46.1	31.1	29.5
Incr Delay (d2), s/veh	4.5	0.6	0.3	6.1	17.9	0.0	22.3	1.9	1.9	20.8	0.5	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	5.8	2.0	4.4	18.2	0.1	10.0	4.3	4.4	7.8	2.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.9	35.1	31.6	54.7	52.5	23.5	66.4	31.8	31.9	66.8	31.6	29.6
LnGrp LOS	E	D	C	D	D	C	E	C	C	E	C	C
Approach Vol, veh/h	629			770			694			434		
Approach Delay, s/veh	35.3			52.6			46.7			50.6		
Approach LOS	D			D			D			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	21.0	38.4	15.9	35.0	24.9	34.5	7.0	44.0				
Change Period (Y+Rc), s	4.6	* 4.7	4.6	5.4	4.6	* 4.7	4.6	5.4				
Max Green Setting (Gmax), s	19.4	* 34	18.0	29.6	23.4	* 30	5.0	42.6				
Max Q Clear Time (g_c+l1), s	16.3	11.7	11.3	15.6	20.2	6.6	3.3	36.6				
Green Ext Time (p_c), s	0.1	2.3	0.1	3.0	0.2	1.2	0.0	1.9				

Intersection Summary

HCM 6th Ctrl Delay 46.4

HCM 6th LOS D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection												
Int Delay, s/veh	6.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕	↕		↕	↕
Traffic Vol, veh/h	0	859	3	12	647	45	0	2	25	60	3	5
Future Vol, veh/h	0	859	3	12	647	45	0	2	25	60	3	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Stop	-	-	Stop
Storage Length	-	-	-	-	-	-	-	-	75	-	-	75
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	886	3	12	667	46	0	2	26	62	3	5
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	713	0	0	889	0	0	1604	1625	888	1603	1603	690
Stage 1	-	-	-	-	-	-	888	888	-	714	714	-
Stage 2	-	-	-	-	-	-	716	737	-	889	889	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	887	-	-	762	-	-	85	102	343	85	106	445
Stage 1	-	-	-	-	-	-	338	362	-	422	435	-
Stage 2	-	-	-	-	-	-	421	425	-	338	361	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	887	-	-	762	-	-	80	99	343	76	103	445
Mov Cap-2 Maneuver	-	-	-	-	-	-	80	99	-	76	103	-
Stage 1	-	-	-	-	-	-	338	362	-	422	424	-
Stage 2	-	-	-	-	-	-	402	414	-	311	361	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.2			18.2			143.9		
HCM LOS							C			F		
Minor Lane/Major Mvmt	NBLn1 NBLn2		EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2		
Capacity (veh/h)	99	343	887	-	-	762	-	-	77	445		
HCM Lane V/C Ratio	0.021	0.075	-	-	-	0.016	-	-	0.843	0.012		
HCM Control Delay (s)	42.1	16.3	0	-	-	9.8	0	-	154.3	13.2		
HCM Lane LOS	E	C	A	-	-	A	A	-	F	B		
HCM 95th %tile Q(veh)	0.1	0.2	0	-	-	0	-	-	4.2	0		

Intersection						
Int Delay, s/veh	5.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	473	32	168	237	37	187
Future Vol, veh/h	473	32	168	237	37	187
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	120	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	544	37	193	272	43	215
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	581	0	1221	563
Stage 1	-	-	-	-	563	-
Stage 2	-	-	-	-	658	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	993	-	199	526
Stage 1	-	-	-	-	570	-
Stage 2	-	-	-	-	515	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	993	-	160	526
Mov Cap-2 Maneuver	-	-	-	-	160	-
Stage 1	-	-	-	-	459	-
Stage 2	-	-	-	-	515	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		3.9		19.6	
HCM LOS	C					
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	160	526	-	-	993	-
HCM Lane V/C Ratio	0.266	0.409	-	-	0.194	-
HCM Control Delay (s)	35.5	16.5	-	-	9.5	-
HCM Lane LOS	E	C	-	-	A	-
HCM 95th %tile O(veh)	1	2	-	-	0.7	-

05/18/2018

05/18/2018

 Ø2 79 s	 Ø6 18 s	 Ø4 23 s
		 Ø8 23 s

HCM 6th Signalized Intersection Summary S. Nichols Mixed-Use Development (JN 10878)
 7: Collier Av. (SR-74)/Collier Av. & Riverside Dr. (SR-74)/Riverside Dr. 05/18/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	133	10	800	5	1	2	611	107	10	1	82	91
Future Volume (veh/h)	133	10	800	5	1	2	611	107	10	1	82	91
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	140	11	776	5	1	0	643	113	10	1	86	56
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	266	16	1199	91	14	0	1087	1033	91	175	184	156
Arrive On Green	0.15	0.15	0.15	0.15	0.15	0.00	0.61	0.61	0.61	0.10	0.10	0.10
Sat Flow, veh/h	1418	111	1585	248	92	0	1781	1694	150	1781	1870	1585
Grp Volume(v), veh/h	151	0	776	6	0	0	643	0	123	1	86	56
Grp Sat Flow(s),veh/h/ln	1530	0	1585	340	0	0	1781	0	1843	1781	1870	1585
Q Serve(g_s), s	0.0	0.0	17.6	0.1	0.0	0.0	26.4	0.0	3.3	0.1	5.2	4.0
Cycle Q Clear(g_c), s	10.8	0.0	17.6	10.9	0.0	0.0	26.4	0.0	3.3	0.1	5.2	4.0
Prop In Lane	0.93		1.00	0.83		0.00	1.00		0.08	1.00		1.00
Lane Grp Cap(c), veh/h	282	0	1199	105	0	0	1087	0	1124	175	184	156
V/C Ratio(X)	0.54	0.00	0.65	0.06	0.00	0.00	0.59	0.00	0.11	0.01	0.47	0.36
Avail Cap(c_a), veh/h	282	0	1199	110	0	0	1087	0	1124	175	184	156
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.3	0.0	5.7	44.3	0.0	0.0	14.3	0.0	9.8	48.8	51.1	50.6
Incr Delay (d2), s/veh	2.0	0.0	1.2	0.2	0.0	0.0	2.4	0.0	0.2	0.1	8.3	6.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.3	0.0	23.6	0.2	0.0	0.0	10.2	0.0	1.3	0.0	2.8	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.3	0.0	6.9	44.5	0.0	0.0	16.7	0.0	10.0	48.9	59.4	56.9
LnGrp LOS	D	A	A	D	A	A	B	A	A	D	E	E
Approach Vol, veh/h		927			6			766			143	
Approach Delay, s/veh		14.0			44.5			15.6			58.4	
Approach LOS		B			D			B			E	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		79.0		23.0		18.0		23.0				
Change Period (Y+Rc), s		5.8		5.4		6.2		* 5.4				
Max Green Setting (Gmax), s		73.2		17.6		11.8		* 18				
Max Q Clear Time (g_c+I1), s		28.4		19.6		7.2		12.9				
Green Ext Time (p_c), s		2.9		0.0		0.2		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			18.2									
HCM 6th LOS			B									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Timings

S. Nichols Mixed-Use Development (JN 10878)

8: Collier Av./Collier Av. (SR-74) & Central Av./Central Av. (SR-74)

05/18/2018

											
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	51	87	499	275	591	29	71	274	757	72	26
Future Volume (vph)	51	87	499	275	591	29	71	274	757	72	26
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	7	4	3	8	1	5	2	3	1	6	
Permitted Phases					8			2			6
Detector Phase	7	4	3	8	1	5	2	3	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	5.0	10.0	5.0	5.0	10.0	10.0
Minimum Split (s)	9.6	14.7	9.6	42.8	9.6	9.6	15.8	9.6	9.6	29.8	29.8
Total Split (s)	10.0	21.0	34.0	45.0	46.0	12.0	19.0	34.0	46.0	53.0	53.0
Total Split (%)	8.3%	17.5%	28.3%	37.5%	38.3%	10.0%	15.8%	28.3%	38.3%	44.2%	44.2%
Yellow Time (s)	3.6	3.7	3.6	4.8	3.6	3.6	4.8	3.6	3.6	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.7	4.6	5.8	4.6	4.6	5.8	4.6	4.6	5.8	5.8
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	None	None	Max	Max
Act Effect Green (s)	5.4	11.0	19.9	26.7	56.3	6.2	21.2	42.3	28.4	47.9	47.9
Actuated g/C Ratio	0.05	0.11	0.20	0.27	0.56	0.06	0.21	0.42	0.28	0.48	0.48
v/c Ratio	0.30	0.31	0.78	0.59	0.35	0.28	0.19	0.38	0.83	0.05	0.03
Control Delay	54.2	35.1	47.5	39.1	1.1	56.0	39.6	9.8	42.1	17.6	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.2	35.1	47.5	39.1	1.1	56.0	39.6	9.8	42.1	17.6	0.1
LOS	D	D	D	D	A	E	D	A	D	B	A
Approach Delay		40.9		25.7			19.1			38.7	
Approach LOS		D		C			B			D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 100.5

Natural Cycle: 95

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 29.8

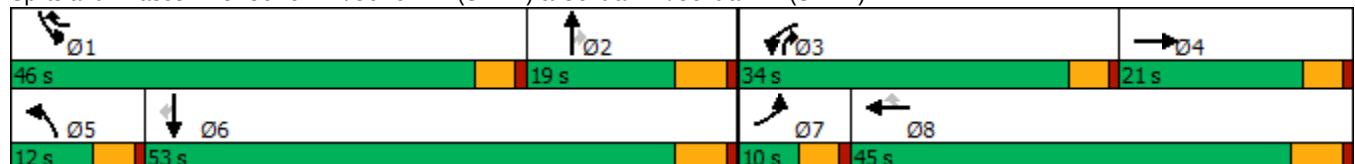
Intersection LOS: C

Intersection Capacity Utilization 59.2%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 8: Collier Av./Collier Av. (SR-74) & Central Av./Central Av. (SR-74)



HCM 6th Signalized Intersection Summary S. Nichols Mixed-Use Development (JN 10878)
 8: Collier Av./Collier Av. (SR-74) & Central Av./Central Av. (SR-74) 05/18/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	51	87	29	499	275	591	29	71	274	757	72	26
Future Volume (veh/h)	51	87	29	499	275	591	29	71	274	757	72	26
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	54	93	22	531	293	234	31	76	127	805	77	25
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	135	291	66	616	450	1381	52	465	671	899	1705	750
Arrive On Green	0.04	0.10	0.10	0.18	0.24	0.24	0.03	0.25	0.25	0.26	0.48	0.48
Sat Flow, veh/h	3456	2862	654	3456	1870	2724	1781	1870	1563	3456	3554	1562
Grp Volume(v), veh/h	54	57	58	531	293	234	31	76	127	805	77	25
Grp Sat Flow(s),veh/h/ln	1728	1777	1740	1728	1870	1362	1781	1870	1563	1728	1777	1562
Q Serve(g_s), s	1.5	2.9	3.1	14.7	13.9	4.6	1.7	3.1	5.0	22.1	1.1	0.8
Cycle Q Clear(g_c), s	1.5	2.9	3.1	14.7	13.9	4.6	1.7	3.1	5.0	22.1	1.1	0.8
Prop In Lane	1.00		0.38	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	135	181	177	616	450	1381	52	465	671	899	1705	750
V/C Ratio(X)	0.40	0.31	0.33	0.86	0.65	0.17	0.60	0.16	0.19	0.90	0.05	0.03
Avail Cap(c_a), veh/h	190	294	288	1033	745	1811	134	465	671	1454	1705	750
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.1	41.0	41.1	39.3	33.6	13.4	47.2	28.9	17.6	35.1	13.6	13.5
Incr Delay (d2), s/veh	0.7	1.0	1.1	1.9	1.6	0.1	4.1	0.8	0.6	2.9	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	1.3	1.4	6.1	6.2	1.3	0.8	1.4	1.8	9.1	0.4	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.8	42.0	42.2	41.1	35.2	13.5	51.3	29.7	18.2	38.0	13.7	13.6
LnGrp LOS	D	D	D	D	D	B	D	C	B	D	B	B
Approach Vol, veh/h	169			1058			234			907		
Approach Delay, s/veh	43.6			33.4			26.3			35.3		
Approach LOS	D			C			C			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	30.2	30.3	22.1	15.8	7.5	53.0	8.5	29.5				
Change Period (Y+Rc), s	4.6	5.8	4.6	* 5.8	4.6	5.8	4.6	5.8				
Max Green Setting (Gmax), s	41.4	13.2	29.4	* 16	7.4	47.2	5.4	39.2				
Max Q Clear Time (g_c+I1), s	24.1	7.0	16.7	5.1	3.7	3.1	3.5	15.9				
Green Ext Time (p_c), s	1.5	0.4	0.9	0.4	0.0	0.5	0.0	2.5				

Intersection Summary

HCM 6th Ctrl Delay	34.1
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection

Intersection Delay, s/veh48.5

Intersection LOS E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗	↘	↑						↕	
Traffic Vol, veh/h	0	393	267	123	343	0	0	0	0	236	6	62
Future Vol, veh/h	0	393	267	123	343	0	0	0	0	236	6	62
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles, %	0	3	3	25	3	0	0	0	0	8	67	13
Mvmt Flow	0	524	356	164	457	0	0	0	0	315	8	83
Number of Lanes	0	1	1	1	1	0	0	0	0	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	2
HCM Control Delay	58.8	43.9	33.1
HCM LOS	F	E	D

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	100%	0%	78%
Vol Thru, %	100%	0%	0%	100%	2%
Vol Right, %	0%	100%	0%	0%	20%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	393	267	123	343	304
LT Vol	0	0	123	0	236
Through Vol	393	0	0	343	6
RT Vol	0	267	0	0	62
Lane Flow Rate	524	356	164	457	405
Geometry Grp	7	7	7	7	2
Degree of Util (X)	1.061	0.65	0.375	0.934	0.797
Departure Headway (Hd)	7.292	6.571	8.474	7.572	7.265
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	498	548	428	480	503
Service Time	5.065	4.343	6.174	5.272	5.265
HCM Lane V/C Ratio	1.052	0.65	0.383	0.952	0.805
HCM Control Delay	84.7	20.8	16.2	53.8	33.1
HCM Lane LOS	F	C	C	F	D
HCM 95th-tile Q	15.9	4.7	1.7	11.1	7.4

Intersection												
Int Delay, s/veh	314.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	74	556	0	0	326	153	140	3	186	0	0	0
Future Vol, veh/h	74	556	0	0	326	153	140	3	186	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	230	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	62	62	62	62	62	62	62	62	62	62	62	62
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	119	897	0	0	526	247	226	5	300	0	0	0
Major/Minor	Major1		Major2			Minor1						
Conflicting Flow All	773	0	-	-	-	0	1785	1908	897			
Stage 1	-	-	-	-	-	-	1135	1135	-			
Stage 2	-	-	-	-	-	-	650	773	-			
Critical Hdwy	4.15	-	-	-	-	-	6.44	6.5	6.26			
Critical Hdwy Stg 1	-	-	-	-	-	-	5.44	5.5	-			
Critical Hdwy Stg 2	-	-	-	-	-	-	5.44	5.5	-			
Follow-up Hdwy	2.245	-	-	-	-	-	3.536	4	3.354			
Pot Cap-1 Maneuver	829	-	0	0	-	-	~ 89	69	333			
Stage 1	-	-	0	0	-	-	304	280	-			
Stage 2	-	-	0	0	-	-	516	412	-			
Platoon blocked, %	-		-			-						
Mov Cap-1 Maneuver	829	-	-	-	-	-	~ 76	0	333			
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 76	0	-			
Stage 1	-	-	-	-	-	-	260	0	-			
Stage 2	-	-	-	-	-	-	516	0	-			
Approach	EB		WB			NB						
HCM Control Delay, s	1.2		0			\$ 1372						
HCM LOS	F											
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR							
Capacity (veh/h)	136	829	-	-	-							
HCM Lane V/C Ratio	3.902	0.144	-	-	-							
HCM Control Delay (s)	\$ 1372	10.1	-	-	-							
HCM Lane LOS	F	B	-	-	-							
HCM 95th %tile Q(veh)	53.1	0.5	-	-	-							
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s			+: Computation Not Defined				*: All major volume in platoon			

Timings
11: A Street & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

07/19/2018

	→	↖	←	↙
Lane Group	EBT	WBL	WBT	NBL
Lane Configurations	↻	↻	↻	↻
Traffic Volume (vph)	387	17	260	399
Future Volume (vph)	387	17	260	399
Turn Type	NA	Prot	NA	Prot
Protected Phases	4	3	8	2
Permitted Phases				
Detector Phase	4	3	8	2
Switch Phase				
Minimum Initial (s)	10.0	5.0	10.0	10.0
Minimum Split (s)	22.8	9.6	22.8	21.6
Total Split (s)	57.0	16.0	73.0	47.0
Total Split (%)	47.5%	13.3%	60.8%	39.2%
Yellow Time (s)	4.8	3.6	4.8	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	4.6	5.8	4.6
Lead/Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		
Recall Mode	None	None	None	Min
Act Effect Green (s)	29.7	7.4	33.0	25.3
Actuated g/C Ratio	0.42	0.10	0.47	0.36
v/c Ratio	0.73	0.10	0.33	0.69
Control Delay	25.2	43.9	12.9	29.0
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	25.2	43.9	12.9	29.0
LOS	C	D	B	C
Approach Delay	25.2		14.8	29.0
Approach LOS	C		B	C

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 70.7

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.73

Intersection Signal Delay: 24.1

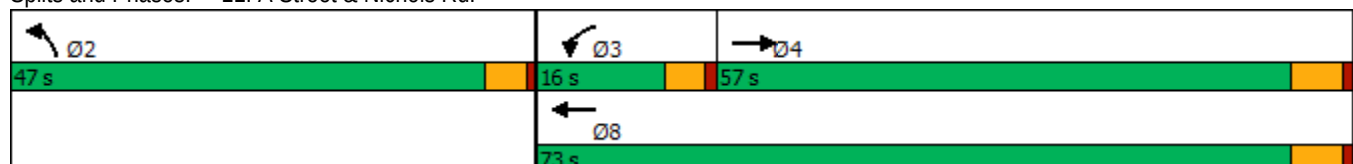
Intersection LOS: C

Intersection Capacity Utilization 59.1%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 11: A Street & Nichols Rd.



HCM 6th Signalized Intersection Summary 11: A Street & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

07/19/2018

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	387	126	17	260	399	5
Future Volume (veh/h)	387	126	17	260	399	5
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1900	1900
Adj Flow Rate, veh/h	421	137	18	283	434	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	0	0
Cap, veh/h	525	171	39	937	526	6
Arrive On Green	0.39	0.39	0.02	0.50	0.29	0.29
Sat Flow, veh/h	1351	440	1781	1870	1783	21
Grp Volume(v), veh/h	0	558	18	283	440	0
Grp Sat Flow(s),veh/h/ln	0	1791	1781	1870	1807	0
Q Serve(g_s), s	0.0	14.1	0.5	4.5	11.6	0.0
Cycle Q Clear(g_c), s	0.0	14.1	0.5	4.5	11.6	0.0
Prop In Lane		0.25	1.00		0.99	0.01
Lane Grp Cap(c), veh/h	0	696	39	937	533	0
V/C Ratio(X)	0.00	0.80	0.46	0.30	0.83	0.00
Avail Cap(c_a), veh/h	0	1800	398	2466	1504	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	13.8	24.6	7.5	16.7	0.0
Incr Delay (d2), s/veh	0.0	2.2	8.1	0.2	3.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	4.5	0.3	1.2	4.7	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	16.0	32.7	7.7	20.0	0.0
LnGrp LOS	A	B	C	A	C	A
Approach Vol, veh/h	558			301	440	
Approach Delay, s/veh	16.0			9.2	20.0	
Approach LOS	B			A	C	
Timer - Assigned Phs	2		3	4	8	
Phs Duration (G+Y+Rc), s	19.6		5.7	25.6	31.3	
Change Period (Y+Rc), s	4.6		4.6	5.8	5.8	
Max Green Setting (Gmax), s	42.4		11.4	51.2	67.2	
Max Q Clear Time (g_c+l1), s	13.6		2.5	16.1	6.5	
Green Ext Time (p_c), s	1.5		0.0	3.7	1.6	
Intersection Summary						
HCM 6th Ctrl Delay			15.8			
HCM 6th LOS			B			
Notes						

Intersection						
Int Delay, s/veh	2.9					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	230	225	0	134	143	0
Future Vol, veh/h	230	225	0	134	143	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	200	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	250	245	0	146	155	0
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	495	0	519	373
Stage 1	-	-	-	-	373	-
Stage 2	-	-	-	-	146	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1069	-	517	673
Stage 1	-	-	-	-	696	-
Stage 2	-	-	-	-	881	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1069	-	517	673
Mov Cap-2 Maneuver	-	-	-	-	517	-
Stage 1	-	-	-	-	696	-
Stage 2	-	-	-	-	881	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		14.9	
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	517	-	-	1069	-	
HCM Lane V/C Ratio	0.301	-	-	-	-	
HCM Control Delay (s)	14.9	-	-	0	-	
HCM Lane LOS	B	-	-	A	-	
HCM 95th %tile O(veh)	1.3	-	-	0	-	

Intersection												
Int Delay, s/veh	1.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	29	0	3	1	0	4	1	110	0	2	211	12
Future Vol, veh/h	29	0	3	1	0	4	1	110	0	2	211	12
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	32	0	3	1	0	4	1	120	0	2	229	13
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	364	362	236	363	368	120	242	0	0	120	0	0
Stage 1	240	240	-	122	122	-	-	-	-	-	-	-
Stage 2	124	122	-	241	246	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	592	565	803	593	561	931	1324	-	-	1468	-	-
Stage 1	763	707	-	882	795	-	-	-	-	-	-	-
Stage 2	880	795	-	762	703	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	588	563	803	589	559	931	1324	-	-	1468	-	-
Mov Cap-2 Maneuver	588	563	-	589	559	-	-	-	-	-	-	-
Stage 1	762	706	-	881	794	-	-	-	-	-	-	-
Stage 2	875	794	-	757	702	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	11.3		9.3		0.1		0.1					
HCM LOS	B		A									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1324	-	-	603	834	1468	-	-				
HCM Lane V/C Ratio	0.001	-	-	0.058	0.007	0.001	-	-				
HCM Control Delay (s)	7.7	0	-	11.3	9.3	7.5	0	-				
HCM Lane LOS	A	A	-	B	A	A	A	-				
HCM 95th %tile O(veh)	0	-	-	0.2	0	0	-	-				

Intersection						
Int Delay, s/veh	2.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	48	68	112	215	0
Future Vol, veh/h	0	48	68	112	215	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	52	74	122	234	0
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	504	234	234	0	-	0
Stage 1	234	-	-	-	-	-
Stage 2	270	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	528	805	1333	-	-	-
Stage 1	805	-	-	-	-	-
Stage 2	775	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	496	805	1333	-	-	-
Mov Cap-2 Maneuver	496	-	-	-	-	-
Stage 1	757	-	-	-	-	-
Stage 2	775	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	9.8	3		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1333	-	805	-	-	
HCM Lane V/C Ratio	0.055	-	0.065	-	-	
HCM Control Delay (s)	7.9	0	9.8	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0.2	-	0.2	-	-	

Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	3	259	172	3	7	7
Future Vol, veh/h	3	259	172	3	7	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	282	187	3	8	8
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	190	0	-	0	477	189
Stage 1	-	-	-	-	189	-
Stage 2	-	-	-	-	288	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1384	-	-	-	547	853
Stage 1	-	-	-	-	843	-
Stage 2	-	-	-	-	761	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1384	-	-	-	545	853
Mov Cap-2 Maneuver	-	-	-	-	545	-
Stage 1	-	-	-	-	840	-
Stage 2	-	-	-	-	761	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.1	0		10.5		
HCM LOS				B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1384	-	-	-	-	665
HCM Lane V/C Ratio	0.002	-	-	-	-	0.023
HCM Control Delay (s)	7.6	0	-	-	-	10.5
HCM Lane LOS	A	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	-	0.1

Intersection						
Int Delay, s/veh	7.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	267	265	13	223	0
Future Vol, veh/h	0	267	265	13	223	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	290	288	14	242	0
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	832	242	242	0	-	0
Stage 1	242	-	-	-	-	-
Stage 2	590	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	339	797	1324	-	-	-
Stage 1	798	-	-	-	-	-
Stage 2	554	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	265	797	1324	-	-	-
Mov Cap-2 Maneuver	265	-	-	-	-	-
Stage 1	623	-	-	-	-	-
Stage 2	554	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	12.1	8.1		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1324	-	797	-	-	
HCM Lane V/C Ratio	0.218	-	0.364	-	-	
HCM Control Delay (s)	8.5	0	12.1	-	-	
HCM Lane LOS	A	A	B	-	-	
HCM 95th %tile Q(veh)	0.8	-	1.7	-	-	

Intersection						
Int Delay, s/veh	50.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	166	37	242	65	28	462
Future Vol, veh/h	166	37	242	65	28	462
Conflicting Peds, #/hr	0	1	0	3	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	66	66	66	66	66	66
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	252	56	367	98	42	700
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	1203	420	0	0	468	0
Stage 1	419	-	-	-	-	-
Stage 2	784	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	~ 204	633	-	-	1094	-
Stage 1	664	-	-	-	-	-
Stage 2	450	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 191	631	-	-	1091	-
Mov Cap-2 Maneuver	~ 191	-	-	-	-	-
Stage 1	620	-	-	-	-	-
Stage 2	450	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	249.1	0		0.5		
HCM LOS	F					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	-	219	1091	-	
HCM Lane V/C Ratio	-	-	1.404	0.039	-	
HCM Control Delay (s)	-	-	249.1	8.4	0	
HCM Lane LOS	-	-	F	A	A	
HCM 95th %tile Q(veh)	-	-	17.6	0.1	-	
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

Intersection						
Int Delay, s/veh	6.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	166	37	242	65	28	462
Future Vol, veh/h	166	37	242	65	28	462
Conflicting Peds, #/hr	0	1	0	3	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	180	40	263	71	30	502
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	864	303	0	0	337	0
Stage 1	302	-	-	-	-	-
Stage 2	562	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	325	737	-	-	1222	-
Stage 1	750	-	-	-	-	-
Stage 2	571	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	313	734	-	-	1219	-
Mov Cap-2 Maneuver	313	-	-	-	-	-
Stage 1	722	-	-	-	-	-
Stage 2	571	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	31.3	0	0.5			
HCM LOS	D					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	350	1219	-	
HCM Lane V/C Ratio	-	-	0.63	0.025	-	
HCM Control Delay (s)	-	-	31.3	8	0	
HCM Lane LOS	-	-	D	A	A	
HCM 95th %tile Q(veh)	-	-	4.1	0.1	-	

Intersection												
Int Delay, s/veh	389											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	129	0	263	6	0	15	166	163	6	8	392	228
Future Vol, veh/h	129	0	263	6	0	15	166	163	6	8	392	228
Conflicting Peds, #/hr	0	0	0	0	0	21	0	0	14	0	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	69	69	69	69	69	69	69	69	69	69	69	69
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	187	0	381	9	0	22	241	236	9	12	568	330
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1513	1499	734	1685	1660	276	899	0	0	259	0	0
Stage 1	758	758	-	737	737	-	-	-	-	-	-	-
Stage 2	755	741	-	948	923	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	~ 98	122	420	75	97	763	756	-	-	1306	-	-
Stage 1	399	415	-	410	425	-	-	-	-	-	-	-
Stage 2	401	423	-	313	349	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 65	74	420	~ 5	59	738	755	-	-	1289	-	-
Mov Cap-2 Maneuver	~ 65	74	-	~ 5	59	-	-	-	-	-	-	-
Stage 1	251	406	-	255	264	-	-	-	-	-	-	-
Stage 2	240	263	-	28	342	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, \$	1315.2		\$ 844.3		5.9		0.1					
HCM LOS	F		F									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	755	-	-	150	17	1289	-	-				
HCM Lane V/C Ratio	0.319	-	-	3.787	1.79	0.009	-	-				
HCM Control Delay (s)	12	0		\$ 1315.2	\$ 844.3	7.8	0	-				
HCM Lane LOS	B	A	-	F	F	A	A	-				
HCM 95th %tile Q(veh)	1.4	-	-	56.1	4.3	0	-	-				
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined				*: All major volume in platoon				

Intersection												
Int Delay, s/veh	84.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	129	0	263	6	0	15	166	163	6	8	392	228
Future Vol, veh/h	129	0	263	6	0	15	166	163	6	8	392	228
Conflicting Peds, #/hr	0	0	0	0	0	21	0	0	14	0	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	140	0	286	7	0	16	180	177	7	9	426	248
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1139	1127	551	1266	1248	216	675	0	0	198	0	0
Stage 1	569	569	-	555	555	-	-	-	-	-	-	-
Stage 2	570	558	-	711	693	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	178	205	534	146	173	824	916	-	-	1375	-	-
Stage 1	507	506	-	516	513	-	-	-	-	-	-	-
Stage 2	506	512	-	424	445	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	141	156	533	55	132	797	915	-	-	1357	-	-
Mov Cap-2 Maneuver	141	156	-	55	132	-	-	-	-	-	-	-
Stage 1	395	500	-	398	396	-	-	-	-	-	-	-
Stage 2	379	395	-	194	440	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	290.4		30.5		4.9		0.1					
HCM LOS	F		D									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	915	-	-	278	164	1357	-	-				
HCM Lane V/C Ratio	0.197	-	-	1.533	0.139	0.006	-	-				
HCM Control Delay (s)	9.9	0	-	290.4	30.5	7.7	0	-				
HCM Lane LOS	A	A	-	F	D	A	A	-				
HCM 95th %tile O(veh)	0.7	-	-	24.9	0.5	0	-	-				

Timings
19: Dexter Av. & Central Av. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

05/18/2018

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	227	886	124	121	1373	217	99	252	92	142	372
Future Volume (vph)	227	886	124	121	1373	217	99	252	92	142	372
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2	1	6	7
Permitted Phases			4			8					6
Detector Phase	7	4	4	3	8	8	5	2	1	6	7
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0	5.0
Minimum Split (s)	9.6	26.8	26.8	9.6	26.8	26.8	9.6	42.4	9.6	15.8	9.6
Total Split (s)	26.0	42.4	42.4	21.1	37.5	37.5	19.5	43.5	13.0	37.0	26.0
Total Split (%)	21.7%	35.3%	35.3%	17.6%	31.3%	31.3%	16.3%	36.3%	10.8%	30.8%	21.7%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	4.8	3.6	4.4	3.6	4.8	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	5.8	4.6	5.8	5.8	4.6	5.4	4.6	5.8	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	None	Max	None
Act Effect Green (s)	19.2	38.2	38.2	12.7	31.7	31.7	11.2	38.1	8.2	34.7	59.7
Actuated g/C Ratio	0.16	0.32	0.32	0.11	0.27	0.27	0.10	0.32	0.07	0.29	0.51
v/c Ratio	0.86	0.59	0.22	0.70	0.87	0.40	0.64	0.64	0.82	0.28	0.48
Control Delay	75.7	35.4	4.6	69.6	48.1	6.5	68.9	38.8	98.8	35.3	15.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	75.7	35.4	4.6	69.6	48.1	6.5	68.9	38.8	98.8	35.3	15.9
LOS	E	D	A	E	D	A	E	D	F	D	B
Approach Delay		39.7			44.4			45.6		33.0	
Approach LOS		D			D			D		C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 117.7

Natural Cycle: 100

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 41.3

Intersection LOS: D

Intersection Capacity Utilization 85.4%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 19: Dexter Av. & Central Av. (SR-74)

			
Ø1	Ø2	Ø3	Ø4
13 s	43.5 s	21.1 s	42.4 s
			
Ø5	Ø6	Ø7	Ø8
19.5 s	37 s	26 s	37.5 s

HCM 6th Signalized Intersection Summary
19: Dexter Av. & Central Av. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

05/18/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  						 	
Traffic Volume (veh/h)	227	886	124	121	1373	217	99	252	87	92	142	372
Future Volume (veh/h)	227	886	124	121	1373	217	99	252	87	92	142	372
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	249	974	93	133	1509	196	109	277	55	101	156	353
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	277	1695	526	160	1715	417	135	498	99	125	604	758
Arrive On Green	0.16	0.33	0.33	0.09	0.27	0.27	0.08	0.33	0.33	0.07	0.32	0.32
Sat Flow, veh/h	1781	5106	1585	1781	6434	1565	1781	1515	301	1781	1870	1585
Grp Volume(v), veh/h	249	974	93	133	1509	196	109	0	332	101	156	353
Grp Sat Flow(s),veh/h/ln	1781	1702	1585	1781	1609	1565	1781	0	1816	1781	1870	1585
Q Serve(g_s), s	15.9	18.3	4.8	8.5	26.1	12.2	7.0	0.0	17.4	6.5	7.1	17.3
Cycle Q Clear(g_c), s	15.9	18.3	4.8	8.5	26.1	12.2	7.0	0.0	17.4	6.5	7.1	17.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.17	1.00		1.00
Lane Grp Cap(c), veh/h	277	1695	526	160	1715	417	135	0	596	125	604	758
V/C Ratio(X)	0.90	0.57	0.18	0.83	0.88	0.47	0.81	0.00	0.56	0.81	0.26	0.47
Avail Cap(c_a), veh/h	329	1695	526	253	1758	428	229	0	596	129	604	758
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.1	32.0	27.5	51.9	40.8	35.7	52.8	0.0	32.0	53.2	29.0	20.3
Incr Delay (d2), s/veh	21.7	0.5	0.2	6.4	5.4	0.8	4.3	0.0	3.7	27.4	1.0	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.5	7.3	1.8	4.0	10.5	4.6	3.2	0.0	8.0	3.8	3.3	6.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	69.8	32.5	27.7	58.3	46.2	36.5	57.1	0.0	35.7	80.6	30.0	22.3
LnGrp LOS	E	C	C	E	D	D	E	A	D	F	C	C
Approach Vol, veh/h		1316			1838			441			610	
Approach Delay, s/veh		39.2			46.0			41.0			33.9	
Approach LOS		D			D			D			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.8	43.9	15.0	44.3	13.4	43.3	22.6	36.7				
Change Period (Y+Rc), s	4.6	* 5.8	4.6	5.8	4.6	5.8	4.6	5.8				
Max Green Setting (Gmax), s	8.4	* 38	16.5	36.6	14.9	31.2	21.4	31.7				
Max Q Clear Time (g_c+l1), s	8.5	19.4	10.5	20.3	9.0	19.3	17.9	28.1				
Green Ext Time (p_c), s	0.0	1.7	0.1	6.0	0.1	1.6	0.1	2.9				

Intersection Summary

HCM 6th Ctrl Delay	41.6
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Timings

S. Nichols Mixed-Use Development (JN 10878)

20: Cambern Av./Cambern Av & Central Av. (SR-74)

05/18/2018

										
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	125	1044	1	1633	111	3	2	126	4	89
Future Volume (vph)	125	1044	1	1633	111	3	2	126	4	89
Turn Type	Prot	NA	Prot	NA	Perm	Perm	NA	Perm	NA	Perm
Protected Phases	7	4	3	8			2		6	
Permitted Phases					8	2		6		6
Detector Phase	7	4	3	8	8	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	24.8	9.6	25.5	25.5	34.7	34.7	14.7	14.7	14.7
Total Split (s)	12.0	75.4	9.6	73.0	73.0	35.0	35.0	35.0	35.0	35.0
Total Split (%)	10.0%	62.8%	8.0%	60.8%	60.8%	29.2%	29.2%	29.2%	29.2%	29.2%
Yellow Time (s)	3.6	4.8	3.6	5.5	5.5	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.6	5.8	4.6	6.5	6.5	4.7	4.7		4.7	4.7
Lead/Lag	Lead	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	Max	None	None	None	None	Max	Max	Max	Max	Max
Act Effect Green (s)	7.4	76.3	5.0	65.5	65.5	30.3	30.3		30.3	30.3
Actuated g/C Ratio	0.06	0.64	0.04	0.55	0.55	0.25	0.25		0.25	0.25
v/c Ratio	0.64	0.51	0.01	0.92	0.13	0.01	0.01		0.41	0.21
Control Delay	69.3	12.7	56.0	33.6	2.6	34.0	30.0		41.6	10.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay	69.3	12.7	56.0	33.6	2.6	34.0	30.0		41.6	10.2
LOS	E	B	E	C	A	C	C		D	B
Approach Delay		18.8		31.7			32.0		28.8	
Approach LOS		B		C			C		C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 119

Natural Cycle: 100

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.92

Intersection Signal Delay: 26.7

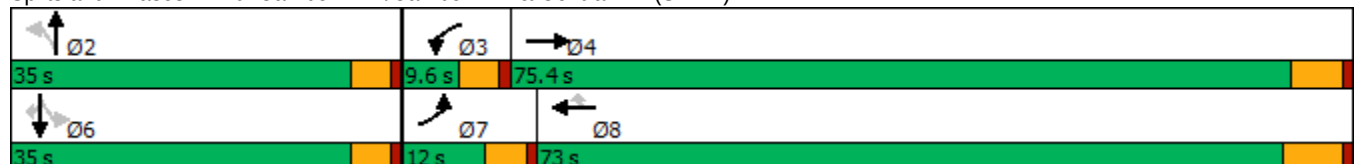
Intersection LOS: C

Intersection Capacity Utilization 91.7%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 20: Cambern Av./Cambern Av & Central Av. (SR-74)



HCM 6th Signalized Intersection Summary S. Nichols Mixed-Use Development (JN 10878)
 20: Cambern Av./Cambern Av & Central Av. (SR-74) 05/18/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	125	1044	1	1	1633	111	3	2	1	126	4	89
Future Volume (veh/h)	125	1044	1	1	1633	111	3	2	1	126	4	89
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	137	1147	1	1	1795	80	3	2	0	138	4	54
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	216	2222	2	2	1951	858	293	478	0	412	11	405
Arrive On Green	0.06	0.61	0.61	0.00	0.55	0.55	0.26	0.26	0.00	0.26	0.26	0.26
Sat Flow, veh/h	3456	3643	3	1781	3554	1564	1344	1870	0	1377	43	1583
Grp Volume(v), veh/h	137	559	589	1	1795	80	3	2	0	142	0	54
Grp Sat Flow(s),veh/h/ln	1728	1777	1870	1781	1777	1564	1344	1870	0	1421	0	1583
Q Serve(g_s), s	4.6	21.3	21.3	0.1	54.6	2.9	0.2	0.1	0.0	9.7	0.0	3.1
Cycle Q Clear(g_c), s	4.6	21.3	21.3	0.1	54.6	2.9	10.0	0.1	0.0	9.8	0.0	3.1
Prop In Lane	1.00		0.00	1.00		1.00	1.00		0.00	0.97		1.00
Lane Grp Cap(c), veh/h	216	1084	1140	2	1951	858	293	478	0	423	0	405
V/C Ratio(X)	0.64	0.52	0.52	0.41	0.92	0.09	0.01	0.00	0.00	0.34	0.00	0.13
Avail Cap(c_a), veh/h	216	1084	1140	75	1993	877	293	478	0	423	0	405
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	54.3	13.2	13.2	59.2	24.4	12.7	40.7	32.9	0.0	36.5	0.0	34.0
Incr Delay (d2), s/veh	13.4	0.6	0.6	36.4	7.6	0.1	0.1	0.0	0.0	2.1	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	7.8	8.2	0.1	21.7	0.9	0.1	0.0	0.0	3.7	0.0	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.7	13.8	13.7	95.6	32.0	12.8	40.7	32.9	0.0	38.7	0.0	34.7
LnGrp LOS	E	B	B	F	C	B	D	C	A	D	A	C
Approach Vol, veh/h	1285			1876			5			196		
Approach Delay, s/veh	19.5			31.2			37.6			37.6		
Approach LOS	B			C			D			D		
Timer - Assigned Phs	2			3			4			6		
Phs Duration (G+Y+Rc), s	35.0			4.8			78.8			35.0		
Change Period (Y+Rc), s	* 4.7			4.6			* 6.5			* 4.7		
Max Green Setting (Gmax), s	* 30			5.0			* 70			* 30		
Max Q Clear Time (g_c+I1), s	12.0			2.1			23.3			11.8		
Green Ext Time (p_c), s	0.0			0.0			13.6			0.8		

Intersection Summary

HCM 6th Ctrl Delay	27.1
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection						
Int Delay, s/veh	0.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	389	354	0	299	0	7
Future Vol, veh/h	389	354	0	299	0	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	423	385	0	325	0	8
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	616
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.318
Pot Cap-1 Maneuver	-	-	0	-	0	491
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	491
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		12.4	
HCM LOS					B	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT		
Capacity (veh/h)	491	-	-	-		
HCM Lane V/C Ratio	0.015	-	-	-		
HCM Control Delay (s)	12.4	-	-	-		
HCM Lane LOS	B	-	-	-		
HCM 95th %tile O(veh)	0	-	-	-		

Timings

S. Nichols Mixed-Use Development (JN 10878)

1: Lake St. & Nichols Rd.

05/18/2018



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations		↔		↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	1	6	251	0	1	362	191	42	845
Future Volume (vph)	1	6	251	0	1	362	191	42	845
Turn Type	Perm	NA	Perm	NA	Prot	NA	Perm	Prot	NA
Protected Phases		4		8	5	2		1	6
Permitted Phases	4		8				2		
Detector Phase	4	4	8	8	5	2	2	1	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	14.6	14.6	16.2	16.2	9.6	16.2	16.2	9.6	16.2
Total Split (s)	42.2	42.2	42.2	42.2	35.6	42.2	42.2	35.6	42.2
Total Split (%)	35.2%	35.2%	35.2%	35.2%	29.7%	35.2%	35.2%	29.7%	35.2%
Yellow Time (s)	3.6	3.6	5.2	5.2	3.6	5.2	5.2	3.6	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.6		6.2	4.6	6.2	6.2	4.6	6.2
Lead/Lag					Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	None	Max
Act Effect Green (s)		20.7		19.0	5.2	37.1	37.1	6.8	42.2
Actuated g/C Ratio		0.27		0.25	0.07	0.49	0.49	0.09	0.56
v/c Ratio		0.02		0.78	0.01	0.44	0.25	0.29	0.89
Control Delay		19.8		34.9	40.0	17.9	7.1	41.1	30.3
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		19.8		34.9	40.0	17.9	7.1	41.1	30.3
LOS		B		C	D	B	A	D	C
Approach Delay		19.8		34.9		14.2			30.9
Approach LOS		B		C		B			C

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 75.6

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.89

Intersection Signal Delay: 26.1

Intersection LOS: C

Intersection Capacity Utilization 77.3%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 1: Lake St. & Nichols Rd.



HCM 6th Signalized Intersection Summary
1: Lake St. & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

05/18/2018

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (veh/h)	1	6	1	251	0	30	1	362	191	42	845	1	
Future Volume (veh/h)	1	6	1	251	0	30	1	362	191	42	845	1	
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach	No			No			No			No			
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	
Adj Flow Rate, veh/h	1	7	1	276	0	25	1	398	0	46	929	1	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2	
Cap, veh/h	75	380	50	415	0	29	2	905		73	978	1	
Arrive On Green	0.25	0.25	0.25	0.25	0.00	0.25	0.00	0.48	0.00	0.04	0.52	0.52	
Sat Flow, veh/h	86	1539	203	1308	0	118	1781	1870	1585	1781	1868	2	
Grp Volume(v), veh/h	9	0	0	301	0	0	1	398	0	46	0	930	
Grp Sat Flow(s),veh/h/ln	1828	0	0	1426	0	0	1781	1870	1585	1781	0	1870	
Q Serve(g_s), s	0.0	0.0	0.0	14.7	0.0	0.0	0.0	10.4	0.0	1.9	0.0	35.1	
Cycle Q Clear(g_c), s	0.3	0.0	0.0	15.0	0.0	0.0	0.0	10.4	0.0	1.9	0.0	35.1	
Prop In Lane	0.11		0.11	0.92		0.08	1.00		1.00	1.00		0.00	
Lane Grp Cap(c), veh/h	505	0	0	445	0	0	2	905		73	0	979	
V/C Ratio(X)	0.02	0.00	0.00	0.68	0.00	0.00	0.41	0.44		0.63	0.00	0.95	
Avail Cap(c_a), veh/h	961	0	0	781	0	0	742	905		742	0	979	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00	
Uniform Delay (d), s/veh	21.2	0.0	0.0	26.7	0.0	0.0	37.1	12.6	0.0	35.1	0.0	16.8	
Incr Delay (d2), s/veh	0.0	0.0	0.0	1.8	0.0	0.0	35.9	1.6	0.0	3.2	0.0	19.0	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.0	4.7	0.0	0.0	0.0	3.9	0.0	0.8	0.0	16.4	
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	21.2	0.0	0.0	28.5	0.0	0.0	73.0	14.2	0.0	38.4	0.0	35.8	
LnGrp LOS	C	A	A	C	A	A	E	B		D	A	D	
Approach Vol, veh/h	9			301			399			A			976
Approach Delay, s/veh	21.2			28.5			14.3						35.9
Approach LOS	C			C			B						D
Timer - Assigned Phs	1	2		4	5	6		8					
Phs Duration (G+Y+Rc), s	7.7	42.2		24.6	4.7	45.2		24.6					
Change Period (Y+Rc), s	4.6	6.2		* 6.2	4.6	6.2		6.2					
Max Green Setting (Gmax), s	31.0	36.0		* 38	31.0	36.0		36.0					
Max Q Clear Time (g_c+I1), s	3.9	12.4		2.3	2.0	37.1		17.0					
Green Ext Time (p_c), s	0.0	3.1		0.0	0.0	0.0		1.4					
Intersection Summary													
HCM 6th Ctrl Delay	29.4												
HCM 6th LOS	C												
Notes													
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.													
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.													

Timings
2: Lake St. & Alberhill Ranch Rd.

S. Nichols Mixed-Use Development (JN 10878)

05/18/2018

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	35	26	501	30	30	1030
Future Volume (vph)	35	26	501	30	30	1030
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2		
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	15.1	15.1	16.2	16.2	11.2	16.2
Total Split (s)	16.0	16.0	91.0	91.0	13.0	104.0
Total Split (%)	13.3%	13.3%	75.8%	75.8%	10.8%	86.7%
Yellow Time (s)	4.1	4.1	5.2	5.2	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	6.2	6.2	6.2	6.2
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	Max	Max	None	Max
Act Effect Green (s)	10.0	10.0	94.3	94.3	6.1	102.1
Actuated g/C Ratio	0.08	0.08	0.79	0.79	0.05	0.86
v/c Ratio	0.24	0.17	0.35	0.03	0.34	0.66
Control Delay	55.5	20.7	6.0	1.7	64.7	6.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.5	20.7	6.0	1.7	64.7	6.3
LOS	E	C	A	A	E	A
Approach Delay	40.6		5.8			8.0
Approach LOS	D		A			A

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 119.1
Natural Cycle: 60
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.66
Intersection Signal Delay: 8.5
Intersection LOS: A
Intersection Capacity Utilization 72.0%
ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 2: Lake St. & Alberhill Ranch Rd.



HCM 6th Signalized Intersection Summary
2: Lake St. & Alberhill Ranch Rd.

S. Nichols Mixed-Use Development (JN 10878)

05/18/2018

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	35	26	501	30	30	1030
Future Volume (veh/h)	35	26	501	30	30	1030
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		0.98	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	36	14	511	28	31	1051
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	122	109	1412	1172	48	1562
Arrive On Green	0.07	0.07	0.75	0.75	0.03	0.83
Sat Flow, veh/h	1781	1585	1870	1553	1781	1870
Grp Volume(v), veh/h	36	14	511	28	31	1051
Grp Sat Flow(s),veh/h/ln	1781	1585	1870	1553	1781	1870
Q Serve(g_s), s	2.3	1.0	10.8	0.5	2.0	24.8
Cycle Q Clear(g_c), s	2.3	1.0	10.8	0.5	2.0	24.8
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	122	109	1412	1172	48	1562
V/C Ratio(X)	0.29	0.13	0.36	0.02	0.64	0.67
Avail Cap(c_a), veh/h	166	147	1412	1172	103	1562
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.9	51.3	4.8	3.6	56.4	3.6
Incr Delay (d2), s/veh	0.5	0.2	0.7	0.0	5.2	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.4	3.2	0.1	0.9	4.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	52.3	51.5	5.6	3.6	61.6	6.0
LnGrp LOS	D	D	A	A	E	A
Approach Vol, veh/h	50		539			1082
Approach Delay, s/veh	52.1		5.5			7.6
Approach LOS	D		A			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	9.4	94.6			104.0	13.1
Change Period (Y+Rc), s	6.2	6.2			6.2	5.1
Max Green Setting (Gmax), s	6.8	84.8			97.8	10.9
Max Q Clear Time (g_c+l1), s	4.0	12.8			26.8	4.3
Green Ext Time (p_c), s	0.0	3.2			10.5	0.0
Intersection Summary						
HCM 6th Ctrl Delay			8.2			
HCM 6th LOS			A			

Intersection

Intersection Delay, s/veh10.5

Intersection LOS B

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	223	18	85	273	9	72
Future Vol, veh/h	223	18	85	273	9	72
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	237	19	90	290	10	77
Number of Lanes	1	0	0	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	1
HCM Control Delay	9.7	11.5	8.7
HCM LOS	A	B	A

Lane	NBLn1	NBLn2	EBLn1	WBLn1
Vol Left, %	100%	0%	0%	24%
Vol Thru, %	0%	0%	93%	76%
Vol Right, %	0%	100%	7%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	9	72	241	358
LT Vol	9	0	0	85
Through Vol	0	0	223	273
RT Vol	0	72	18	0
Lane Flow Rate	10	77	256	381
Geometry Grp	7	7	2	2
Degree of Util (X)	0.017	0.111	0.322	0.475
Departure Headway (Hd)	6.449	5.234	4.525	4.486
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	554	682	795	804
Service Time	4.2	2.985	2.557	2.514
HCM Lane V/C Ratio	0.018	0.113	0.322	0.474
HCM Control Delay	9.3	8.6	9.7	11.5
HCM Lane LOS	A	A	A	B
HCM 95th-tile Q	0.1	0.4	1.4	2.6

Timings
4: Lakeshore Dr. & Riverside Dr. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

05/18/2018

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	29	490	263	123	604	305	194	251	272	308	15
Future Volume (vph)	29	490	263	123	604	305	194	251	272	308	15
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2	1	6	
Permitted Phases			4			8					6
Detector Phase	7	4	4	3	8	8	5	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	32.4	32.4	9.6	33.4	33.4	9.6	34.7	9.6	32.7	32.7
Total Split (s)	9.6	38.3	38.3	20.3	49.0	49.0	27.6	35.4	26.0	33.8	33.8
Total Split (%)	8.0%	31.9%	31.9%	16.9%	40.8%	40.8%	23.0%	29.5%	21.7%	28.2%	28.2%
Yellow Time (s)	3.6	4.4	4.4	3.6	4.4	4.4	3.6	3.7	3.6	3.7	3.7
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.4	5.4	4.6	5.4	5.4	4.6	4.7	4.6	4.7	4.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	None	Max	Max
Act Effect Green (s)	5.1	29.2	29.2	12.0	40.4	40.4	16.8	31.0	20.0	34.2	34.2
Actuated g/C Ratio	0.05	0.26	0.26	0.11	0.36	0.36	0.15	0.28	0.18	0.31	0.31
v/c Ratio	0.38	0.55	0.44	0.67	0.92	0.43	0.75	0.42	0.89	0.29	0.03
Control Delay	69.3	38.3	6.5	66.9	56.0	7.7	64.0	26.4	75.0	33.3	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.3	38.3	6.5	66.9	56.0	7.7	64.0	26.4	75.0	33.3	0.1
LOS	E	D	A	E	E	A	E	C	E	C	A
Approach Delay		28.7			43.0			38.4		51.5	
Approach LOS		C			D			D		D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 111.7

Natural Cycle: 110

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.92

Intersection Signal Delay: 40.1

Intersection LOS: D

Intersection Capacity Utilization 92.1%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 4: Lakeshore Dr. & Riverside Dr. (SR-74)

			
Ø1	Ø2	Ø3	Ø4
26 s	35.4 s	20.3 s	38.3 s
			
Ø5	Ø6	Ø7	Ø8
27.6 s	33.8 s	9.6 s	49 s

HCM 6th Signalized Intersection Summary 4: Lakeshore Dr. & Riverside Dr. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

05/18/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	490	263	123	604	305	194	251	163	272	308	15
Future Volume (veh/h)	29	490	263	123	604	305	194	251	163	272	308	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	30	505	151	127	623	160	200	259	64	280	318	11
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	48	1057	472	155	668	559	230	771	187	308	1121	494
Arrive On Green	0.03	0.30	0.30	0.09	0.36	0.36	0.13	0.27	0.27	0.17	0.32	0.32
Sat Flow, veh/h	1781	3554	1585	1781	1870	1564	1781	2834	687	1781	3554	1565
Grp Volume(v), veh/h	30	505	151	127	623	160	200	161	162	280	318	11
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1870	1564	1781	1777	1745	1781	1777	1565
Q Serve(g_s), s	1.9	13.1	8.4	7.9	36.2	8.3	12.4	8.2	8.4	17.4	7.6	0.5
Cycle Q Clear(g_c), s	1.9	13.1	8.4	7.9	36.2	8.3	12.4	8.2	8.4	17.4	7.6	0.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.39	1.00		1.00
Lane Grp Cap(c), veh/h	48	1057	472	155	668	559	230	483	474	308	1121	494
V/C Ratio(X)	0.62	0.48	0.32	0.82	0.93	0.29	0.87	0.33	0.34	0.91	0.28	0.02
Avail Cap(c_a), veh/h	79	1057	472	248	722	604	363	483	474	338	1121	494
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.4	32.5	30.8	50.7	35.0	26.0	48.2	32.9	33.0	45.8	29.0	26.6
Incr Delay (d2), s/veh	4.8	0.3	0.4	5.2	18.2	0.3	8.0	1.8	2.0	25.0	0.6	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	5.6	3.2	3.7	19.1	3.0	6.0	3.8	3.8	9.8	3.3	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.2	32.8	31.2	55.9	53.2	26.3	56.2	34.7	35.0	70.8	29.7	26.7
LnGrp LOS	E	C	C	E	D	C	E	C	C	E	C	C
Approach Vol, veh/h		686			910			523			609	
Approach Delay, s/veh		33.6			48.8			43.0			48.5	
Approach LOS		C			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	24.1	35.4	14.4	39.0	19.2	40.3	7.6	45.7				
Change Period (Y+Rc), s	4.6	* 4.7	4.6	5.4	4.6	* 4.7	4.6	5.4				
Max Green Setting (Gmax), s	21.4	* 31	15.7	32.9	23.0	* 29	5.0	43.6				
Max Q Clear Time (g_c+I1), s	19.4	10.4	9.9	15.1	14.4	9.6	3.9	38.2				
Green Ext Time (p_c), s	0.1	1.8	0.1	3.4	0.2	2.0	0.0	2.1				
Intersection Summary												
HCM 6th Ctrl Delay			43.8									
HCM 6th LOS			D									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Intersection

Int Delay, s/veh 4.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕	↕		↕	↕
Traffic Vol, veh/h	2	861	4	15	879	124	0	0	15	37	1	2
Future Vol, veh/h	2	861	4	15	879	124	0	0	15	37	1	2
Conflicting Peds, #/hr	0	0	0	0	0	1	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Stop	-	-	Stop
Storage Length	-	-	-	-	-	-	-	-	75	-	-	75
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	888	4	15	906	128	0	0	15	38	1	2

Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	1035	0	0	892	0	0	1895	1959	890	1895	1897	971
Stage 1	-	-	-	-	-	-	894	894	-	1001	1001	-
Stage 2	-	-	-	-	-	-	1001	1065	-	894	896	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	672	-	-	760	-	-	53	64	342	53	69	307
Stage 1	-	-	-	-	-	-	336	360	-	293	321	-
Stage 2	-	-	-	-	-	-	293	299	-	336	359	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	671	-	-	760	-	-	50	60	342	48	65	307
Mov Cap-2 Maneuver	-	-	-	-	-	-	50	60	-	48	65	-
Stage 1	-	-	-	-	-	-	334	358	-	291	305	-
Stage 2	-	-	-	-	-	-	276	284	-	319	357	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.1	16	200.1
HCM LOS			C	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	-	342	671	-	-	760	-	-	48	307
HCM Lane V/C Ratio	-	0.045	0.003	-	-	0.02	-	-	0.816	0.007
HCM Control Delay (s)	0	16	10.4	0	-	9.8	0	-	209.7	16.8
HCM Lane LOS	A	C	B	A	-	A	A	-	F	C
HCM 95th %tile Q(veh)	-	0.1	0	-	-	0.1	-	-	3.3	0

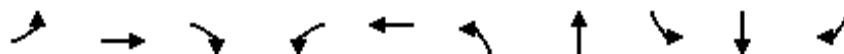
Intersection						
Int Delay, s/veh	8.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	238	54	289	296	78	329
Future Vol, veh/h	238	54	289	296	78	329
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	120	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	253	57	307	315	83	350
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	310	0	1211	282
Stage 1	-	-	-	-	282	-
Stage 2	-	-	-	-	929	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1250	-	201	757
Stage 1	-	-	-	-	766	-
Stage 2	-	-	-	-	385	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1250	-	152	757
Mov Cap-2 Maneuver	-	-	-	-	152	-
Stage 1	-	-	-	-	578	-
Stage 2	-	-	-	-	385	-
Approach	EB	WB		NB		
HCM Control Delay, s	0	4.4		21.5		
HCM LOS	C					
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	152	757	-	-	1250	-
HCM Lane V/C Ratio	0.546	0.462	-	-	0.246	-
HCM Control Delay (s)	54	13.8	-	-	8.8	-
HCM Lane LOS	F	B	-	-	A	-
HCM 95th %tile O(veh)	2.7	2.5	-	-	1	-

Timings

S. Nichols Mixed-Use Development (JN 10878)

7: Collier Av. (SR-74)/Collier Av. & Riverside Dr. (SR-74)/Riverside Dr.

05/18/2018



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations		↔	↔		↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	145	11	757	20	17	867	251	3	204	133
Future Volume (vph)	145	11	757	20	17	867	251	3	204	133
Turn Type	Perm	NA	pm+ov	Perm	NA	Split	NA	Split	NA	Perm
Protected Phases		4	2		8	2	2	6	6	
Permitted Phases	4		4	8						6
Detector Phase	4	4	2	8	8	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	15.4	15.4	15.8	14.6	14.6	15.8	15.8	16.2	16.2	16.2
Total Split (s)	19.0	19.0	79.0	19.0	19.0	79.0	79.0	22.0	22.0	22.0
Total Split (%)	15.8%	15.8%	65.8%	15.8%	15.8%	65.8%	65.8%	18.3%	18.3%	18.3%
Yellow Time (s)	4.4	4.4	4.8	3.6	3.6	4.8	4.8	5.2	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.4	5.8		4.6	5.8	5.8	6.2	6.2	6.2
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	None	None	Max	None	None	Max	Max	Max	Max	Max
Act Effect Green (s)		13.6	86.4		14.4	73.2	73.2	15.8	15.8	15.8
Actuated g/C Ratio		0.11	0.72		0.12	0.61	0.61	0.13	0.13	0.13
v/c Ratio		1.01	0.67		0.30	0.84	0.25	0.01	0.87	0.42
Control Delay		125.9	9.7		48.8	27.4	11.2	45.7	83.4	11.9
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		125.9	9.7		48.8	27.4	11.2	45.7	83.4	11.9
LOS		F	A		D	C	B	D	F	B
Approach Delay		29.5			48.8		23.6		55.1	
Approach LOS		C			D		C		E	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.01

Intersection Signal Delay: 30.7

Intersection LOS: C

Intersection Capacity Utilization 88.5%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 7: Collier Av. (SR-74)/Collier Av. & Riverside Dr. (SR-74)/Riverside Dr.

↖ ↗ Ø2	↖ ↗ Ø6	↖ ↗ Ø4
79 s	22 s	19 s
		↖ ↗ Ø8
		19 s

HCM 6th Signalized Intersection Summary S. Nichols Mixed-Use Development (JN 10878)
 7: Collier Av. (SR-74)/Collier Av. & Riverside Dr. (SR-74)/Riverside Dr. 05/18/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	145	11	757	20	17	7	867	251	19	3	204	133
Future Volume (veh/h)	145	11	757	20	17	7	867	251	19	3	204	133
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	151	11	741	21	18	1	903	261	19	3	212	66
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	176	9	1145	45	27	1	1079	1042	76	233	245	207
Arrive On Green	0.12	0.12	0.12	0.12	0.12	0.12	0.61	0.61	0.61	0.13	0.13	0.13
Sat Flow, veh/h	995	72	1548	0	227	6	1781	1720	125	1781	1870	1585
Grp Volume(v), veh/h	162	0	741	40	0	0	903	0	280	3	212	66
Grp Sat Flow(s),veh/h/ln	1067	0	1548	233	0	0	1781	0	1845	1781	1870	1585
Q Serve(g_s), s	0.0	0.0	14.4	0.0	0.0	0.0	48.9	0.0	8.5	0.2	13.4	4.6
Cycle Q Clear(g_c), s	14.4	0.0	14.4	14.4	0.0	0.0	48.9	0.0	8.5	0.2	13.4	4.6
Prop In Lane	0.93		1.00	0.52		0.02	1.00		0.07	1.00		1.00
Lane Grp Cap(c), veh/h	185	0	1145	73	0	0	1079	0	1118	233	245	207
V/C Ratio(X)	0.88	0.00	0.65	0.55	0.00	0.00	0.84	0.00	0.25	0.01	0.87	0.32
Avail Cap(c_a), veh/h	185	0	1145	73	0	0	1079	0	1118	233	245	207
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.7	0.0	6.5	51.0	0.0	0.0	19.0	0.0	11.1	45.7	51.5	47.6
Incr Delay (d2), s/veh	34.5	0.0	1.3	8.2	0.0	0.0	7.7	0.0	0.5	0.1	31.4	4.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.7	0.0	22.8	1.4	0.0	0.0	20.1	0.0	3.4	0.1	8.2	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	89.2	0.0	7.8	59.3	0.0	0.0	26.7	0.0	11.6	45.8	82.9	51.6
LnGrp LOS	F	A	A	E	A	A	C	A	B	D	F	D
Approach Vol, veh/h	903				40		1183				281	
Approach Delay, s/veh	22.4				59.3		23.2				75.1	
Approach LOS	C				E		C				E	
Timer - Assigned Phs	2		4		6		8					
Phs Duration (G+Y+Rc), s	79.0		19.8		22.0		19.8					
Change Period (Y+Rc), s	5.8		5.4		6.2		* 5.4					
Max Green Setting (Gmax), s	73.2		13.6		15.8		* 14					
Max Q Clear Time (g_c+I1), s	50.9		16.4		15.4		16.4					
Green Ext Time (p_c), s	5.2		0.0		0.0		0.0					
Intersection Summary												
HCM 6th Ctrl Delay			29.5									
HCM 6th LOS			C									
Notes												

Timings

S. Nichols Mixed-Use Development (JN 10878)

8: Collier Av./Collier Av. (SR-74) & Central Av./Central Av. (SR-74)

05/18/2018

											
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 		 		 			 	 		
Traffic Volume (vph)	202	315	203	191	712	49	132	336	902	145	44
Future Volume (vph)	202	315	203	191	712	49	132	336	902	145	44
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	7	4	3	8	1	5	2	3	1	6	
Permitted Phases					8			2			6
Detector Phase	7	4	3	8	1	5	2	3	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	5.0	10.0	5.0	5.0	10.0	10.0
Minimum Split (s)	9.6	14.7	9.6	42.8	9.6	9.6	15.8	9.6	9.6	29.8	29.8
Total Split (s)	14.0	28.8	28.0	42.8	43.0	13.6	20.2	28.0	43.0	49.6	49.6
Total Split (%)	11.7%	24.0%	23.3%	35.7%	35.8%	11.3%	16.8%	23.3%	35.8%	41.3%	41.3%
Yellow Time (s)	3.6	3.7	3.6	4.8	3.6	3.6	4.8	3.6	3.6	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.7	4.6	5.8	4.6	4.6	5.8	4.6	4.6	5.8	5.8
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	None	None	Max	Max
Act Effect Green (s)	9.0	17.1	11.1	18.1	49.6	7.1	19.1	31.4	30.3	44.7	44.7
Actuated g/C Ratio	0.09	0.18	0.11	0.19	0.51	0.07	0.20	0.32	0.31	0.46	0.46
v/c Ratio	0.66	0.61	0.54	0.57	0.48	0.40	0.37	0.60	0.87	0.09	0.06
Control Delay	56.0	41.1	47.5	43.1	7.9	56.6	42.6	23.5	42.7	18.6	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.0	41.1	47.5	43.1	7.9	56.6	42.6	23.5	42.7	18.6	0.1
LOS	E	D	D	D	A	E	D	C	D	B	A
Approach Delay		46.4		21.2			31.5			37.8	
Approach LOS		D		C			C			D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 97.7

Natural Cycle: 95

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 32.7

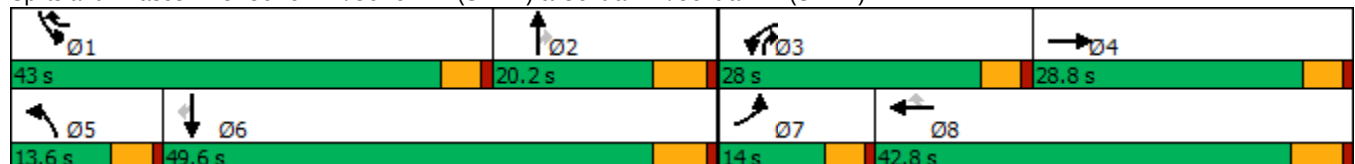
Intersection LOS: C

Intersection Capacity Utilization 70.4%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 8: Collier Av./Collier Av. (SR-74) & Central Av./Central Av. (SR-74)



HCM 6th Signalized Intersection Summary S. Nichols Mixed-Use Development (JN 10878)
 8: Collier Av./Collier Av. (SR-74) & Central Av./Central Av. (SR-74) 05/18/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	202	315	50	203	191	712	49	132	336	902	145	44
Future Volume (veh/h)	202	315	50	203	191	712	49	132	336	902	145	44
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	208	325	48	209	197	211	51	136	118	930	149	32
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	282	485	71	291	296	1269	71	429	491	1034	1735	763
Arrive On Green	0.08	0.16	0.16	0.08	0.16	0.16	0.04	0.23	0.23	0.30	0.49	0.49
Sat Flow, veh/h	3456	3110	455	3456	1870	2746	1781	1870	1561	3456	3554	1563
Grp Volume(v), veh/h	208	184	189	209	197	211	51	136	118	930	149	32
Grp Sat Flow(s),veh/h/ln	1728	1777	1788	1728	1870	1373	1781	1870	1561	1728	1777	1563
Q Serve(g_s), s	5.3	8.8	8.9	5.3	8.9	4.1	2.5	5.4	5.0	23.2	2.0	1.0
Cycle Q Clear(g_c), s	5.3	8.8	8.9	5.3	8.9	4.1	2.5	5.4	5.0	23.2	2.0	1.0
Prop In Lane	1.00		0.25	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	282	277	279	291	296	1269	71	429	491	1034	1735	763
V/C Ratio(X)	0.74	0.67	0.68	0.72	0.66	0.17	0.71	0.32	0.24	0.90	0.09	0.04
Avail Cap(c_a), veh/h	362	477	480	901	771	1966	179	429	491	1479	1735	763
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.3	35.7	35.7	40.1	35.5	14.3	42.6	28.8	22.9	30.2	12.3	12.0
Incr Delay (d2), s/veh	3.8	2.7	2.9	1.3	2.6	0.1	4.9	1.9	1.2	4.5	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	3.9	4.1	2.2	4.0	1.1	1.2	2.5	1.9	9.5	0.7	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.1	38.4	38.6	41.3	38.1	14.4	47.4	30.7	24.0	34.7	12.4	12.1
LnGrp LOS	D	D	D	D	D	B	D	C	C	C	B	B
Approach Vol, veh/h		581			617			305			1111	
Approach Delay, s/veh		40.5			31.1			30.9			31.0	
Approach LOS		D			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	31.4	26.4	12.2	19.8	8.2	49.6	11.9	20.0				
Change Period (Y+Rc), s	4.6	5.8	4.6	* 5.8	4.6	5.8	4.6	5.8				
Max Green Setting (Gmax), s	38.4	14.4	23.4	* 24	9.0	43.8	9.4	37.0				
Max Q Clear Time (g_c+I1), s	25.2	7.4	7.3	10.9	4.5	4.0	7.3	10.9				
Green Ext Time (p_c), s	1.7	0.6	0.3	1.8	0.0	1.0	0.1	1.8				

Intersection Summary

HCM 6th Ctrl Delay	33.1
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection

Intersection Delay, s/veh 25

Intersection LOS C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗	↖	↑						↕	
Traffic Vol, veh/h	0	365	268	84	453	0	0	0	0	145	2	132
Future Vol, veh/h	0	365	268	84	453	0	0	0	0	145	2	132
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	0	3	3	25	3	0	0	0	0	8	67	13
Mvmt Flow	0	388	285	89	482	0	0	0	0	154	2	140
Number of Lanes	0	1	1	1	1	0	0	0	0	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	2
HCM Control Delay	19.2	35.6	17.6
HCM LOS	C	E	C

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	100%	0%	52%
Vol Thru, %	100%	0%	0%	100%	1%
Vol Right, %	0%	100%	0%	0%	47%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	365	268	84	453	279
LT Vol	0	0	84	0	145
Through Vol	365	0	0	453	2
RT Vol	0	268	0	0	132
Lane Flow Rate	388	285	89	482	297
Geometry Grp	7	7	7	7	2
Degree of Util (X)	0.702	0.459	0.185	0.878	0.548
Departure Headway (Hd)	6.511	5.796	7.452	6.56	6.644
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	551	616	479	549	540
Service Time	4.296	3.581	5.236	4.343	4.72
HCM Lane V/C Ratio	0.704	0.463	0.186	0.878	0.55
HCM Control Delay	23.4	13.5	11.9	40	17.6
HCM Lane LOS	C	B	B	E	C
HCM 95th-tile Q	5.6	2.4	0.7	9.9	3.3

Intersection												
Int Delay, s/veh	59.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	140	370	0	0	285	94	252	1	100	0	0	0
Future Vol, veh/h	140	370	0	0	285	94	252	1	100	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	230	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	146	385	0	0	297	98	263	1	104	0	0	0
Major/Minor	Major1			Major2			Minor1					
Conflicting Flow All	395	0	-	-	-	0	1023	1072	385			
Stage 1	-	-	-	-	-	-	677	677	-			
Stage 2	-	-	-	-	-	-	346	395	-			
Critical Hdwy	4.15	-	-	-	-	-	6.44	6.5	6.26			
Critical Hdwy Stg 1	-	-	-	-	-	-	5.44	5.5	-			
Critical Hdwy Stg 2	-	-	-	-	-	-	5.44	5.5	-			
Follow-up Hdwy	2.245	-	-	-	-	-	3.536	4	3.354			
Pot Cap-1 Maneuver	1147	-	0	0	-	-	~ 259	222	654			
Stage 1	-	-	0	0	-	-	501	455	-			
Stage 2	-	-	0	0	-	-	712	608	-			
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	1147	-	-	-	-	-	~ 226	0	654			
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 226	0	-			
Stage 1	-	-	-	-	-	-	437	0	-			
Stage 2	-	-	-	-	-	-	712	0	-			
Approach	EB			WB			NB					
HCM Control Delay, s	2.4			0			204.5					
HCM LOS							F					
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR							
Capacity (veh/h)	278	1147	-	-	-							
HCM Lane V/C Ratio	1.323	0.127	-	-	-							
HCM Control Delay (s)	204.5	8.6	-	-	-							
HCM Lane LOS	F	A	-	-	-							
HCM 95th %tile Q(veh)	18.6	0.4	-	-	-							
Notes												
~: Volume exceeds capacity	\$: Delay exceeds 300s			+: Computation Not Defined			*: All major volume in platoon					

Timings
11: A Street & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

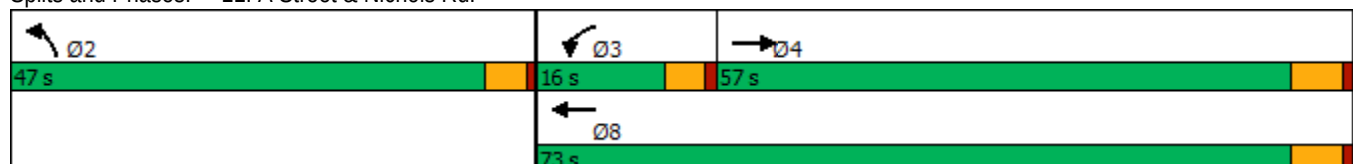
07/19/2018

	→	↖	←	↙
Lane Group	EBT	WBL	WBT	NBL
Lane Configurations	↻	↻	↻	↻
Traffic Volume (vph)	196	11	175	385
Future Volume (vph)	196	11	175	385
Turn Type	NA	Prot	NA	Prot
Protected Phases	4	3	8	2
Permitted Phases				
Detector Phase	4	3	8	2
Switch Phase				
Minimum Initial (s)	10.0	5.0	10.0	10.0
Minimum Split (s)	22.8	10.8	22.8	21.6
Total Split (s)	57.0	16.0	73.0	47.0
Total Split (%)	47.5%	13.3%	60.8%	39.2%
Yellow Time (s)	4.8	3.6	4.8	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	4.6	5.8	4.6
Lead/Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		
Recall Mode	None	None	None	Min
Act Effect Green (s)	16.7	5.8	18.0	17.8
Actuated g/C Ratio	0.35	0.12	0.38	0.38
v/c Ratio	0.54	0.06	0.27	0.63
Control Delay	16.2	27.5	11.6	18.5
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	16.2	27.5	11.6	18.5
LOS	B	C	B	B
Approach Delay	16.2		12.6	18.5
Approach LOS	B		B	B

Intersection Summary

Cycle Length: 120	
Actuated Cycle Length: 47.4	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.63	
Intersection Signal Delay: 16.5	Intersection LOS: B
Intersection Capacity Utilization 48.0%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 11: A Street & Nichols Rd.



HCM 6th Signalized Intersection Summary 11: A Street & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

07/19/2018

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	196	122	11	175	385	4
Future Volume (veh/h)	196	122	11	175	385	4
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1900	1900
Adj Flow Rate, veh/h	213	133	12	190	418	4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	0	0
Cap, veh/h	306	191	28	789	542	5
Arrive On Green	0.28	0.28	0.02	0.42	0.30	0.30
Sat Flow, veh/h	1077	672	1781	1870	1786	17
Grp Volume(v), veh/h	0	346	12	190	423	0
Grp Sat Flow(s),veh/h/ln	0	1749	1781	1870	1808	0
Q Serve(g_s), s	0.0	6.7	0.3	2.5	8.0	0.0
Cycle Q Clear(g_c), s	0.0	6.7	0.3	2.5	8.0	0.0
Prop In Lane		0.38	1.00		0.99	0.01
Lane Grp Cap(c), veh/h	0	497	28	789	548	0
V/C Ratio(X)	0.00	0.70	0.43	0.24	0.77	0.00
Avail Cap(c_a), veh/h	0	2370	537	3325	2028	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	12.1	18.4	7.0	12.0	0.0
Incr Delay (d2), s/veh	0.0	1.8	3.9	0.2	2.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.0	0.1	0.6	2.9	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	13.8	22.3	7.2	14.3	0.0
LnGrp LOS	A	B	C	A	B	A
Approach Vol, veh/h	346			202	423	
Approach Delay, s/veh	13.8			8.1	14.3	
Approach LOS	B			A	B	
Timer - Assigned Phs	2		3	4	8	
Phs Duration (G+Y+Rc), s	16.1		5.2	16.5	21.7	
Change Period (Y+Rc), s	4.6		4.6	5.8	5.8	
Max Green Setting (Gmax), s	42.4		11.4	51.2	67.2	
Max Q Clear Time (g_c+l1), s	10.0		2.3	8.7	4.5	
Green Ext Time (p_c), s	1.4		0.0	2.1	1.0	
Intersection Summary						
HCM 6th Ctrl Delay			12.9			
HCM 6th LOS			B			
Notes						

Intersection						
Int Delay, s/veh	2.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	127	136	0	90	95	0
Future Vol, veh/h	127	136	0	90	95	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	200	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	138	148	0	98	103	0
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	286	0	310	212
Stage 1	-	-	-	-	212	-
Stage 2	-	-	-	-	98	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1276	-	682	828
Stage 1	-	-	-	-	823	-
Stage 2	-	-	-	-	926	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1276	-	682	828
Mov Cap-2 Maneuver	-	-	-	-	682	-
Stage 1	-	-	-	-	823	-
Stage 2	-	-	-	-	926	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		11.2	
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	682	-	-	1276	-	
HCM Lane V/C Ratio	0.151	-	-	-	-	
HCM Control Delay (s)	11.2	-	-	0	-	
HCM Lane LOS	B	-	-	A	-	
HCM 95th %tile O(veh)	0.5	-	-	0	-	

Intersection												
Int Delay, s/veh	1.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	17	0	2	0	0	3	3	75	1	5	99	32
Future Vol, veh/h	17	0	2	0	0	3	3	75	1	5	99	32
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	18	0	2	0	0	3	3	82	1	5	108	35
Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	226	225	126	226	242	83	143	0	0	83	0	0
Stage 1	136	136	-	89	89	-	-	-	-	-	-	-
Stage 2	90	89	-	137	153	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	729	674	924	729	660	976	1440	-	-	1514	-	-
Stage 1	867	784	-	918	821	-	-	-	-	-	-	-
Stage 2	917	821	-	866	771	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	723	670	924	724	656	976	1440	-	-	1514	-	-
Mov Cap-2 Maneuver	723	670	-	724	656	-	-	-	-	-	-	-
Stage 1	865	781	-	916	819	-	-	-	-	-	-	-
Stage 2	912	819	-	861	768	-	-	-	-	-	-	-
Approach	EB		WB			NB			SB			
HCM Control Delay, s	10		8.7			0.3			0.3			
HCM LOS	B		A									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1440	-	-	740	976	1514	-	-				
HCM Lane V/C Ratio	0.002	-	-	0.028	0.003	0.004	-	-				
HCM Control Delay (s)	7.5	0	-	10	8.7	7.4	0	-				
HCM Lane LOS	A	A	-	B	A	A	A	-				
HCM 95th %tile O(veh)	0	-	-	0.1	0	0	-	-				

Intersection						
Int Delay, s/veh	2.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	44	46	79	101	0
Future Vol, veh/h	0	44	46	79	101	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	48	50	86	110	0
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	296	110	110	0	-	0
Stage 1	110	-	-	-	-	-
Stage 2	186	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	695	943	1480	-	-	-
Stage 1	915	-	-	-	-	-
Stage 2	846	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	671	943	1480	-	-	-
Mov Cap-2 Maneuver	671	-	-	-	-	-
Stage 1	883	-	-	-	-	-
Stage 2	846	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	9	2.8		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1480	-	943	-	-	
HCM Lane V/C Ratio	0.034	-	0.051	-	-	
HCM Control Delay (s)	7.5	0	9	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0.1	-	0.2	-	-	

Intersection						
Int Delay, s/veh	0.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	8	137	121	8	4	4
Future Vol, veh/h	8	137	121	8	4	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	149	132	9	4	4
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	141	0	-	0	304	137
Stage 1	-	-	-	-	137	-
Stage 2	-	-	-	-	167	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1442	-	-	-	688	911
Stage 1	-	-	-	-	890	-
Stage 2	-	-	-	-	863	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1442	-	-	-	683	911
Mov Cap-2 Maneuver	-	-	-	-	683	-
Stage 1	-	-	-	-	884	-
Stage 2	-	-	-	-	863	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.4	0		9.7		
HCM LOS				A		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1442	-	-	-	781	
HCM Lane V/C Ratio	0.006	-	-	-	0.011	
HCM Control Delay (s)	7.5	0	-	-	9.7	
HCM Lane LOS	A	A	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	0	

Intersection						
Int Delay, s/veh	5.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	142	166	34	107	0
Future Vol, veh/h	0	142	166	34	107	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	154	180	37	116	0
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	513	116	116	0	-	0
Stage 1	116	-	-	-	-	-
Stage 2	397	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	521	936	1473	-	-	-
Stage 1	909	-	-	-	-	-
Stage 2	679	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	456	936	1473	-	-	-
Mov Cap-2 Maneuver	456	-	-	-	-	-
Stage 1	795	-	-	-	-	-
Stage 2	679	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	9.6	6.5		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1473	-	936	-	-	
HCM Lane V/C Ratio	0.122	-	0.165	-	-	
HCM Control Delay (s)	7.8	0	9.6	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0.4	-	0.6	-	-	

Intersection						
Int Delay, s/veh	1.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	12	26	175	24	57	192
Future Vol, veh/h	12	26	175	24	57	192
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	13	28	190	26	62	209
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	536	203	0	0	216	0
Stage 1	203	-	-	-	-	-
Stage 2	333	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	505	838	-	-	1354	-
Stage 1	831	-	-	-	-	-
Stage 2	726	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	479	838	-	-	1354	-
Mov Cap-2 Maneuver	479	-	-	-	-	-
Stage 1	788	-	-	-	-	-
Stage 2	726	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	10.7	0	1.8			
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	678	1354	-	
HCM Lane V/C Ratio	-	-	0.061	0.046	-	
HCM Control Delay (s)	-	-	10.7	7.8	0	
HCM Lane LOS	-	-	B	A	A	
HCM 95th %tile Q(veh)	-	-	0.2	0.1	-	

Intersection												
Int Delay, s/veh	1.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	14	0	29	5	0	1	13	184	4	6	188	10
Future Vol, veh/h	14	0	29	5	0	1	13	184	4	6	188	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	3
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	17	0	35	6	0	1	15	219	5	7	224	12
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	499	501	233	514	505	222	239	0	0	224	0	0
Stage 1	247	247	-	252	252	-	-	-	-	-	-	-
Stage 2	252	254	-	262	253	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	482	472	806	471	470	818	1328	-	-	1345	-	-
Stage 1	757	702	-	752	698	-	-	-	-	-	-	-
Stage 2	752	697	-	743	698	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	473	462	804	444	460	818	1324	-	-	1345	-	-
Mov Cap-2 Maneuver	473	462	-	444	460	-	-	-	-	-	-	-
Stage 1	745	696	-	742	689	-	-	-	-	-	-	-
Stage 2	741	688	-	707	692	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	11		12.6		0.5		0.2					
HCM LOS	B		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1324	-	-	655	481	1345	-	-				
HCM Lane V/C Ratio	0.012	-	-	0.078	0.015	0.005	-	-				
HCM Control Delay (s)	7.8	0	-	11	12.6	7.7	0	-				
HCM Lane LOS	A	A	-	B	B	A	A	-				
HCM 95th %tile O(veh)	0	-	-	0.3	0	0	-	-				

Timings
19: Dexter Av. & Central Av. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

05/18/2018

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	338	1617	161	156	1112	90	119	132	88	92	315
Future Volume (vph)	338	1617	161	156	1112	90	119	132	88	92	315
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2	1	6	7
Permitted Phases			4			8					6
Detector Phase	7	4	4	3	8	8	5	2	1	6	7
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0	5.0
Minimum Split (s)	9.6	26.8	26.8	9.6	26.8	26.8	9.6	42.4	9.6	15.8	9.6
Total Split (s)	33.3	47.0	47.0	18.0	31.7	31.7	20.3	44.0	11.0	34.7	33.3
Total Split (%)	27.8%	39.2%	39.2%	15.0%	26.4%	26.4%	16.9%	36.7%	9.2%	28.9%	27.8%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	4.8	3.6	4.4	3.6	4.8	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	5.8	4.6	5.8	5.8	4.6	5.4	4.6	5.8	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	None	Max	None
Act Effect Green (s)	26.0	41.2	41.2	12.7	27.9	27.9	12.1	38.6	6.4	32.5	59.7
Actuated g/C Ratio	0.22	0.35	0.35	0.11	0.23	0.23	0.10	0.32	0.05	0.27	0.50
v/c Ratio	0.90	0.94	0.26	0.85	0.76	0.18	0.68	0.52	0.95	0.19	0.38
Control Delay	71.2	49.6	6.6	87.6	46.9	0.8	70.1	30.5	137.0	36.0	11.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	71.2	49.6	6.6	87.6	46.9	0.8	70.1	30.5	137.0	36.0	11.6
LOS	E	D	A	F	D	A	E	C	F	D	B
Approach Delay		49.8			48.5			41.7		38.5	
Approach LOS		D			D			D		D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 119.3

Natural Cycle: 110

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.95

Intersection Signal Delay: 47.3

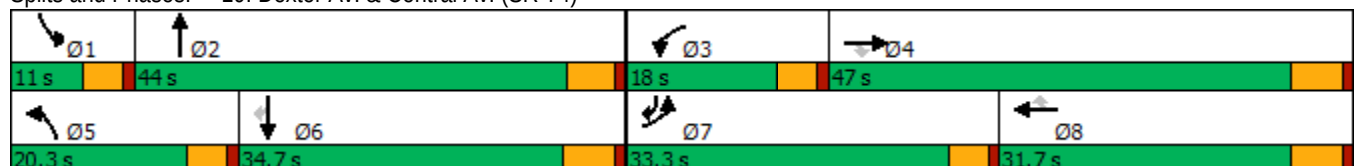
Intersection LOS: D

Intersection Capacity Utilization 92.6%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 19: Dexter Av. & Central Av. (SR-74)



HCM 6th Signalized Intersection Summary
19: Dexter Av. & Central Av. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

05/18/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	338	1617	161	156	1112	90	119	132	168	88	92	315
Future Volume (veh/h)	338	1617	161	156	1112	90	119	132	168	88	92	315
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	345	1650	122	159	1135	68	121	135	111	90	94	258
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	372	1753	531	186	1537	373	147	305	251	96	552	793
Arrive On Green	0.21	0.34	0.34	0.10	0.24	0.24	0.08	0.32	0.32	0.05	0.30	0.30
Sat Flow, veh/h	1781	5106	1545	1781	6434	1560	1781	942	774	1781	1870	1565
Grp Volume(v), veh/h	345	1650	122	159	1135	68	121	0	246	90	94	258
Grp Sat Flow(s),veh/h/ln	1781	1702	1545	1781	1609	1560	1781	0	1716	1781	1870	1565
Q Serve(g_s), s	22.6	37.3	6.7	10.5	19.4	4.1	8.0	0.0	13.5	6.0	4.4	11.7
Cycle Q Clear(g_c), s	22.6	37.3	6.7	10.5	19.4	4.1	8.0	0.0	13.5	6.0	4.4	11.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.45	1.00		1.00
Lane Grp Cap(c), veh/h	372	1753	531	186	1537	373	147	0	556	96	552	793
V/C Ratio(X)	0.93	0.94	0.23	0.86	0.74	0.18	0.82	0.00	0.44	0.94	0.17	0.33
Avail Cap(c_a), veh/h	429	1766	534	200	1537	373	235	0	556	96	552	793
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.3	37.9	27.9	52.5	41.9	36.1	53.8	0.0	31.8	56.2	31.2	17.6
Incr Delay (d2), s/veh	23.2	10.5	0.2	25.7	1.9	0.2	5.7	0.0	2.5	71.8	0.7	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.1	16.5	2.4	5.9	7.6	1.6	3.7	0.0	5.9	4.5	2.1	4.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	69.5	48.5	28.1	78.2	43.8	36.3	59.5	0.0	34.3	128.0	31.8	18.6
LnGrp LOS	E	D	C	E	D	D	E	A	C	F	C	B
Approach Vol, veh/h		2117			1362			367			442	
Approach Delay, s/veh		50.7			47.4			42.6			43.7	
Approach LOS		D			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.0	44.4	17.0	46.7	14.4	41.0	29.5	34.3				
Change Period (Y+Rc), s	4.6	* 5.8	4.6	5.8	4.6	5.8	4.6	5.8				
Max Green Setting (Gmax), s	6.4	* 39	13.4	41.2	15.7	28.9	28.7	25.9				
Max Q Clear Time (g_c+I1), s	8.0	15.5	12.5	39.3	10.0	13.7	24.6	21.4				
Green Ext Time (p_c), s	0.0	1.4	0.0	1.6	0.1	1.1	0.2	2.8				
Intersection Summary												
HCM 6th Ctrl Delay			48.3									
HCM 6th LOS			D									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Timings

S. Nichols Mixed-Use Development (JN 10878)

20: Cambern Av./Cambern Av & Central Av. (SR-74)

05/18/2018



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT	SBR	Ø3
Lane Configurations	←←	→→	←←	→	←	→		→	→	
Traffic Volume (vph)	254	1755	1140	143	1	3	230	3	85	
Future Volume (vph)	254	1755	1140	143	1	3	230	3	85	
Turn Type	Prot	NA	NA	Perm	Perm	NA	Perm	NA	Perm	
Protected Phases	7	4	8			2		6		3
Permitted Phases				8	2		6		6	
Detector Phase	7	4	8	8	2	2	6	6	6	
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	5.0
Minimum Split (s)	9.6	24.8	25.5	25.5	34.7	34.7	14.7	14.7	14.7	9.6
Total Split (s)	19.8	74.0	63.8	63.8	36.4	36.4	36.4	36.4	36.4	9.6
Total Split (%)	16.5%	61.7%	53.2%	53.2%	30.3%	30.3%	30.3%	30.3%	30.3%	8%
Yellow Time (s)	3.6	4.8	5.5	5.5	3.7	3.7	3.7	3.7	3.7	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.6	5.8	6.5	6.5	4.7	4.7		4.7	4.7	
Lead/Lag	Lead	Lag	Lag	Lag						Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes						Yes
Recall Mode	Max	None	None	None	Max	Max	Max	Max	Max	None
Act Effect Green (s)	15.3	69.1	48.5	48.5	31.9	31.9		31.9	31.9	
Actuated g/C Ratio	0.14	0.62	0.43	0.43	0.29	0.29		0.29	0.29	
v/c Ratio	0.56	0.83	0.77	0.20	0.00	0.01		0.63	0.17	
Control Delay	51.5	20.7	30.5	3.4	32.0	29.0		44.8	3.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	51.5	20.7	30.5	3.4	32.0	29.0		44.8	3.8	
LOS	D	C	C	A	C	C		D	A	
Approach Delay		24.6	27.5			29.6		33.8		
Approach LOS		C	C			C		C		

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 111.5

Natural Cycle: 100

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 26.4

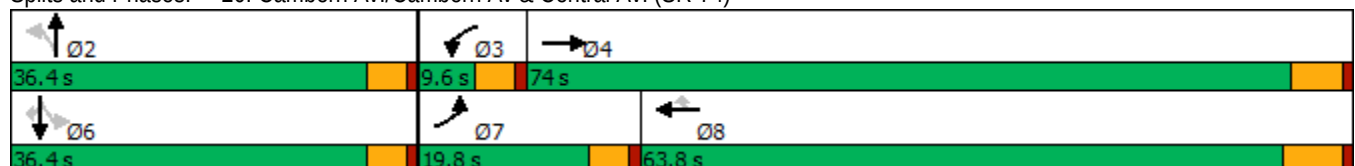
Intersection LOS: C

Intersection Capacity Utilization 84.9%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 20: Cambern Av./Cambern Av & Central Av. (SR-74)



HCM 6th Signalized Intersection Summary S. Nichols Mixed-Use Development (JN 10878)
 20: Cambern Av./Cambern Av & Central Av. (SR-74) 05/18/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	254	1755	1	0	1140	143	1	3	1	230	3	85
Future Volume (veh/h)	254	1755	1	0	1140	143	1	3	1	230	3	85
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	265	1828	1	0	1188	97	1	3	1	240	3	36
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	486	2197	1	2	1491	655	265	394	131	475	5	459
Arrive On Green	0.14	0.60	0.60	0.00	0.42	0.42	0.29	0.29	0.29	0.29	0.29	0.29
Sat Flow, veh/h	3456	3645	2	1781	3554	1561	1368	1342	447	1392	17	1565
Grp Volume(v), veh/h	265	891	938	0	1188	97	1	0	4	243	0	36
Grp Sat Flow(s),veh/h/ln	1728	1777	1870	1781	1777	1561	1368	0	1790	1409	0	1565
Q Serve(g_s), s	7.7	43.2	43.2	0.0	31.5	4.2	0.1	0.0	0.2	15.8	0.0	1.8
Cycle Q Clear(g_c), s	7.7	43.2	43.2	0.0	31.5	4.2	16.1	0.0	0.2	16.0	0.0	1.8
Prop In Lane	1.00		0.00	1.00		1.00	1.00		0.25	0.99		1.00
Lane Grp Cap(c), veh/h	486	1071	1127	2	1491	655	265	0	525	480	0	459
V/C Ratio(X)	0.55	0.83	0.83	0.00	0.80	0.15	0.00	0.00	0.01	0.51	0.00	0.08
Avail Cap(c_a), veh/h	486	1122	1181	82	1885	828	265	0	525	480	0	459
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	43.2	17.1	17.1	0.0	27.3	19.4	39.5	0.0	27.0	32.7	0.0	27.6
Incr Delay (d2), s/veh	4.3	5.5	5.3	0.0	2.3	0.1	0.0	0.0	0.0	3.8	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	16.5	17.3	0.0	12.4	1.4	0.0	0.0	0.1	5.9	0.0	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.5	22.6	22.4	0.0	29.6	19.5	39.5	0.0	27.1	36.5	0.0	27.9
LnGrp LOS	D	C	C	A	C	B	D	A	C	D	A	C
Approach Vol, veh/h	2094				1285				5			
Approach Delay, s/veh	25.7				28.8				29.5			
Approach LOS	C				C				C			
Timer - Assigned Phs	2			3		4		6		7		8
Phs Duration (G+Y+Rc), s	36.4			0.0		71.6		36.4		19.8		51.8
Change Period (Y+Rc), s	* 4.7			4.6		* 6.5		* 4.7		4.6		6.5
Max Green Setting (Gmax), s	* 32			5.0		* 68		* 32		15.2		57.3
Max Q Clear Time (g_c+l1), s	18.1			0.0		45.2		18.0		9.7		33.5
Green Ext Time (p_c), s	0.0			0.0		17.8		1.2		0.2		11.8

Intersection Summary

HCM 6th Ctrl Delay	27.5
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection						
Int Delay, s/veh	0.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	194	276	0	200	0	7
Future Vol, veh/h	194	276	0	200	0	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	211	300	0	217	0	8
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	361
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.318
Pot Cap-1 Maneuver	-	-	0	-	0	684
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	684
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		10.3	
HCM LOS					B	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT		
Capacity (veh/h)	684	-	-	-		
HCM Lane V/C Ratio	0.011	-	-	-		
HCM Control Delay (s)	10.3	-	-	-		
HCM Lane LOS	B	-	-	-		
HCM 95th %tile O(veh)	0	-	-	-		

APPENDIX 5.4:

E+P (PHASE 1) CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

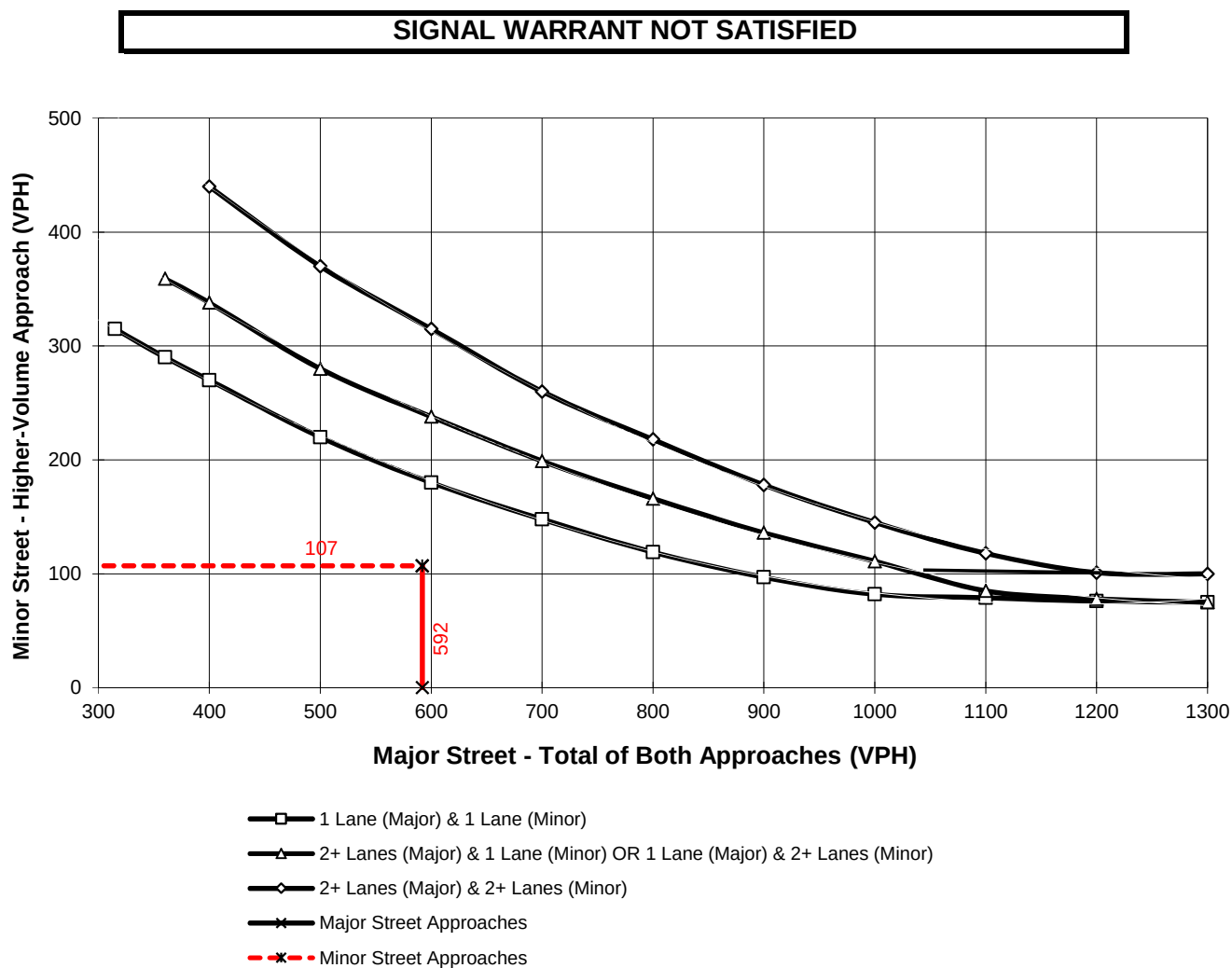
Traffic Conditions = **E+P - Phase 1 Conditions - Weekday AM Peak Hour**

Major Street Name = **Nichols Rd.**

Total of Both Approaches (VPH) = **592**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Alberhill Ranch Rd.**

High Volume Approach (VPH) = **107**
Number of Approach Lanes Minor Street = **1**



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes
and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-3. Warrant 3, Peak Hour

Traffic Conditions = **E+P - Phase 1 Conditions - Weekday AM Peak Hour**

Major Street Name = **Gunnerson St.**

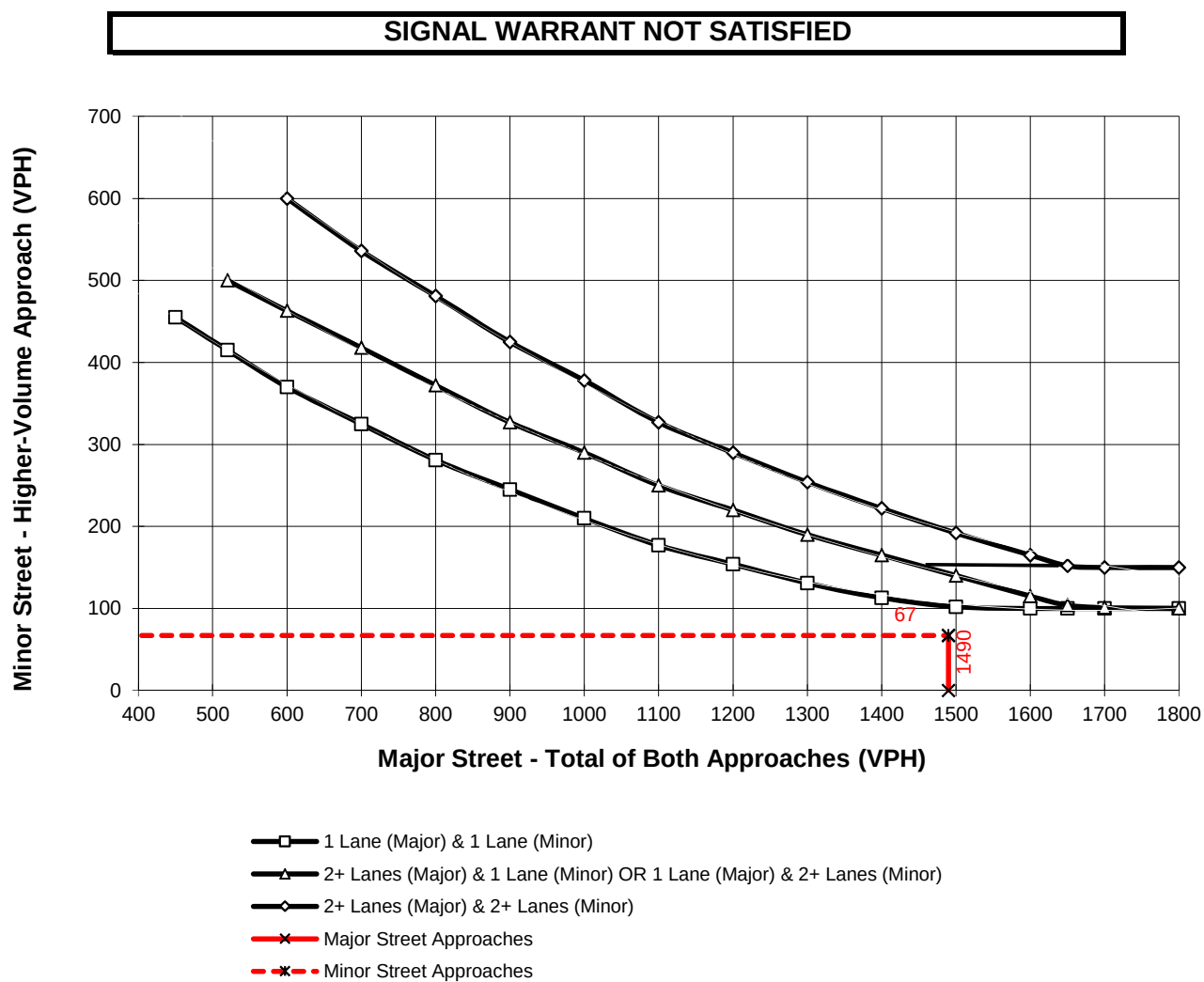
Total of Both Approaches (VPH) = **1490**

Number of Approach Lanes on Major Street = **1**

Minor Street Name = **Strickland Av./Riverside Dr.**

High Volume Approach (VPH) = **67**

Number of Approach Lanes On Minor Street = **1**



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes
and 100 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet (Average Traffic Estimate Form)

DIST	CO	RTE	PM	CALC	CH	DATE	05/01/18
Jurisdiction: <u>City of Lake Elsinore</u>				CHK		DATE	
Major Street: <u>Nichols Rd.</u>				Critical Approach Speed (Major)		50 mph	
Minor Street: <u>B St.</u>				Critical Approach Speed (Minor)		25 mph	
Major Street Approach Lanes = <u>1</u> lane				Minor Street Approach Lanes: <u>1</u> lane			
Major Street Future ADT = <u>3,988</u> vpd				Minor Street Future ADT = <u>966</u> vpd			
Speed limit or critical speed on major street traffic > 64 km/h (40 mph);						☒	RURAL (R)
In built up area of isolated community of < 10,000 population						☐	

(Based on Estimated Average Daily Traffic - See Note)

URBAN		RURAL		Minimum Requirements EADT			
CONDITION A - Minimum Vehicular Volume <u>Satisfied</u>		XX <u>Not Satisfied</u>		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Major Street		Minor Street		Urban	Rural	Urban	Rural
1 3,988		1 966		8,000	5,600	2,400	1,680
2 +		1		9,600	6,720	2,400	1,680
2 +		2 +		9,600	6,720	3,200	2,240
1		2 +		8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic <u>Satisfied</u>		XX <u>Not Satisfied</u>		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Major Street		Minor Street		Urban	Rural	Urban	Rural
1 3,988		1 966		12,000	8,400	1,200	850 *
2 +		1		14,400	10,080	1,200	850
2 +		2 +		14,400	10,080	1,600	1,120
1		2 +		12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B <u>Satisfied</u>		XX <u>Not Satisfied</u>		2 CONDITIONS 80%		2 CONDITIONS 80%	
No one condition satisfied, but following conditions fulfilled 80% of more		A 57%		B 47%			

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet (Average Traffic Estimate Form)

DIST	CO	RTE	PM	CALC	TRAFFIC CONDITIONS	E+P - Phase 1
Jurisdiction: <u>City of Lake Elsinore</u>				CHK <u>CH</u>		DATE <u>05/01/18</u>
Major Street: <u>G St.</u>					Critical Approach Speed (Major)	<u>25</u> mph
Minor Street: <u>B St.</u>					Critical Approach Speed (Minor)	<u>25</u> mph
Major Street Approach Lanes = <u>1</u> lane				Minor Street Approach Lanes: <u>1</u> lane		
Major Street Future ADT = <u>6,609</u> vpd				Minor Street Future ADT = <u>161</u> vpd		
Speed limit or critical speed on major street traffic > 64 km/h (40 mph);						 or
In built up area of isolated community of < 10,000 population						URBAN (U)

(Based on Estimated Average Daily Traffic - See Note)

URBAN XX		RURAL		Minimum Requirements EADT			
CONDITION A - Minimum Vehicular Volume				Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
<u>Satisfied</u>		<u>Not Satisfied</u>	XX				
Number of lanes for moving traffic on each approach		Number of lanes for moving traffic on each approach		<u>Urban</u>	<u>Rural</u>	<u>Urban</u>	<u>Rural</u>
<u>Major Street</u>		<u>Minor Street</u>					
<u>1 6,609</u>		<u>1 161</u>		8,000	5,600	2,400	1,680
<u>2 +</u>		<u>1</u>		9,600	6,720	2,400	1,680
<u>2 +</u>		<u>2 +</u>		9,600	6,720	3,200	2,240
<u>1</u>		<u>2 +</u>		8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic				Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
<u>Satisfied</u>		<u>Not Satisfied</u>	XX				
Number of lanes for moving traffic on each approach		Number of lanes for moving traffic on each approach		<u>Urban</u>	<u>Rural</u>	<u>Urban</u>	<u>Rural</u>
<u>Major Street</u>		<u>Minor Street</u>					
<u>1 6,609</u>		<u>1 161</u>		12,000	8,400	1,200	850
<u>2 +</u>		<u>1</u>		14,400	10,080	1,200	850
<u>2 +</u>		<u>2 +</u>		14,400	10,080	1,600	1,120
<u>1</u>		<u>2 +</u>		12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B				2 CONDITIONS 80%		2 CONDITIONS 80%	
<u>Satisfied</u>		<u>Not Satisfied</u>	XX				
No one condition satisfied, but following conditions fulfilled 80% of more							
		<u>A</u>	<u>B</u>				
		7%	13%				

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet (Average Traffic Estimate Form)

DIST	CO	RTE	PM	CALC	TRAFFIC CONDITIONS	E+P - Phase 1
Jurisdiction: <u>City of Lake Elsinore</u>				CHK	<u>CH</u>	DATE <u>05/01/18</u>
Major Street: <u>El Toro Rd.</u>					Critical Approach Speed (Major)	<u>25</u> mph
Minor Street: <u>B St.</u>					Critical Approach Speed (Minor)	<u>25</u> mph
Major Street Approach Lanes = <u>1</u> lane				Minor Street Approach Lanes: <u>1</u> lane		
Major Street Future ADT = <u>2,401</u> vpd				Minor Street Future ADT = <u>963</u> vpd		
Speed limit or critical speed on major street traffic > 64 km/h (40 mph);						 or
In built up area of isolated community of < 10,000 population						URBAN (U)

(Based on Estimated Average Daily Traffic - See Note)

<u>URBAN</u> XX		<u>RURAL</u>		Minimum Requirements EADT			
CONDITION A - Minimum Vehicular Volume							
<u>Satisfied</u>	<u>Not Satisfied</u> XX			Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Number of lanes for moving traffic on each approach		<u>Major Street</u>	<u>Minor Street</u>	<u>Urban</u>	<u>Rural</u>	<u>Urban</u>	<u>Rural</u>
1	2,401	1	963	8,000	5,600	2,400	1,680
2 +		1		9,600	6,720	2,400	1,680
2 +		2 +		9,600	6,720	3,200	2,240
1		2 +		8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic							
<u>Satisfied</u>	<u>Not Satisfied</u> XX			Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Number of lanes for moving traffic on each approach		<u>Major Street</u>	<u>Minor Street</u>	<u>Urban</u>	<u>Rural</u>	<u>Urban</u>	<u>Rural</u>
1	2,401	1	963	12,000	8,400	1,200	850
2 +		1		14,400	10,080	1,200	850
2 +		2 +		14,400	10,080	1,600	1,120
1		2 +		12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B							
<u>Satisfied</u>	<u>Not Satisfied</u> XX			2 CONDITIONS 80%		2 CONDITIONS 80%	
No one condition satisfied, but following conditions fulfilled 80% of more		<u>A</u> 30%	<u>B</u> 20%				

Figure 4C-3. Warrant 3, Peak Hour

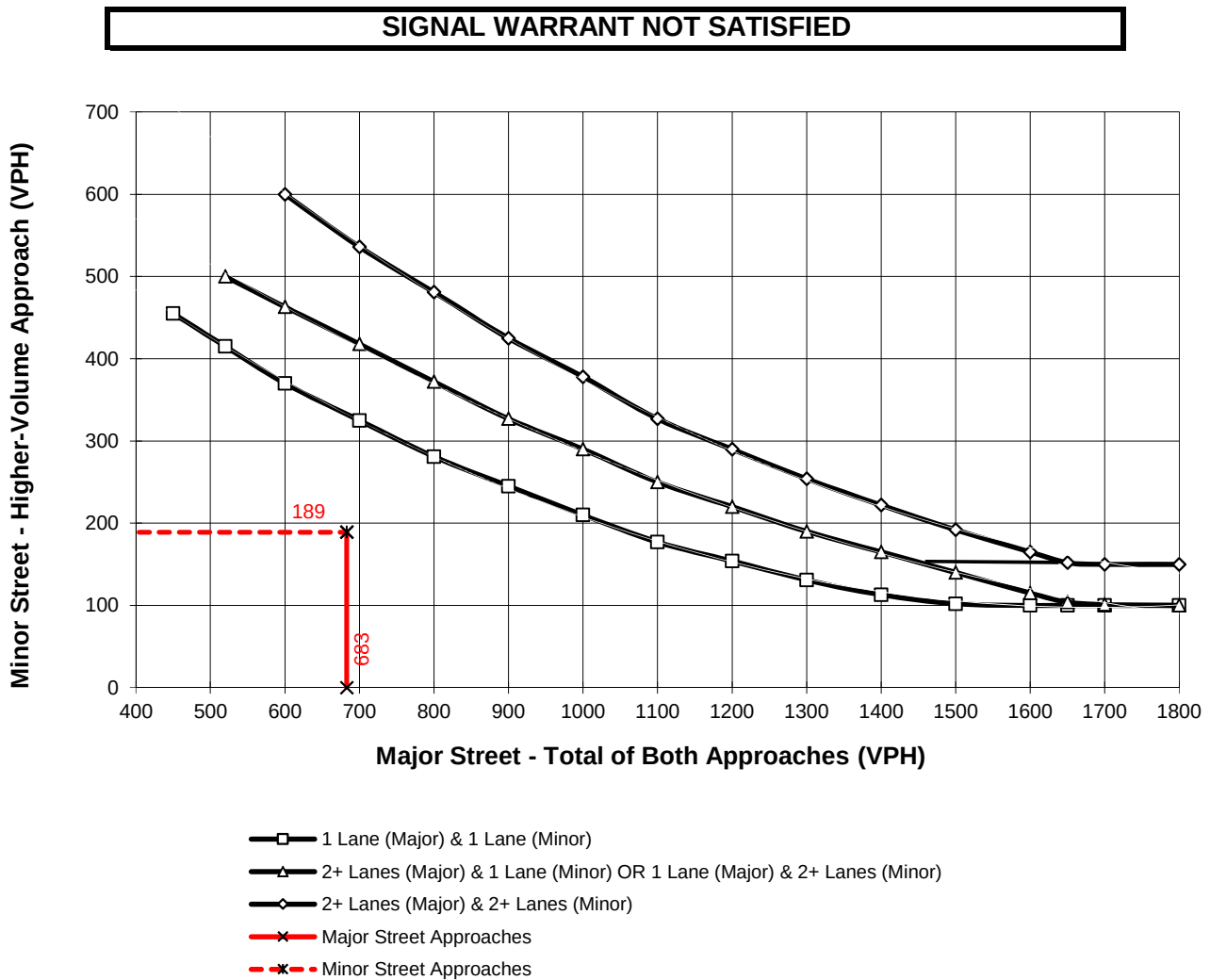
Traffic Conditions = **E+P - Phase 1 Conditions - Weekday AM Peak Hour**

Major Street Name = **El Toro Rd.**

Total of Both Approaches (VPH) = **683**
Number of Approach Lanes on Major Street = **1**

Minor Street Name = **Tereticornis Av.**

High Volume Approach (VPH) = **189**
Number of Approach Lanes On Minor Street = **1**



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes
and 100 vph applies as the lower threshold for a minor-street approach with one lane

APPENDIX 5.5:

E+P (PHASE 2) CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

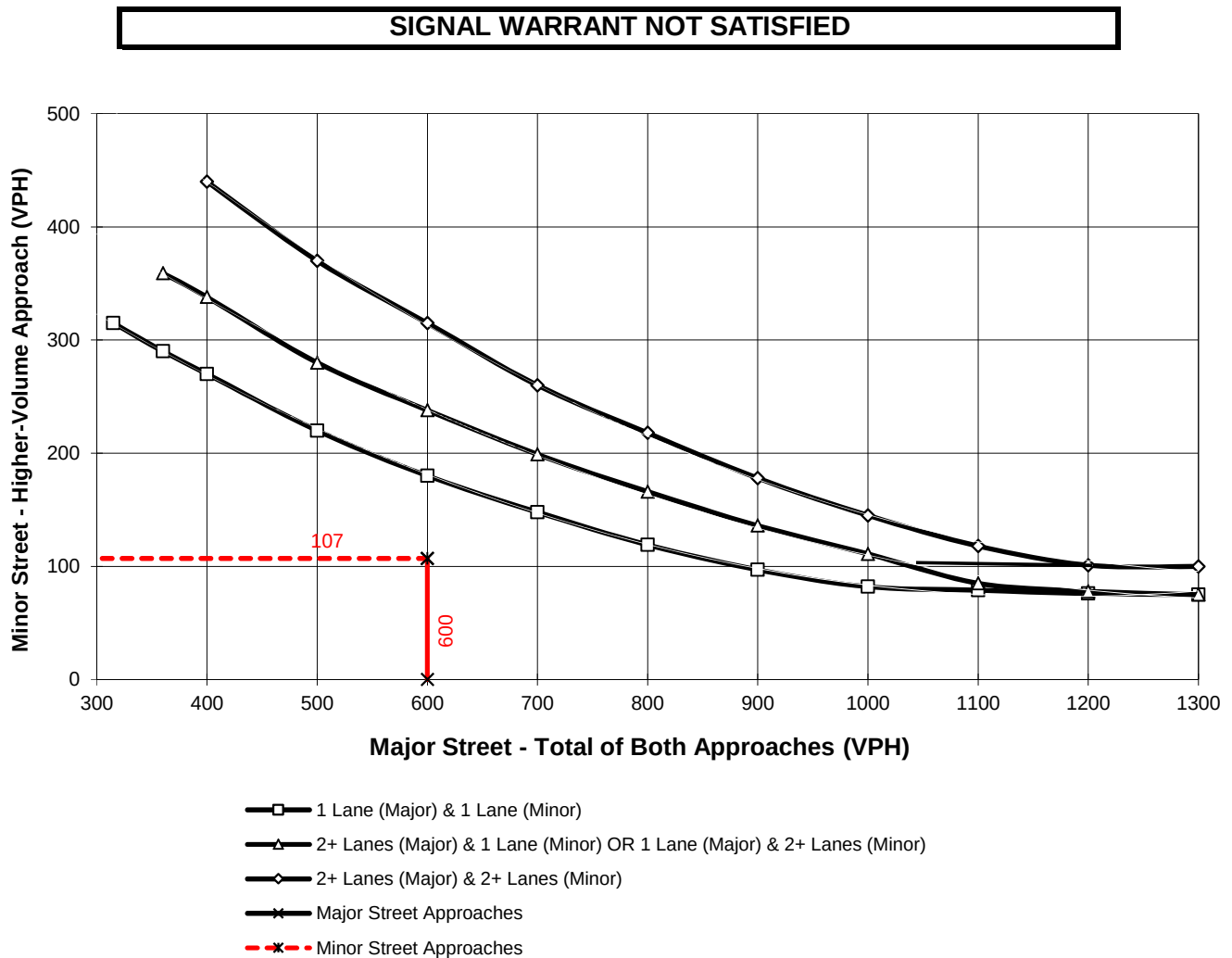
Traffic Conditions = **E+P - Phase 2 Conditions - Weekday AM Peak Hour**

Major Street Name = **Nichols Rd.**

Total of Both Approaches (VPH) = **600**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Alberhill Ranch Rd.**

High Volume Approach (VPH) = **107**
Number of Approach Lanes Minor Street = **1**



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes
and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-3. Warrant 3, Peak Hour

Traffic Conditions = **E+P - Phase 2 Conditions - Weekday AM Peak Hour**

Major Street Name = **Gunnerson St.**

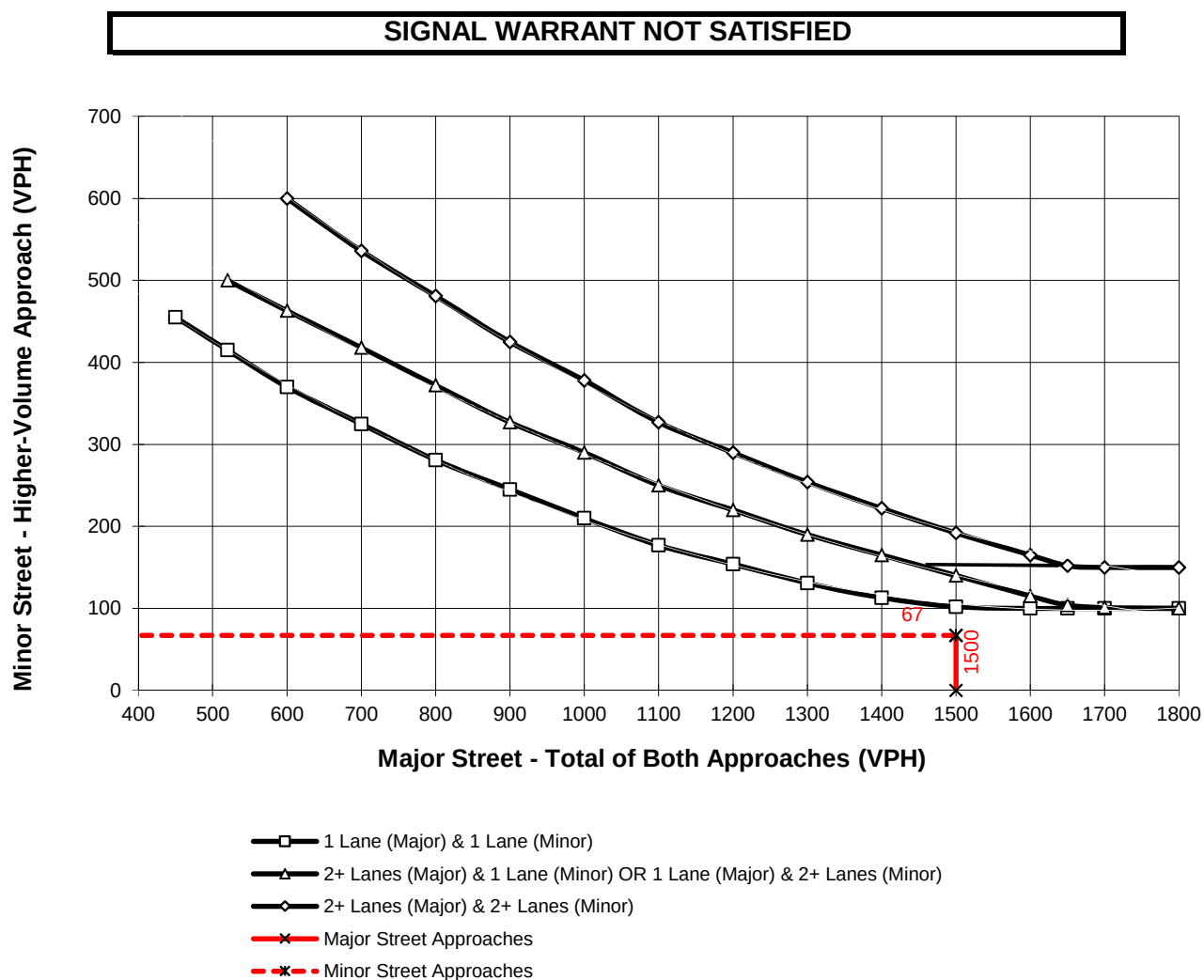
Total of Both Approaches (VPH) = **1500**

Number of Approach Lanes on Major Street = **1**

Minor Street Name = **Strickland Av./Riverside Dr.**

High Volume Approach (VPH) = **67**

Number of Approach Lanes On Minor Street = **1**



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes
and 100 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet (Average Traffic Estimate Form)

DIST	CO	RTE	PM	CALC	TRAFFIC CONDITIONS	E+P - Phase 2
Jurisdiction: <u>City of Lake Elsinore</u>				CHK	<u>CH</u>	DATE <u>05/01/18</u>
Major Street: <u>Nichols Rd.</u>					Critical Approach Speed (Major)	<u>50</u> mph
Minor Street: <u>A St.</u>					Critical Approach Speed (Minor)	<u>25</u> mph
Major Street Approach Lanes = <u>1</u> lane				Minor Street Approach Lanes: <u>1</u> lane		
Major Street Future ADT = <u>5,793</u> vpd				Minor Street Future ADT = <u>239</u> vpd		
Speed limit or critical speed on major street traffic > 64 km/h (40 mph);						☒
						or
In built up area of isolated community of < 10,000 population						☐

RURAL (R)

(Based on Estimated Average Daily Traffic - See Note)

URBAN		RURAL		Minimum Requirements EADT			
CONDITION A - Minimum Vehicular Volume <u>Satisfied</u>		XX <u>Not Satisfied</u>		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Major Street		Minor Street		Urban	Rural	Urban	Rural
1 5,793		1 239		8,000	5,600 *	2,400	1,680
2 +		1		9,600	6,720	2,400	1,680
2 +		2 +		9,600	6,720	3,200	2,240
1		2 +		8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic <u>Satisfied</u>		XX <u>Not Satisfied</u>		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Major Street		Minor Street		Urban	Rural	Urban	Rural
1 5,793		1 239		12,000	8,400	1,200	850
2 +		1		14,400	10,080	1,200	850
2 +		2 +		14,400	10,080	1,600	1,120
1		2 +		12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B <u>Satisfied</u>		XX <u>Not Satisfied</u>		2 CONDITIONS 80%		2 CONDITIONS 80%	
No one condition satisfied, but following conditions fulfilled 80% of more		A B					
		14% 28%					

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet (Average Traffic Estimate Form)

DIST	CO	RTE	PM	CALC	TRAFFIC CONDITIONS	E+P - Phase 2
Jurisdiction: <u>City of Lake Elsinore</u>				CHK <u>CH</u>		DATE <u>05/01/18</u>
Major Street: <u>Nichols Rd.</u>					Critical Approach Speed (Major)	<u>50</u> mph
Minor Street: <u>B St.</u>					Critical Approach Speed (Minor)	<u>25</u> mph
Major Street Approach Lanes = <u>1</u> lane				Minor Street Approach Lanes: <u>1</u> lane		
Major Street Future ADT = <u>4,288</u> vpd				Minor Street Future ADT = <u>966</u> vpd		
Speed limit or critical speed on major street traffic > 64 km/h (40 mph);						☒ or ☐
In built up area of isolated community of < 10,000 population						RURAL (R)

(Based on Estimated Average Daily Traffic - See Note)

URBAN		RURAL		Minimum Requirements EADT			
CONDITION A - Minimum Vehicular Volume <u>Satisfied</u>		XX <u>Not Satisfied</u>		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Major Street	Minor Street	Urban	Rural	Urban	Rural	Urban	Rural
1 4,288	1 966	8,000	5,600	2,400	1,680		
2 +	1	9,600	6,720	2,400	1,680		
2 +	2 +	9,600	6,720	3,200	2,240		
1	2 +	8,000	5,600	3,200	2,240		
CONDITION B - Interruption of Continuous Traffic <u>Satisfied</u>		XX <u>Not Satisfied</u>		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Major Street	Minor Street	Urban	Rural	Urban	Rural	Urban	Rural
1 4,288	1 966	12,000	8,400	1,200	850 *		
2 +	1	14,400	10,080	1,200	850		
2 +	2 +	14,400	10,080	1,600	1,120		
1	2 +	12,000	8,400	1,600	1,120		
Combination of CONDITIONS A + B <u>Satisfied</u>		XX <u>Not Satisfied</u>		2 CONDITIONS 80%		2 CONDITIONS 80%	
No one condition satisfied, but following conditions fulfilled 80% of more		A B					
		57% 51%					

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet (Average Traffic Estimate Form)

DIST	CO	RTE	PM	CALC	TRAFFIC CONDITIONS	E+P - Phase 2
Jurisdiction: <u>City of Lake Elsinore</u>				CHK	<u>CH</u>	DATE <u>05/01/18</u>
Major Street: <u>B St.</u>					Critical Approach Speed (Major)	<u>50</u> mph
Minor Street: <u>F St.</u>					Critical Approach Speed (Minor)	<u>25</u> mph
Major Street Approach Lanes = <u>1</u> lane				Minor Street Approach Lanes: <u>1</u> lane		
Major Street Future ADT = <u>2,325</u> vpd				Minor Street Future ADT = <u>343</u> vpd		
Speed limit or critical speed on major street traffic > 64 km/h (40 mph);						☒
						or
In built up area of isolated community of < 10,000 population						☐

RURAL (R)

(Based on Estimated Average Daily Traffic - See Note)

URBAN		RURAL		Minimum Requirements EADT			
CONDITION A - Minimum Vehicular Volume <u>Satisfied</u>		XX <u>Not Satisfied</u>		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Major Street	Minor Street	Urban	Rural	Urban	Rural	Urban	Rural
1 2,325	1 343	8,000	5,600	2,400	1,680		
2 +	1	9,600	6,720	2,400	1,680		
2 +	2 +	9,600	6,720	3,200	2,240		
1	2 +	8,000	5,600	3,200	2,240		
CONDITION B - Interruption of Continuous Traffic <u>Satisfied</u>		XX <u>Not Satisfied</u>		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Major Street	Minor Street	Urban	Rural	Urban	Rural	Urban	Rural
1 2,325	1 343	12,000	8,400	1,200	850		
2 +	1	14,400	10,080	1,200	850		
2 +	2 +	14,400	10,080	1,600	1,120		
1	2 +	12,000	8,400	1,600	1,120		
Combination of CONDITIONS A + B <u>Satisfied</u>		XX <u>Not Satisfied</u>		2 CONDITIONS 80%		2 CONDITIONS 80%	
No one condition satisfied, but following conditions fulfilled 80% of more		A B					
		20% 28%					

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet (Average Traffic Estimate Form)

DIST	CO	RTE	PM	CALC	TRAFFIC CONDITIONS	E+P - Phase 2
Jurisdiction: <u>City of Lake Elsinore</u>				CHK	<u>CH</u>	DATE <u>05/01/18</u>
Major Street: <u>H St.</u>					Critical Approach Speed (Major)	<u>25</u> mph
Minor Street: <u>B St.</u>					Critical Approach Speed (Minor)	<u>25</u> mph
Major Street Approach Lanes = <u>1</u> lane				Minor Street Approach Lanes: <u>1</u> lane		
Major Street Future ADT = <u>4,680</u> vpd				Minor Street Future ADT = <u>1,057</u> vpd		
Speed limit or critical speed on major street traffic > 64 km/h (40 mph);						 or
In built up area of isolated community of < 10,000 population						URBAN (U)

(Based on Estimated Average Daily Traffic - See Note)

<u>URBAN</u> XX		<u>RURAL</u>		Minimum Requirements EADT			
CONDITION A - Minimum Vehicular Volume							
<u>Satisfied</u>	<u>Not Satisfied</u> XX			Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Number of lanes for moving traffic on each approach				<u>Urban</u>	<u>Rural</u>	<u>Urban</u>	<u>Rural</u>
<u>Major Street</u>	<u>Minor Street</u>						
1 4,680	1 1,057			8,000	5,600	2,400	1,680
2 +	1			9,600	6,720	2,400	1,680
2 +	2 +			9,600	6,720	3,200	2,240
1	2 +			8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic							
<u>Satisfied</u>	<u>Not Satisfied</u> XX			Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Number of lanes for moving traffic on each approach				<u>Urban</u>	<u>Rural</u>	<u>Urban</u>	<u>Rural</u>
<u>Major Street</u>	<u>Minor Street</u>						
1 4,680	1 1,057			12,000	8,400	1,200	850
2 +	1			14,400	10,080	1,200	850
2 +	2 +			14,400	10,080	1,600	1,120
1	2 +			12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B							
<u>Satisfied</u>	<u>Not Satisfied</u> XX			2 CONDITIONS 80%		2 CONDITIONS 80%	
No one condition satisfied, but following conditions fulfilled 80% of more							
		<u>A</u>	<u>B</u>				
		44%	39%				

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet (Average Traffic Estimate Form)

DIST	CO	RTE	PM	CALC	TRAFFIC CONDITIONS	E+P - Phase 1
Jurisdiction: <u>City of Lake Elsinore</u>				CHK	<u>CH</u>	DATE <u>05/01/18</u>
Major Street: <u>G St.</u>					Critical Approach Speed (Major)	<u>25</u> mph
Minor Street: <u>B St.</u>					Critical Approach Speed (Minor)	<u>25</u> mph
Major Street Approach Lanes = <u>1</u> lane				Minor Street Approach Lanes: <u>1</u> lane		
Major Street Future ADT = <u>6,687</u> vpd				Minor Street Future ADT = <u>159</u> vpd		
Speed limit or critical speed on major street traffic > 64 km/h (40 mph);						 or
In built up area of isolated community of < 10,000 population						URBAN (U)

(Based on Estimated Average Daily Traffic - See Note)

<u>URBAN</u> XX		<u>RURAL</u>		Minimum Requirements EADT			
CONDITION A - Minimum Vehicular Volume							
<u>Satisfied</u>	<u>Not Satisfied</u> XX			Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Number of lanes for moving traffic on each approach				<u>Urban</u>	<u>Rural</u>	<u>Urban</u>	<u>Rural</u>
<u>Major Street</u>	<u>Minor Street</u>						
1 6,687	1 159			8,000	5,600	2,400	1,680
2 +	1			9,600	6,720	2,400	1,680
2 +	2 +			9,600	6,720	3,200	2,240
1	2 +			8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic							
<u>Satisfied</u>	<u>Not Satisfied</u> XX			Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Number of lanes for moving traffic on each approach				<u>Urban</u>	<u>Rural</u>	<u>Urban</u>	<u>Rural</u>
<u>Major Street</u>	<u>Minor Street</u>						
1 6,687	1 159			12,000	8,400	1,200	850
2 +	1			14,400	10,080	1,200	850
2 +	2 +			14,400	10,080	1,600	1,120
1	2 +			12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B							
<u>Satisfied</u>	<u>Not Satisfied</u> XX			2 CONDITIONS 80%		2 CONDITIONS 80%	
No one condition satisfied, but following conditions fulfilled 80% of more							
	<u>A</u> 7%	<u>B</u> 13%					

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet (Average Traffic Estimate Form)

DIST	CO	RTE	PM	CALC	TRAFFIC CONDITIONS	E+P - Phase 1
Jurisdiction: <u>City of Lake Elsinore</u>				CHK	<u>CH</u>	DATE <u>05/01/18</u>
Major Street: <u>El Toro Rd.</u>					Critical Approach Speed (Major)	<u>25</u> mph
Minor Street: <u>B St.</u>					Critical Approach Speed (Minor)	<u>25</u> mph
Major Street Approach Lanes = <u>1</u> lane				Minor Street Approach Lanes: <u>1</u> lane		
Major Street Future ADT = <u>2,396</u> vpd				Minor Street Future ADT = <u>1,058</u> vpd		
Speed limit or critical speed on major street traffic > 64 km/h (40 mph);						 or
In built up area of isolated community of < 10,000 population						URBAN (U)

(Based on Estimated Average Daily Traffic - See Note)

<u>URBAN</u> XX		<u>RURAL</u>		Minimum Requirements EADT			
CONDITION A - Minimum Vehicular Volume							
<u>Satisfied</u>	<u>Not Satisfied</u> XX			Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Number of lanes for moving traffic on each approach		<u>Major Street</u>	<u>Minor Street</u>	<u>Urban</u>	<u>Rural</u>	<u>Urban</u>	<u>Rural</u>
1	2,396	1	1,058	8,000	5,600	2,400	1,680
2 +		1		9,600	6,720	2,400	1,680
2 +		2 +		9,600	6,720	3,200	2,240
1		2 +		8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic							
<u>Satisfied</u>	<u>Not Satisfied</u> XX			Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Number of lanes for moving traffic on each approach		<u>Major Street</u>	<u>Minor Street</u>	<u>Urban</u>	<u>Rural</u>	<u>Urban</u>	<u>Rural</u>
1	2,396	1	1,058	12,000	8,400	1,200	850
2 +		1		14,400	10,080	1,200	850
2 +		2 +		14,400	10,080	1,600	1,120
1		2 +		12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B							
<u>Satisfied</u>	<u>Not Satisfied</u> XX			2 CONDITIONS 80%		2 CONDITIONS 80%	
No one condition satisfied, but following conditions fulfilled 80% of more		<u>A</u> 30%	<u>B</u> 20%				

Figure 4C-3. Warrant 3, Peak Hour

Traffic Conditions = **E+P - Phase 2 Conditions - Weekday AM Peak Hour**

Major Street Name = **El Toro Rd.**

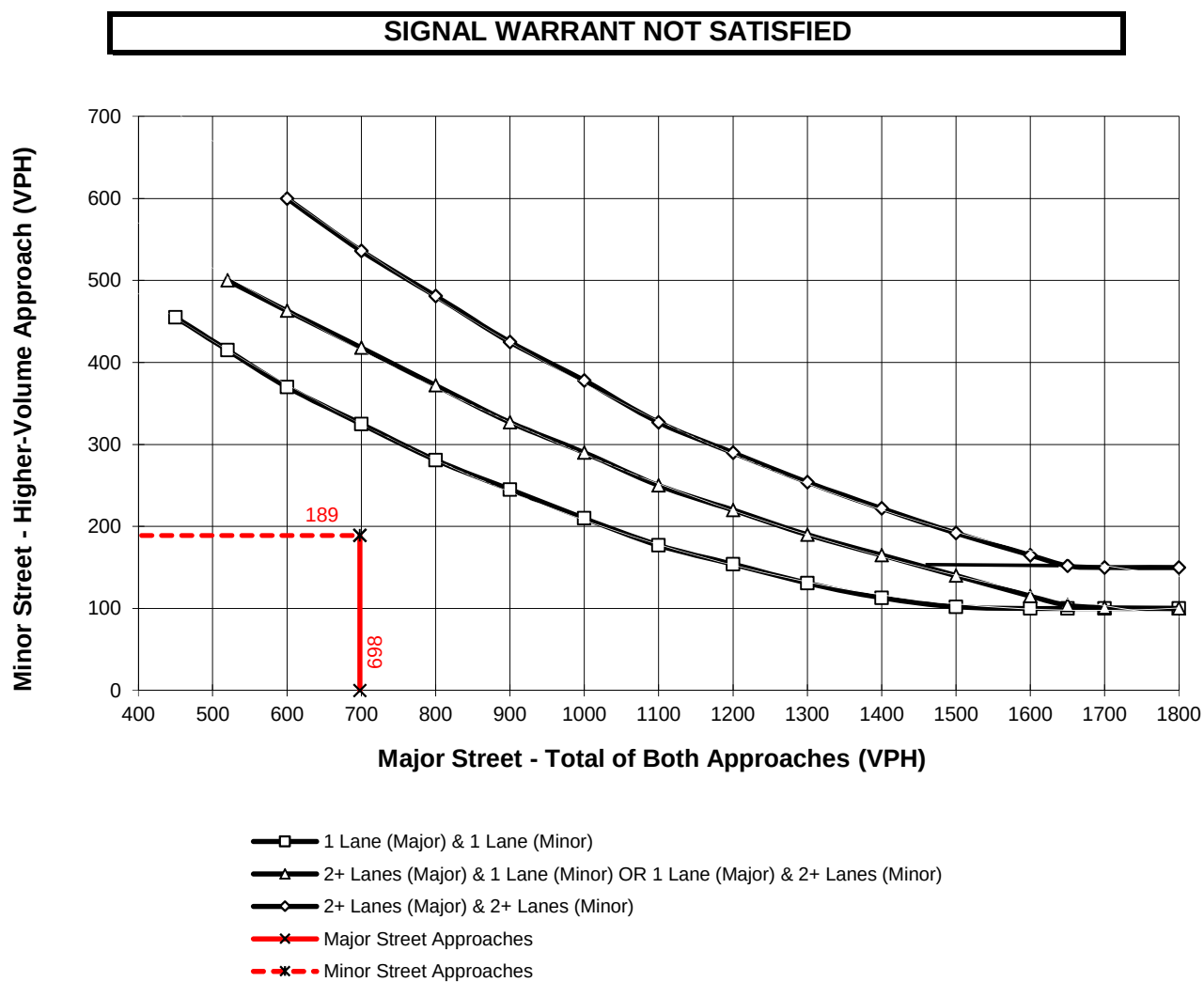
Total of Both Approaches (VPH) = **698**

Number of Approach Lanes on Major Street = **1**

Minor Street Name = **Tereticornis Av.**

High Volume Approach (VPH) = **189**

Number of Approach Lanes On Minor Street = **1**



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes
and 100 vph applies as the lower threshold for a minor-street approach with one lane

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APPENDIX 5.6:

E+P (BUILDOUT) CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

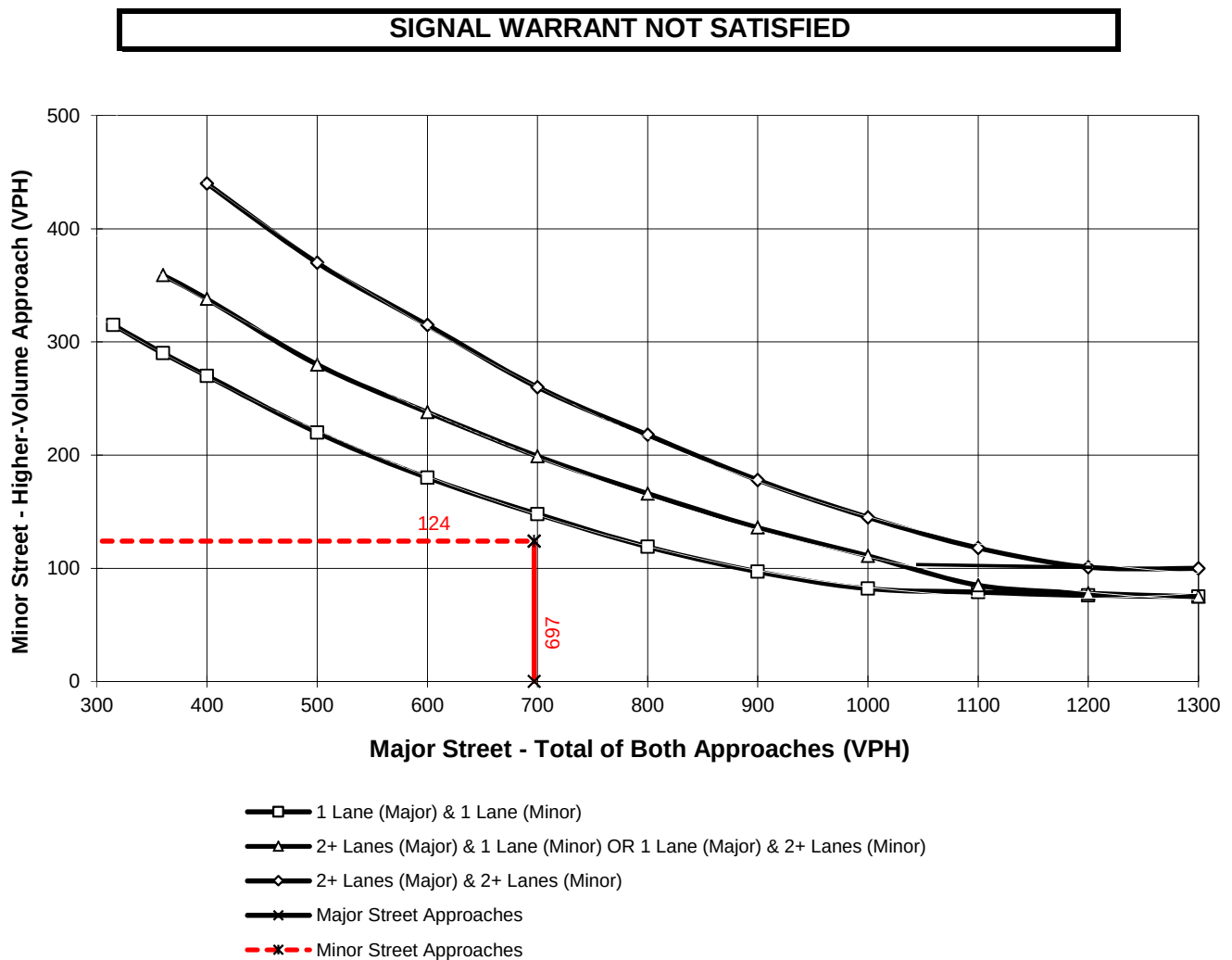
Traffic Conditions = **E+P - BO Conditions - Weekday AM Peak Hour**

Major Street Name = **Nichols Rd.**

Total of Both Approaches (VPH) = **697**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Alberhill Ranch Rd.**

High Volume Approach (VPH) = **124**
Number of Approach Lanes Minor Street = **1**



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes
and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-3. Warrant 3, Peak Hour

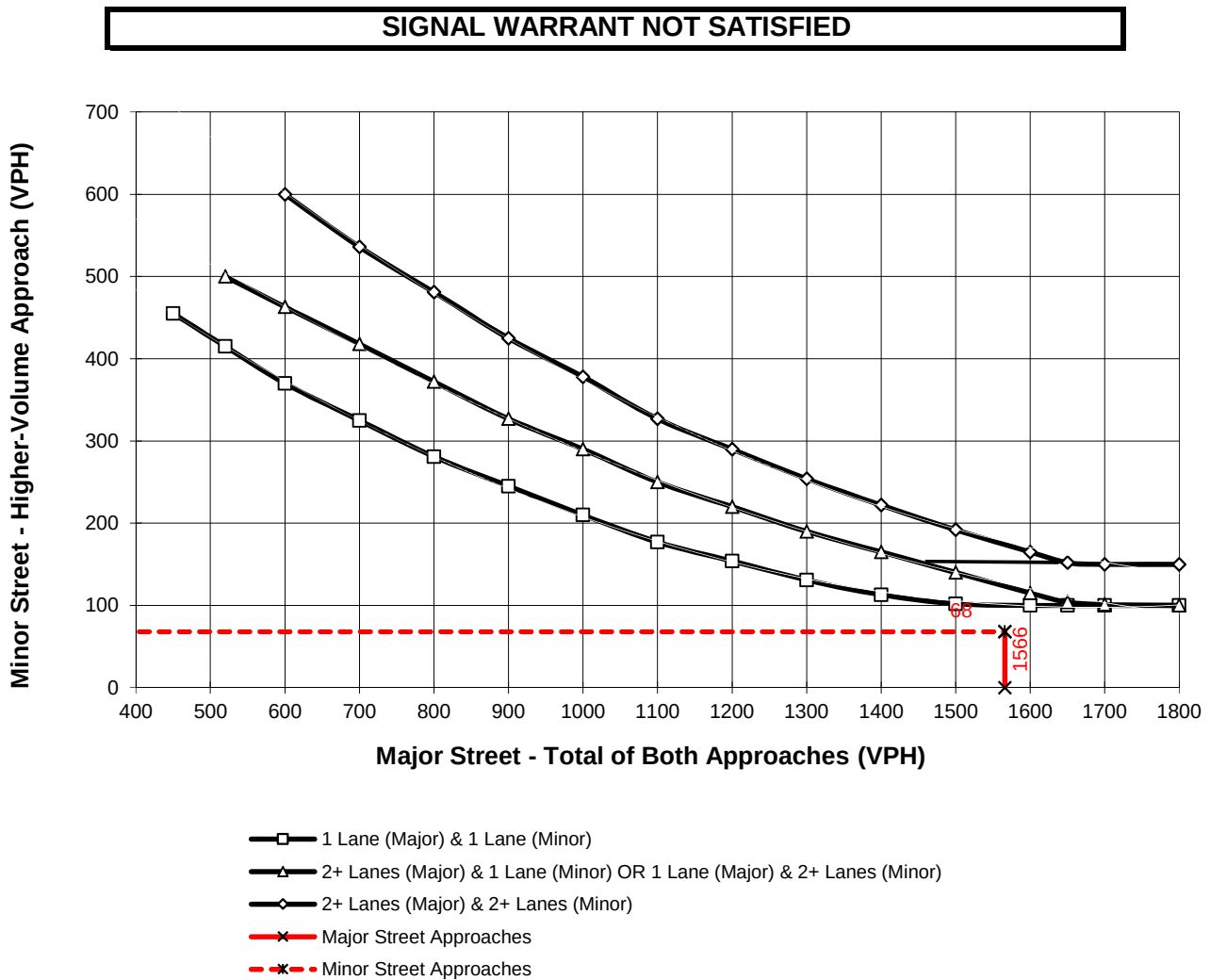
Traffic Conditions = **E+P - Phase 1 Conditions - Weekday AM Peak Hour**

Major Street Name = **Gunnerson St.**

Total of Both Approaches (VPH) = **1566**
Number of Approach Lanes on Major Street = **1**

Minor Street Name = **Strickland Av./Riverside Dr.**

High Volume Approach (VPH) = **68**
Number of Approach Lanes On Minor Street = **1**



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes
and 100 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet (Average Traffic Estimate Form)

DIST	CO	RTE	PM	CALC	TRAFFIC CONDITIONS	E+P - BO
Jurisdiction: <u>City of Lake Elsinore</u>				CHK	<u>CH</u>	DATE <u>05/01/18</u>
Major Street: <u>Nichols Rd.</u>					Critical Approach Speed (Major)	<u>50</u> mph
Minor Street: <u>A St.</u>					Critical Approach Speed (Minor)	<u>25</u> mph
Major Street Approach Lanes = <u>1</u> lane				Minor Street Approach Lanes: <u>1</u> lane		
Major Street Future ADT = <u>8,506</u> vpd				Minor Street Future ADT = <u>6,072</u> vpd		
Speed limit or critical speed on major street traffic > 64 km/h (40 mph);						☒ or ☐
In built up area of isolated community of < 10,000 population						RURAL (R)

(Based on Estimated Average Daily Traffic - See Note)

<u>URBAN</u>		<u>RURAL</u>		Minimum Requirements			
CONDITION A - Minimum Vehicular Volume		XX		EADT			
<u>Satisfied</u>		<u>Not Satisfied</u>		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
XX							
Number of lanes for moving traffic on each approach							
<u>Major Street</u>		<u>Minor Street</u>		<u>Urban</u> <u>Rural</u>		<u>Urban</u> <u>Rural</u>	
1 8,506		1 6,072		8,000	5,600 *	2,400	1,680 *
2 +		1		9,600	6,720	2,400	1,680
2 +		2 +		9,600	6,720	3,200	2,240
1		2 +		8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic							
<u>Satisfied</u>		<u>Not Satisfied</u>		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
XX							
Number of lanes for moving traffic on each approach							
<u>Major Street</u>		<u>Minor Street</u>		<u>Urban</u> <u>Rural</u>		<u>Urban</u> <u>Rural</u>	
1 8,506		1 6,072		12,000	8,400 *	1,200	850 *
2 +		1		14,400	10,080	1,200	850
2 +		2 +		14,400	10,080	1,600	1,120
1		2 +		12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B							
<u>Satisfied</u>		<u>Not Satisfied</u>		2 CONDITIONS 80%		2 CONDITIONS 80%	
XX							
No one condition satisfied, but following conditions fulfilled 80% of more							
		<u>A</u>	<u>B</u>				
		100%	100%				

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet (Average Traffic Estimate Form)

DIST	CO	RTE	PM	CALC	CH	DATE	E+P - BO
Jurisdiction: <u>City of Lake Elsinore</u>				CHK <u>CH</u>		DATE <u>05/01/18</u>	
Major Street: <u>Nichols Rd.</u>				Critical Approach Speed (Major)		<u>50</u> mph	
Minor Street: <u>B St.</u>				Critical Approach Speed (Minor)		<u>25</u> mph	
Major Street Approach Lanes = <u>1</u> lane				Minor Street Approach Lanes: <u>1</u> lane			
Major Street Future ADT = <u>4,521</u> vpd				Minor Street Future ADT = <u>1,267</u> vpd			
Speed limit or critical speed on major street traffic > 64 km/h (40 mph);						☒	RURAL (R)
In built up area of isolated community of < 10,000 population						☐	

(Based on Estimated Average Daily Traffic - See Note)

URBAN		RURAL		Minimum Requirements EADT			
CONDITION A - Minimum Vehicular Volume <u>Satisfied</u>		XX <u>Not Satisfied</u>		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Major Street		Minor Street		Urban	Rural	Urban	Rural
1 4,521		1 1,267		8,000	5,600	2,400	1,680
2 +		1		9,600	6,720	2,400	1,680
2 +		2 +		9,600	6,720	3,200	2,240
1		2 +		8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic <u>Satisfied</u>		XX <u>Not Satisfied</u>		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Major Street		Minor Street		Urban	Rural	Urban	Rural
1 4,521		1 1,267		12,000	8,400	1,200	850 *
2 +		1		14,400	10,080	1,200	850
2 +		2 +		14,400	10,080	1,600	1,120
1		2 +		12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B <u>Satisfied</u>		XX <u>Not Satisfied</u>		2 CONDITIONS 80%		2 CONDITIONS 80%	
No one condition satisfied, but following conditions fulfilled 80% of more		A 75%				B 54%	

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet (Average Traffic Estimate Form)

DIST	CO	RTE	PM	CALC	TRAFFIC CONDITIONS	E+P - BO
Jurisdiction: <u>City of Lake Elsinore</u>				CHK	<u>CH</u>	DATE <u>05/01/18</u>
Major Street: <u>B St.</u>					Critical Approach Speed (Major)	<u>50</u> mph
Minor Street: <u>F St.</u>					Critical Approach Speed (Minor)	<u>25</u> mph
Major Street Approach Lanes = <u>1</u> lane				Minor Street Approach Lanes: <u>1</u> lane		
Major Street Future ADT = <u>5,079</u> vpd				Minor Street Future ADT = <u>343</u> vpd		
Speed limit or critical speed on major street traffic > 64 km/h (40 mph);						☒
						or
In built up area of isolated community of < 10,000 population						☐

RURAL (R)

(Based on Estimated Average Daily Traffic - See Note)

URBAN		RURAL		Minimum Requirements EADT			
CONDITION A - Minimum Vehicular Volume		XX		Satisfied		Not Satisfied	
Satisfied		XX		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Number of lanes for moving traffic on each approach		Number of lanes for moving traffic on each approach		Urban	Rural	Urban	Rural
Major Street	Minor Street	Major Street	Minor Street				
1 5,079	1 343	1 5,079	1 343	8,000	5,600	2,400	1,680
2 +	1	2 +	1	9,600	6,720	2,400	1,680
2 +	2 +	2 +	2 +	9,600	6,720	3,200	2,240
1	2 +	1	2 +	8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic		XX		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied	Not Satisfied	Satisfied	Not Satisfied	Urban	Rural	Urban	Rural
Number of lanes for moving traffic on each approach	Number of lanes for moving traffic on each approach	Number of lanes for moving traffic on each approach	Number of lanes for moving traffic on each approach				
Major Street	Minor Street	Major Street	Minor Street				
1 5,079	1 343	1 5,079	1 343	12,000	8,400	1,200	850
2 +	1	2 +	1	14,400	10,080	1,200	850
2 +	2 +	2 +	2 +	14,400	10,080	1,600	1,120
1	2 +	1	2 +	12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B		XX		2 CONDITIONS 80%		2 CONDITIONS 80%	
Satisfied	Not Satisfied	Satisfied	Not Satisfied				
No one condition satisfied, but following conditions fulfilled 80% of more	No one condition satisfied, but following conditions fulfilled 80% of more	No one condition satisfied, but following conditions fulfilled 80% of more	No one condition satisfied, but following conditions fulfilled 80% of more				
		A	B				
		20%	40%				

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet (Average Traffic Estimate Form)

DIST	CO	RTE	PM	CALC	TRAFFIC CONDITIONS	E+P - BO
Jurisdiction: <u>City of Lake Elsinore</u>				CHK	<u>CH</u>	DATE <u>05/01/18</u>
Major Street: <u>H St.</u>					Critical Approach Speed (Major)	<u>25</u> mph
Minor Street: <u>B St.</u>					Critical Approach Speed (Minor)	<u>25</u> mph
Major Street Approach Lanes = <u>1</u> lane				Minor Street Approach Lanes: <u>1</u> lane		
Major Street Future ADT = <u>5,143</u> vpd				Minor Street Future ADT = <u>1,411</u> vpd		
Speed limit or critical speed on major street traffic > 64 km/h (40 mph);						 or
In built up area of isolated community of < 10,000 population						URBAN (U)

(Based on Estimated Average Daily Traffic - See Note)

URBAN XX		RURAL		Minimum Requirements EADT			
CONDITION A - Minimum Vehicular Volume				Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
<u>Satisfied</u>		<u>Not Satisfied</u>					
		XX					
Number of lanes for moving traffic on each approach				<u>Urban</u>	<u>Rural</u>	<u>Urban</u>	<u>Rural</u>
<u>Major Street</u>		<u>Minor Street</u>					
<u>1</u> 5,143		<u>1</u> 1,411		8,000	5,600	2,400	1,680
<u>2 +</u>		<u>1</u>		9,600	6,720	2,400	1,680
<u>2 +</u>		<u>2 +</u>		9,600	6,720	3,200	2,240
<u>1</u>		<u>2 +</u>		8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic				Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
<u>Satisfied</u>		<u>Not Satisfied</u>					
		XX					
Number of lanes for moving traffic on each approach				<u>Urban</u>	<u>Rural</u>	<u>Urban</u>	<u>Rural</u>
<u>Major Street</u>		<u>Minor Street</u>					
<u>1</u> 5,143		<u>1</u> 1,411		12,000	8,400	1,200 *	850
<u>2 +</u>		<u>1</u>		14,400	10,080	1,200	850
<u>2 +</u>		<u>2 +</u>		14,400	10,080	1,600	1,120
<u>1</u>		<u>2 +</u>		12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B				2 CONDITIONS		2 CONDITIONS	
<u>Satisfied</u>		<u>Not Satisfied</u>		80%		80%	
		XX					
No one condition satisfied, but following conditions fulfilled 80% of more							
		<u>A</u>	<u>B</u>				
		59%	43%				

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet (Average Traffic Estimate Form)

DIST	CO	RTE	PM	CALC	TRAFFIC CONDITIONS	E+P - BO
Jurisdiction: <u>City of Lake Elsinore</u>				CHK <u>CH</u>	DATE <u>05/01/18</u>	
Major Street: <u>G St.</u>					Critical Approach Speed (Major) <u>25</u> mph	
Minor Street: <u>B St.</u>					Critical Approach Speed (Minor) <u>25</u> mph	
Major Street Approach Lanes = <u>1</u> lane				Minor Street Approach Lanes: <u>1</u> lane		
Major Street Future ADT = <u>7,613</u> vpd				Minor Street Future ADT = <u>159</u> vpd		
Speed limit or critical speed on major street traffic > 64 km/h (40 mph);						 or
In built up area of isolated community of < 10,000 population						URBAN (U)

(Based on Estimated Average Daily Traffic - See Note)

URBAN XX		RURAL		Minimum Requirements EADT	
CONDITION A - Minimum Vehicular Volume <u>Satisfied</u>		Not Satisfied XX		Vehicles Per Day on Major Street (Total of Both Approaches)	Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)
Major Street	Minor Street	Major Street	Minor Street	Urban	Rural
1 7,613	1 159			8,000	5,600
2 +	1			9,600	6,720
2 +	2 +			9,600	6,720
1	2 +			8,000	5,600
CONDITION B - Interruption of Continuous Traffic <u>Satisfied</u>		Not Satisfied XX		Vehicles Per Day on Major Street (Total of Both Approaches)	Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)
Major Street	Minor Street	Major Street	Minor Street	Urban	Rural
1 7,613	1 159			12,000	8,400
2 +	1			14,400	10,080
2 +	2 +			14,400	10,080
1	2 +			12,000	8,400
Combination of CONDITIONS A + B <u>Satisfied</u>		Not Satisfied XX		2 CONDITIONS 80%	2 CONDITIONS 80%
No one condition satisfied, but following conditions fulfilled 80% of more		<u>A</u> 7%	<u>B</u> 13%		

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet (Average Traffic Estimate Form)

DIST	CO	RTE	PM	CALC	TRAFFIC CONDITIONS	E+P - BO
Jurisdiction: <u>City of Lake Elsinore</u>				CHK	<u>CH</u>	DATE <u>05/01/18</u>
Major Street: <u>El Toro Rd.</u>						DATE <u>05/01/18</u>
Minor Street: <u>B St.</u>					Critical Approach Speed (Major)	<u>25</u> mph
					Critical Approach Speed (Minor)	<u>25</u> mph
Major Street Approach Lanes = <u>1</u> lane				Minor Street Approach Lanes: <u>1</u> lane		
Major Street Future ADT = <u>2,960</u> vpd				Minor Street Future ADT = <u>2,042</u> vpd		
Speed limit or critical speed on major street traffic > 64 km/h (40 mph);						 or
In built up area of isolated community of < 10,000 population						URBAN (U)

(Based on Estimated Average Daily Traffic - See Note)

<u>URBAN</u> XX		<u>RURAL</u>		Minimum Requirements EADT			
CONDITION A - Minimum Vehicular Volume							
<u>Satisfied</u>	<u>Not Satisfied</u> XX			Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
<u>Major Street</u>	<u>Minor Street</u>	<u>Urban</u>	<u>Rural</u>	<u>Urban</u>	<u>Rural</u>	<u>Urban</u>	<u>Rural</u>
1 2,960	1 2,042	8,000	5,600	2,400	1,680		
2 +	1	9,600	6,720	2,400	1,680		
2 +	2 +	9,600	6,720	3,200	2,240		
1	2 +	8,000	5,600	3,200	2,240		
CONDITION B - Interruption of Continuous Traffic							
<u>Satisfied</u>	<u>Not Satisfied</u> XX			Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
<u>Major Street</u>	<u>Minor Street</u>	<u>Urban</u>	<u>Rural</u>	<u>Urban</u>	<u>Rural</u>	<u>Urban</u>	<u>Rural</u>
1 2,960	1 2,042	12,000	8,400	1,200 *	850		
2 +	1	14,400	10,080	1,200	850		
2 +	2 +	14,400	10,080	1,600	1,120		
1	2 +	12,000	8,400	1,600	1,120		
Combination of CONDITIONS A + B							
<u>Satisfied</u>	<u>Not Satisfied</u> XX			2 CONDITIONS 80%		2 CONDITIONS 80%	
No one condition satisfied, but following conditions fulfilled 80% of more							
	<u>A</u> 37%	<u>B</u> 25%					

Figure 4C-3. Warrant 3, Peak Hour

Traffic Conditions = **E+P - BO Conditions - Weekday AM Peak Hour**

Major Street Name = **El Toro Rd.**

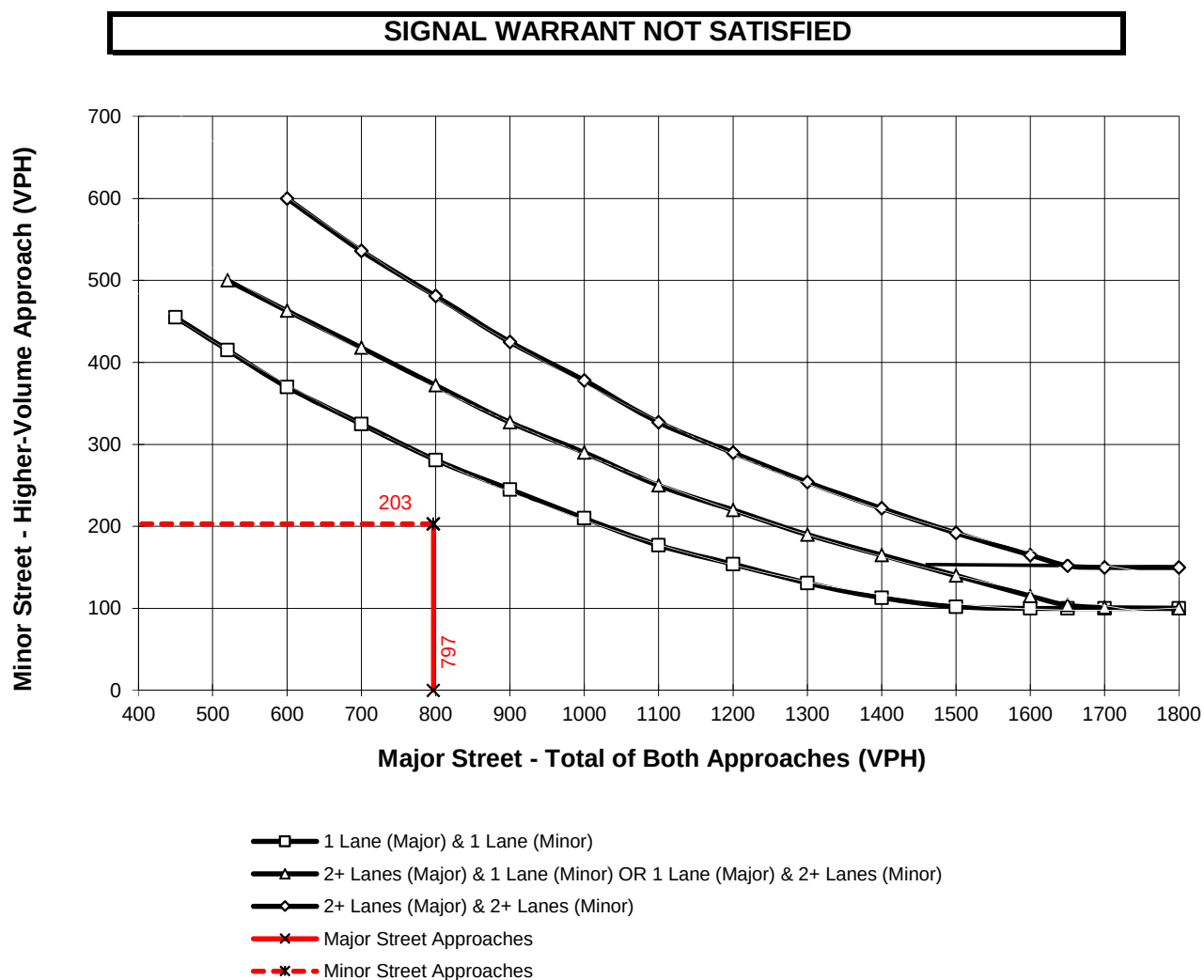
Total of Both Approaches (VPH) = **797**

Number of Approach Lanes on Major Street = **1**

Minor Street Name = **Tereticornis Av.**

High Volume Approach (VPH) = **203**

Number of Approach Lanes On Minor Street = **1**



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes
and 100 vph applies as the lower threshold for a minor-street approach with one lane

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APPENDIX 5.7:

E+P (PHASE 1) CONDITIONS OFF-RAMP QUEUEING ANALYSIS WORKSHEETS

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Intersection

Intersection Delay, s/veh 15.6

Intersection LOS C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗	↖	↑						↕	
Traffic Vol, veh/h	0	230	267	62	220	0	0	0	0	166	6	62
Future Vol, veh/h	0	230	267	62	220	0	0	0	0	166	6	62
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles, %	0	3	3	25	3	0	0	0	0	8	67	13
Mvmt Flow	0	307	356	83	293	0	0	0	0	221	8	83
Number of Lanes	0	1	1	1	1	0	0	0	0	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	2
HCM Control Delay	15.2	15.4	16.9
HCM LOS	C	C	C

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	100%	0%	71%
Vol Thru, %	100%	0%	0%	100%	3%
Vol Right, %	0%	100%	0%	0%	26%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	230	267	62	220	234
LT Vol	0	0	62	0	166
Through Vol	230	0	0	220	6
RT Vol	0	267	0	0	62
Lane Flow Rate	307	356	83	293	312
Geometry Grp	7	7	7	7	2
Degree of Util (X)	0.53	0.545	0.17	0.53	0.55
Departure Headway (Hd)	6.223	5.51	7.402	6.51	6.342
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	577	651	484	551	568
Service Time	3.982	3.268	5.169	4.276	4.395
HCM Lane V/C Ratio	0.532	0.547	0.171	0.532	0.549
HCM Control Delay	15.8	14.7	11.7	16.4	16.9
HCM Lane LOS	C	B	B	C	C
HCM 95th-tile Q	3.1	3.3	0.6	3.1	3.3

Intersection												
Int Delay, s/veh	62.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	74	322	0	0	141	95	140	3	110	0	0	0
Future Vol, veh/h	74	322	0	0	141	95	140	3	110	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	230	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	62	62	62	62	62	62	62	62	62	62	62	62
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	119	519	0	0	227	153	226	5	177	0	0	0
Major/Minor	Major1		Major2			Minor1						
Conflicting Flow All	380	0	-	-	-	0	1061	1137	519			
Stage 1	-	-	-	-	-	-	757	757	-			
Stage 2	-	-	-	-	-	-	304	380	-			
Critical Hdwy	4.15	-	-	-	-	-	6.44	6.5	6.26			
Critical Hdwy Stg 1	-	-	-	-	-	-	5.44	5.5	-			
Critical Hdwy Stg 2	-	-	-	-	-	-	5.44	5.5	-			
Follow-up Hdwy	2.245	-	-	-	-	-	3.536	4	3.354			
Pot Cap-1 Maneuver	1162	-	0	0	-	-	246	203	549			
Stage 1	-	-	0	0	-	-	460	419	-			
Stage 2	-	-	0	0	-	-	744	617	-			
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	1162	-	-	-	-	-	~ 221	0	549			
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 221	0	-			
Stage 1	-	-	-	-	-	-	413	0	-			
Stage 2	-	-	-	-	-	-	744	0	-			
Approach	EB		WB			NB						
HCM Control Delay, s	1.6		0			216						
HCM LOS						F						
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR							
Capacity (veh/h)	300	1162	-	-	-							
HCM Lane V/C Ratio	1.36	0.103	-	-	-							
HCM Control Delay (s)	216	8.5	-	-	-							
HCM Lane LOS	F	A	-	-	-							
HCM 95th %tile Q(veh)	20.8	0.3	-	-	-							
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s			+: Computation Not Defined				*: All major volume in platoon			

Intersection

Intersection Delay, s/veh 13.7

Intersection LOS B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗	↖	↑						↕	
Traffic Vol, veh/h	0	245	268	29	342	0	0	0	0	85	2	132
Future Vol, veh/h	0	245	268	29	342	0	0	0	0	85	2	132
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	0	3	3	25	3	0	0	0	0	8	67	13
Mvmt Flow	0	261	285	31	364	0	0	0	0	90	2	140
Number of Lanes	0	1	1	1	1	0	0	0	0	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	2
HCM Control Delay	12	16.7	12.6
HCM LOS	B	C	B

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	100%	0%	39%
Vol Thru, %	100%	0%	0%	100%	1%
Vol Right, %	0%	100%	0%	0%	60%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	245	268	29	342	219
LT Vol	0	0	29	0	85
Through Vol	245	0	0	342	2
RT Vol	0	268	0	0	132
Lane Flow Rate	261	285	31	364	233
Geometry Grp	7	7	7	7	2
Degree of Util (X)	0.421	0.404	0.059	0.601	0.382
Departure Headway (Hd)	5.815	5.105	6.834	5.947	5.902
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	620	704	524	608	610
Service Time	3.551	2.84	4.572	3.685	3.943
HCM Lane V/C Ratio	0.421	0.405	0.059	0.599	0.382
HCM Control Delay	12.7	11.3	10	17.3	12.6
HCM Lane LOS	B	B	A	C	B
HCM 95th-tile Q	2.1	2	0.2	4	1.8

Intersection												
Int Delay, s/veh	13.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	140	189	0	0	119	43	252	1	37	0	0	0
Future Vol, veh/h	140	189	0	0	119	43	252	1	37	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	230	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	146	197	0	0	124	45	263	1	39	0	0	0

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	169	0	- - - 0 636 658 197
Stage 1	-	-	- - - 489 489 -
Stage 2	-	-	- - - 147 169 -
Critical Hdwy	4.15	-	- - - 6.44 6.5 6.26
Critical Hdwy Stg 1	-	-	- - - 5.44 5.5 -
Critical Hdwy Stg 2	-	-	- - - 5.44 5.5 -
Follow-up Hdwy	2.245	-	- - - 3.536 4 3.354
Pot Cap-1 Maneuver	1390	-	0 0 - - 439 387 834
Stage 1	-	-	0 0 - - 612 553 -
Stage 2	-	-	0 0 - - 876 763 -
Platoon blocked, %	-	-	- -
Mov Cap-1 Maneuver	1390	-	- - - 393 0 834
Mov Cap-2 Maneuver	-	-	- - - 393 0 -
Stage 1	-	-	- - - 548 0 -
Stage 2	-	-	- - - 876 0 -

Approach	EB	WB	NB
HCM Control Delay, s	3.4	0	32.3
HCM LOS	D		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR
Capacity (veh/h)	422	1390	-	-	-
HCM Lane V/C Ratio	0.716	0.105	-	-	-
HCM Control Delay (s)	32.3	7.9	-	-	-
HCM Lane LOS	D	A	-	-	-
HCM 95th %tile Q(veh)	5.5	0.4	-	-	-

APPENDIX 5.8:

E+P (PHASE 2) CONDITIONS OFF-RAMP QUEUEING ANALYSIS WORKSHEETS

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Intersection

Intersection Delay, s/veh 16.9

Intersection LOS C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗	↖	↑						↕	
Traffic Vol, veh/h	0	236	267	85	239	0	0	0	0	174	6	62
Future Vol, veh/h	0	236	267	85	239	0	0	0	0	174	6	62
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles, %	0	3	3	25	3	0	0	0	0	8	67	13
Mvmt Flow	0	315	356	113	319	0	0	0	0	232	8	83
Number of Lanes	0	1	1	1	1	0	0	0	0	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	2
HCM Control Delay	16.2	16.9	18.2
HCM LOS	C	C	C

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	100%	0%	72%
Vol Thru, %	100%	0%	0%	100%	2%
Vol Right, %	0%	100%	0%	0%	26%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	236	267	85	239	242
LT Vol	0	0	85	0	174
Through Vol	236	0	0	239	6
RT Vol	0	267	0	0	62
Lane Flow Rate	315	356	113	319	323
Geometry Grp	7	7	7	7	2
Degree of Util (X)	0.558	0.561	0.236	0.585	0.581
Departure Headway (Hd)	6.386	5.672	7.5	6.607	6.478
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	563	634	477	545	555
Service Time	4.155	3.441	5.275	4.382	4.537
HCM Lane V/C Ratio	0.56	0.562	0.237	0.585	0.582
HCM Control Delay	17	15.5	12.6	18.4	18.2
HCM Lane LOS	C	C	B	C	C
HCM 95th-tile Q	3.4	3.5	0.9	3.7	3.7

Intersection												
Int Delay, s/veh	84.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	74	336	0	0	183	118	140	3	118	0	0	0
Future Vol, veh/h	74	336	0	0	183	118	140	3	118	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	230	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	62	62	62	62	62	62	62	62	62	62	62	62
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	119	542	0	0	295	190	226	5	190	0	0	0

Major/Minor	Major1		Major2		Minor1		
Conflicting Flow All	485	0	-	-	0	1170	1265 542
Stage 1	-	-	-	-	-	780	780 -
Stage 2	-	-	-	-	-	390	485 -
Critical Hdwy	4.15	-	-	-	-	6.44	6.5 6.26
Critical Hdwy Stg 1	-	-	-	-	-	5.44	5.5 -
Critical Hdwy Stg 2	-	-	-	-	-	5.44	5.5 -
Follow-up Hdwy	2.245	-	-	-	-	3.536	4 3.354
Pot Cap-1 Maneuver	1062	-	0	0	-	~ 211	171 533
Stage 1	-	-	0	0	-	448	409 -
Stage 2	-	-	0	0	-	680	555 -
Platoon blocked, %	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1062	-	-	-	-	~ 187	0 533
Mov Cap-2 Maneuver	-	-	-	-	-	~ 187	0 -
Stage 1	-	-	-	-	-	398	0 -
Stage 2	-	-	-	-	-	680	0 -

Approach	EB	WB	NB
HCM Control Delay, s	1.6	0	\$ 313.4
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR
Capacity (veh/h)	266	1062	-	-	-
HCM Lane V/C Ratio	1.583	0.112	-	-	-
HCM Control Delay (s)	\$ 313.4	8.8	-	-	-
HCM Lane LOS	F	A	-	-	-
HCM 95th %tile Q(veh)	25.6	0.4	-	-	-

Notes			
~: Volume exceeds capacity	\$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection

Intersection Delay, s/veh 14.9

Intersection LOS B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗	↖	↑						↕	
Traffic Vol, veh/h	0	266	268	44	355	0	0	0	0	110	2	132
Future Vol, veh/h	0	266	268	44	355	0	0	0	0	110	2	132
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	0	3	3	25	3	0	0	0	0	8	67	13
Mvmt Flow	0	283	285	47	378	0	0	0	0	117	2	140
Number of Lanes	0	1	1	1	1	0	0	0	0	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	2
HCM Control Delay	12.9	18.3	13.8
HCM LOS	B	C	B

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	100%	0%	45%
Vol Thru, %	100%	0%	0%	100%	1%
Vol Right, %	0%	100%	0%	0%	54%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	266	268	44	355	244
LT Vol	0	0	44	0	110
Through Vol	266	0	0	355	2
RT Vol	0	268	0	0	132
Lane Flow Rate	283	285	47	378	260
Geometry Grp	7	7	7	7	2
Degree of Util (X)	0.472	0.419	0.091	0.642	0.438
Departure Headway (Hd)	6	5.289	7.007	6.119	6.076
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	600	679	511	589	592
Service Time	3.747	3.036	4.758	3.869	4.127
HCM Lane V/C Ratio	0.472	0.42	0.092	0.642	0.439
HCM Control Delay	14	11.8	10.5	19.3	13.8
HCM Lane LOS	B	B	B	C	B
HCM 95th-tile Q	2.5	2.1	0.3	4.6	2.2

Intersection												
Int Delay, s/veh	17.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	140	235	0	0	147	58	252	1	62	0	0	0
Future Vol, veh/h	140	235	0	0	147	58	252	1	62	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	230	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	146	245	0	0	153	60	263	1	65	0	0	0

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	213	0	- - - 0 720 750 245
Stage 1	-	-	- - - 537 537 -
Stage 2	-	-	- - - 183 213 -
Critical Hdwy	4.15	-	- - - 6.44 6.5 6.26
Critical Hdwy Stg 1	-	-	- - - 5.44 5.5 -
Critical Hdwy Stg 2	-	-	- - - 5.44 5.5 -
Follow-up Hdwy	2.245	-	- - - 3.536 4 3.354
Pot Cap-1 Maneuver	1340	-	0 0 - - 392 342 784
Stage 1	-	-	0 0 - - 582 526 -
Stage 2	-	-	0 0 - - 844 730 -
Platoon blocked, %	-	-	- -
Mov Cap-1 Maneuver	1340	-	- - - 349 0 784
Mov Cap-2 Maneuver	-	-	- - - 349 0 -
Stage 1	-	-	- - - 519 0 -
Stage 2	-	-	- - - 844 0 -

Approach	EB	WB	NB
HCM Control Delay, s	3	0	46.8
HCM LOS	E		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR
Capacity (veh/h)	392	1340	-	-	-
HCM Lane V/C Ratio	0.837	0.109	-	-	-
HCM Control Delay (s)	46.8	8	-	-	-
HCM Lane LOS	E	A	-	-	-
HCM 95th %tile Q(veh)	7.8	0.4	-	-	-

APPENDIX 5.9:

E+P (BUILDOUT) CONDITIONS OFF-RAMP QUEUEING ANALYSIS WORKSHEETS

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Intersection

Intersection Delay, s/veh48.5

Intersection LOS E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗	↖	↑						↕	
Traffic Vol, veh/h	0	393	267	123	343	0	0	0	0	236	6	62
Future Vol, veh/h	0	393	267	123	343	0	0	0	0	236	6	62
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles, %	0	3	3	25	3	0	0	0	0	8	67	13
Mvmt Flow	0	524	356	164	457	0	0	0	0	315	8	83
Number of Lanes	0	1	1	1	1	0	0	0	0	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	2
HCM Control Delay	58.8	43.9	33.1
HCM LOS	F	E	D

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	100%	0%	78%
Vol Thru, %	100%	0%	0%	100%	2%
Vol Right, %	0%	100%	0%	0%	20%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	393	267	123	343	304
LT Vol	0	0	123	0	236
Through Vol	393	0	0	343	6
RT Vol	0	267	0	0	62
Lane Flow Rate	524	356	164	457	405
Geometry Grp	7	7	7	7	2
Degree of Util (X)	1.061	0.65	0.375	0.934	0.797
Departure Headway (Hd)	7.292	6.571	8.474	7.572	7.265
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	498	548	428	480	503
Service Time	5.065	4.343	6.174	5.272	5.265
HCM Lane V/C Ratio	1.052	0.65	0.383	0.952	0.805
HCM Control Delay	84.7	20.8	16.2	53.8	33.1
HCM Lane LOS	F	C	C	F	D
HCM 95th-tile Q	15.9	4.7	1.7	11.1	7.4

Intersection												
Int Delay, s/veh	314.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	74	556	0	0	326	153	140	3	186	0	0	0
Future Vol, veh/h	74	556	0	0	326	153	140	3	186	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	230	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	62	62	62	62	62	62	62	62	62	62	62	62
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	119	897	0	0	526	247	226	5	300	0	0	0
Major/Minor	Major1			Major2			Minor1					
Conflicting Flow All	773	0	-	-	-	0	1785	1908	897			
Stage 1	-	-	-	-	-	-	1135	1135	-			
Stage 2	-	-	-	-	-	-	650	773	-			
Critical Hdwy	4.15	-	-	-	-	-	6.44	6.5	6.26			
Critical Hdwy Stg 1	-	-	-	-	-	-	5.44	5.5	-			
Critical Hdwy Stg 2	-	-	-	-	-	-	5.44	5.5	-			
Follow-up Hdwy	2.245	-	-	-	-	-	3.536	4	3.354			
Pot Cap-1 Maneuver	829	-	0	0	-	-	~ 89	69	333			
Stage 1	-	-	0	0	-	-	304	280	-			
Stage 2	-	-	0	0	-	-	516	412	-			
Platoon blocked, %	-			-			-					
Mov Cap-1 Maneuver	829	-	-	-	-	-	~ 76	0	333			
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 76	0	-			
Stage 1	-	-	-	-	-	-	260	0	-			
Stage 2	-	-	-	-	-	-	516	0	-			
Approach	EB			WB			NB					
HCM Control Delay, s	1.2			0			\$ 1372					
HCM LOS							F					
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR							
Capacity (veh/h)	136	829	-	-	-							
HCM Lane V/C Ratio	3.902	0.144	-	-	-							
HCM Control Delay (s)	\$ 1372	10.1	-	-	-							
HCM Lane LOS	F	B	-	-	-							
HCM 95th %tile Q(veh)	53.1	0.5	-	-	-							
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s			+: Computation Not Defined				*: All major volume in platoon			

Intersection

Intersection Delay, s/veh 25

Intersection LOS C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↑	↑	↑						↕	
Traffic Vol, veh/h	0	365	268	84	453	0	0	0	0	145	2	132
Future Vol, veh/h	0	365	268	84	453	0	0	0	0	145	2	132
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	0	3	3	25	3	0	0	0	0	8	67	13
Mvmt Flow	0	388	285	89	482	0	0	0	0	154	2	140
Number of Lanes	0	1	1	1	1	0	0	0	0	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	2
HCM Control Delay	19.2	35.6	17.6
HCM LOS	C	E	C

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	100%	0%	52%
Vol Thru, %	100%	0%	0%	100%	1%
Vol Right, %	0%	100%	0%	0%	47%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	365	268	84	453	279
LT Vol	0	0	84	0	145
Through Vol	365	0	0	453	2
RT Vol	0	268	0	0	132
Lane Flow Rate	388	285	89	482	297
Geometry Grp	7	7	7	7	2
Degree of Util (X)	0.702	0.459	0.185	0.878	0.548
Departure Headway (Hd)	6.511	5.796	7.452	6.56	6.644
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	551	616	479	549	540
Service Time	4.296	3.581	5.236	4.343	4.72
HCM Lane V/C Ratio	0.704	0.463	0.186	0.878	0.55
HCM Control Delay	23.4	13.5	11.9	40	17.6
HCM Lane LOS	C	B	B	E	C
HCM 95th-tile Q	5.6	2.4	0.7	9.9	3.3

HCM 6th TWSC
10: I-15 NB Ramps & Nichols Rd.

05/11/2018

Intersection												
Int Delay, s/veh	59.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	140	370	0	0	285	94	252	1	100	0	0	0
Future Vol, veh/h	140	370	0	0	285	94	252	1	100	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	230	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	146	385	0	0	297	98	263	1	104	0	0	0

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	395	0	- - - 0 1023 1072 385
Stage 1	-	-	- - - 677 677 -
Stage 2	-	-	- - - 346 395 -
Critical Hdwy	4.15	-	- - - 6.44 6.5 6.26
Critical Hdwy Stg 1	-	-	- - - 5.44 5.5 -
Critical Hdwy Stg 2	-	-	- - - 5.44 5.5 -
Follow-up Hdwy	2.245	-	- - - 3.536 4 3.354
Pot Cap-1 Maneuver	1147	-	0 0 - - ~ 259 222 654
Stage 1	-	-	0 0 - - 501 455 -
Stage 2	-	-	0 0 - - 712 608 -
Platoon blocked, %	-	-	- -
Mov Cap-1 Maneuver	1147	-	- - - ~ 226 0 654
Mov Cap-2 Maneuver	-	-	- - - ~ 226 0 -
Stage 1	-	-	- - - 437 0 -
Stage 2	-	-	- - - 712 0 -

Approach	EB	WB	NB
HCM Control Delay, s	2.4	0	204.5
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR
Capacity (veh/h)	278	1147	-	-	-
HCM Lane V/C Ratio	1.323	0.127	-	-	-
HCM Control Delay (s)	204.5	8.6	-	-	-
HCM Lane LOS	F	A	-	-	-
HCM 95th %tile Q(veh)	18.6	0.4	-	-	-

Notes			
~: Volume exceeds capacity	\$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

APPENDIX 5.10:

E+P (PHASE 1) CONDITIONS BASIC FREEWAY SEGMENT ANALYSIS WORKSHEETS

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HCS7 Basic Freeway Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	E+P - Phase 1
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - N of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	4695	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1768
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.74
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	66.3
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	26.7
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	E+P - Phase 1
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - S of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	4796	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1806
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.75
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	65.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	27.5
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	E+P - Phase 1
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - N of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	4087	Heavy Vehicle Adjustment Factor (f_{HV})	0.980
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1511
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.63
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	68.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	21.9
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	E+P - Phase 1
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - S of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	4168	Heavy Vehicle Adjustment Factor (f_{HV})	0.980
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1541
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.64
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	68.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	22.4
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	E+P - Phase 1
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - N of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	5361	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	2019
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.84
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	62.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	32.5
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	E+P - Phase 1
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - S of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	5441	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	2049
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.85
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	61.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	33.2
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	E+P - Phase 1
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - N of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	3170	Heavy Vehicle Adjustment Factor (f_{HV})	0.980
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1172
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.49
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	70.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	16.7
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	E+P - Phase 1
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - S of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	3276	Heavy Vehicle Adjustment Factor (f_{HV})	0.990
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1199
Total Trucks, %	1.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.50
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	70.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	17.1
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

APPENDIX 5.11:

E+P (PHASE 2) CONDITIONS BASIC FREEWAY SEGMENT ANALYSIS WORKSHEETS

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HCS7 Basic Freeway Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	E+P - Phase 2
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - N of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	4703	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1771
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.74
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	66.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	26.8
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	E+P - Phase 2
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - S of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	4819	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1815
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.76
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	65.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	27.7
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	E+P - Phase 2
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - N of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	4110	Heavy Vehicle Adjustment Factor (f_{HV})	0.980
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1520
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.63
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	68.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	22.1
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	E+P - Phase 2
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - S of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	4176	Heavy Vehicle Adjustment Factor (f_{HV})	0.980
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1544
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.64
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	68.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	22.5
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	E+P - Phase 2
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - N of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	5386	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	2029
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.85
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	62.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	32.7
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	E+P - Phase 2
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - S of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	5456	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	2055
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.86
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	61.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	33.4
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	E+P - Phase 2
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - N of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	3185	Heavy Vehicle Adjustment Factor (f_{HV})	0.980
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1178
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.49
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	70.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	16.8
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	E+P - Phase 2
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - S of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	3301	Heavy Vehicle Adjustment Factor (f_{HV})	0.990
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1208
Total Trucks, %	1.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.50
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	70.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	17.3
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

APPENDIX 5.12:

E+P (BUILDOUT) CONDITIONS BASIC FREEWAY SEGMENT ANALYSIS WORKSHEETS

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HCS7 Basic Freeway Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	E+P - BO
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - N of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	4765	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1795
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.75
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	65.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	27.2
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	E+P - BO
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - S of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	4857	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1829
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.76
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	65.4
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	28.0
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	E+P - BO
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - N of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	4145	Heavy Vehicle Adjustment Factor (f_{HV})	0.980
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1532
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.64
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	68.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	22.3
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	E+P - BO
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - S of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	4244	Heavy Vehicle Adjustment Factor (f_{HV})	0.980
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1569
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.65
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	68.4
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	22.9
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	E+P - BO
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - N of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	5421	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	2042
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.85
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	61.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	33.0
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	E+P - BO
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - S of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	5496	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	2070
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.86
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	61.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	33.8
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	E+P - BO
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - N of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	3221	Heavy Vehicle Adjustment Factor (f_{HV})	0.980
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1191
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.50
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	70.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	17.0
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	E+P - BO
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - S of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	3339	Heavy Vehicle Adjustment Factor (f_{HV})	0.990
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1222
Total Trucks, %	1.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.51
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	70.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	17.5
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

APPENDIX 5.13:

E+P (PHASE 1) CONDITIONS FREEWAY MERGE/DIVERGE ANALYSIS WORKSHEETS

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HCS7 Freeway Diverge Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	E+P - Phase 1
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - Off-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Deceleration Length (L _D), ft	1500	230
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V _i), veh/h	4695	234
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	4.00	11.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.962	0.901
Flow Rate (v _i), pc/h	5305	282
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.74	0.13

Speed and Density

Upstream Equilibrium Distance (L _{EQ}), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	31.1
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (D _s)	0.323
Downstream Equilibrium Distance (L _{EQ}), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	1939
Distance to Downstream Ramp (L _{DOWN}), ft	-	Off-Ramp Influence Area Speed (S _R), mi/h	61.0
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FD})	0.614	Outer Lanes Freeway Speed (S _O), mi/h	73.1
Flow in Lanes 1 and 2 (v ₁₂), pc/h	3366	Ramp Junction Speed (S), mi/h	64.9
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	-	Average Density (D), pc/mi/ln	27.2
Level of Service (LOS)	D	5.13-1	

HCS7 Freeway Merge Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	E+P - Phase 1
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - On-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Acceleration Length (LA), ft	1500	690
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi), veh/h	4461	335
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	4.00	8.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.962	0.926
Flow Rate (vi), pc/h	5040	393
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.75	0.19

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	27.6
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (M _s)	0.376
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	2031
Distance to Downstream Ramp (L _{DOWN}), ft	-	On-Ramp Influence Area Speed (S _R), mi/h	59.5
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FM})	0.597	Outer Lanes Freeway Speed (S _O), mi/h	64.5
Flow in Lanes 1 and 2 (v ₁₂), pc/h	3009	Ramp Junction Speed (S), mi/h	61.3
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	3402	Average Density (D), pc/mi/ln	29.5
Level of Service (LOS)	C	5.13-2	

HCS7 Freeway Merge Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	E+P - Phase 1
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - On-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Acceleration Length (LA), ft	1500	760
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi), veh/h	3915	172
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	6.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.980	0.943
Flow Rate (vi), pc/h	4342	198
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.63	0.09

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	22.5
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (M _s)	0.317
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	1741
Distance to Downstream Ramp (L _{DOWN}), ft	-	On-Ramp Influence Area Speed (S _R), mi/h	61.1
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FM})	0.599	Outer Lanes Freeway Speed (S _O), mi/h	65.5
Flow in Lanes 1 and 2 (v ₁₂), pc/h	2601	Ramp Junction Speed (S), mi/h	62.7
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	2799	Average Density (D), pc/mi/ln	24.1
Level of Service (LOS)	C	5.13-3	

HCS7 Freeway Diverge Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	E+P - Phase 1
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - Off-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Deceleration Length (L _D), ft	1500	260
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V _i), veh/h	4168	253
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	5.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.980	0.952
Flow Rate (v _i), pc/h	4623	289
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.64	0.14

Speed and Density

Upstream Equilibrium Distance (L _{EQ}), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	27.9
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (D _s)	0.324
Downstream Equilibrium Distance (L _{EQ}), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	1599
Distance to Downstream Ramp (L _{DOWN}), ft	-	Off-Ramp Influence Area Speed (S _R), mi/h	60.9
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FD})	0.631	Outer Lanes Freeway Speed (S _O), mi/h	74.5
Flow in Lanes 1 and 2 (v ₁₂), pc/h	3024	Ramp Junction Speed (S), mi/h	65.0
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	-	Average Density (D), pc/mi/ln	23.7
Level of Service (LOS)	C	5.13-4	

HCS7 Freeway Diverge Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	E+P - Phase 1
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - Off-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Deceleration Length (L _D), ft	1500	230
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V _i), veh/h	5361	219
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	4.00	4.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.962	0.962
Flow Rate (v _i), pc/h	6057	247
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.84	0.12

Speed and Density

Upstream Equilibrium Distance (L _{EQ}), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	34.1
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (D _s)	0.320
Downstream Equilibrium Distance (L _{EQ}), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	2341
Distance to Downstream Ramp (L _{DOWN}), ft	-	Off-Ramp Influence Area Speed (S _R), mi/h	61.0
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FD})	0.597	Outer Lanes Freeway Speed (S _O), mi/h	71.6
Flow in Lanes 1 and 2 (v ₁₂), pc/h	3716	Ramp Junction Speed (S), mi/h	64.7
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	-	Average Density (D), pc/mi/ln	31.2
Level of Service (LOS)	D	5.13-5	

HCS7 Freeway Merge Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	E+P - Phase 1
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - On-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Acceleration Length (LA), ft	1500	690
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi), veh/h	5142	299
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	4.00	5.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.962	0.952
Flow Rate (vi), pc/h	5810	341
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.85	0.16

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	30.8
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (M _s)	0.435
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	2341
Distance to Downstream Ramp (L _{DOWN}), ft	-	On-Ramp Influence Area Speed (S _R), mi/h	57.8
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FM})	0.597	Outer Lanes Freeway Speed (S _O), mi/h	63.2
Flow in Lanes 1 and 2 (v ₁₂), pc/h	3469	Ramp Junction Speed (S), mi/h	59.7
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	3810	Average Density (D), pc/mi/ln	34.3
Level of Service (LOS)	D	5.13-6	

HCS7 Freeway Merge Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	E+P - Phase 1
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - On-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Acceleration Length (LA), ft	1500	760
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi), veh/h	2986	184
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	15.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.980	0.870
Flow Rate (vi), pc/h	3312	230
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.49	0.11

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	17.9
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (M _s)	0.288
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (V _{OA}), pc/h/ln	1328
Distance to Downstream Ramp (L _{DOWN}), ft	-	On-Ramp Influence Area Speed (S _R), mi/h	61.9
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FM})	0.599	Outer Lanes Freeway Speed (S _O), mi/h	67.0
Flow in Lanes 1 and 2 (v ₁₂), pc/h	1984	Ramp Junction Speed (S), mi/h	63.7
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	2214	Average Density (D), pc/mi/ln	18.5
Level of Service (LOS)	B	5.13-7	

HCS7 Freeway Diverge Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	E+P - Phase 1
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - Off-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Deceleration Length (L _D), ft	1500	260
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V _i), veh/h	3276	290
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	1.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.990	0.990
Flow Rate (v _i), pc/h	3597	318
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.50	0.15

Speed and Density

Upstream Equilibrium Distance (L _{EQ}), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	23.1
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (D _s)	0.327
Downstream Equilibrium Distance (L _{EQ}), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	1131
Distance to Downstream Ramp (L _{DOWN}), ft	-	Off-Ramp Influence Area Speed (S _R), mi/h	60.8
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FD})	0.655	Outer Lanes Freeway Speed (S _O), mi/h	76.3
Flow in Lanes 1 and 2 (v ₁₂), pc/h	2466	Ramp Junction Speed (S), mi/h	64.9
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	-	Average Density (D), pc/mi/ln	18.5
Level of Service (LOS)	C	5.13-8	

APPENDIX 5.14:

E+P (PHASE 2) CONDITIONS FREEWAY MERGE/DIVERGE ANALYSIS WORKSHEETS

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HCS7 Freeway Diverge Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	E+P - Phase 2
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - Off-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Deceleration Length (L _D), ft	1500	230
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V _i), veh/h	4703	242
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	4.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.962	0.909
Flow Rate (v _i), pc/h	5314	289
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.74	0.14

Speed and Density

Upstream Equilibrium Distance (L _{EQ}), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	31.2
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (D _s)	0.324
Downstream Equilibrium Distance (L _{EQ}), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	1940
Distance to Downstream Ramp (L _{DOWN}), ft	-	Off-Ramp Influence Area Speed (S _R), mi/h	60.9
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FD})	0.614	Outer Lanes Freeway Speed (S _O), mi/h	73.1
Flow in Lanes 1 and 2 (v ₁₂), pc/h	3374	Ramp Junction Speed (S), mi/h	64.9
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	-	Average Density (D), pc/mi/ln	27.3
Level of Service (LOS)	D	5.14-1	

HCS7 Freeway Merge Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	E+P - Phase 2
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - On-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Acceleration Length (LA), ft	1500	690
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi), veh/h	4461	358
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	4.00	8.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.962	0.926
Flow Rate (vi), pc/h	5040	420
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.76	0.20

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	27.8
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (M _s)	0.379
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	2031
Distance to Downstream Ramp (L _{DOWN}), ft	-	On-Ramp Influence Area Speed (S _R), mi/h	59.4
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FM})	0.597	Outer Lanes Freeway Speed (S _O), mi/h	64.5
Flow in Lanes 1 and 2 (v ₁₂), pc/h	3009	Ramp Junction Speed (S), mi/h	61.2
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	3429	Average Density (D), pc/mi/ln	29.7
Level of Service (LOS)	C	5.14-2	

HCS7 Freeway Merge Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	E+P - Phase 2
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - On-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Acceleration Length (LA), ft	1500	760
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi), veh/h	3915	195
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	5.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.980	0.952
Flow Rate (vi), pc/h	4342	223
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.63	0.11

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	22.7
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (M _s)	0.318
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	1741
Distance to Downstream Ramp (L _{DOWN}), ft	-	On-Ramp Influence Area Speed (S _R), mi/h	61.1
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FM})	0.599	Outer Lanes Freeway Speed (S _O), mi/h	65.5
Flow in Lanes 1 and 2 (v ₁₂), pc/h	2601	Ramp Junction Speed (S), mi/h	62.7
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	2824	Average Density (D), pc/mi/ln	24.3
Level of Service (LOS)	C	5.14-3	

HCS7 Freeway Diverge Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	E+P - Phase 2
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - Off-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Deceleration Length (L _D), ft	1500	260
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V _i), veh/h	4176	261
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	5.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.980	0.952
Flow Rate (v _i), pc/h	4632	298
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.64	0.14

Speed and Density

Upstream Equilibrium Distance (L _{EQ}), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	28.0
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (D _s)	0.325
Downstream Equilibrium Distance (L _{EQ}), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	1604
Distance to Downstream Ramp (L _{DOWN}), ft	-	Off-Ramp Influence Area Speed (S _R), mi/h	60.9
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FD})	0.630	Outer Lanes Freeway Speed (S _O), mi/h	74.4
Flow in Lanes 1 and 2 (v ₁₂), pc/h	3028	Ramp Junction Speed (S), mi/h	65.0
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	-	Average Density (D), pc/mi/ln	23.8
Level of Service (LOS)	C	5.14-4	

HCS7 Freeway Diverge Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	E+P - Phase 2
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - Off-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Deceleration Length (L _D), ft	1500	230
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V _i), veh/h	5386	244
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	4.00	4.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.962	0.962
Flow Rate (v _i), pc/h	6086	276
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.85	0.13

Speed and Density

Upstream Equilibrium Distance (L _{EQ}), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	34.3
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (D _s)	0.323
Downstream Equilibrium Distance (L _{EQ}), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	2353
Distance to Downstream Ramp (L _{DOWN}), ft	-	Off-Ramp Influence Area Speed (S _R), mi/h	61.0
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FD})	0.595	Outer Lanes Freeway Speed (S _O), mi/h	71.5
Flow in Lanes 1 and 2 (v ₁₂), pc/h	3733	Ramp Junction Speed (S), mi/h	64.7
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	-	Average Density (D), pc/mi/ln	31.4
Level of Service (LOS)	D	5.14-5	

HCS7 Freeway Merge Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	E+P - Phase 2
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - On-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Acceleration Length (LA), ft	1500	690
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi), veh/h	5142	314
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	4.00	4.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.962	0.962
Flow Rate (vi), pc/h	5810	355
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.86	0.17

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	30.9
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (M _s)	0.437
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	2341
Distance to Downstream Ramp (L _{DOWN}), ft	-	On-Ramp Influence Area Speed (S _R), mi/h	57.8
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FM})	0.597	Outer Lanes Freeway Speed (S _O), mi/h	63.2
Flow in Lanes 1 and 2 (v ₁₂), pc/h	3469	Ramp Junction Speed (S), mi/h	59.7
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	3824	Average Density (D), pc/mi/ln	34.4
Level of Service (LOS)	D	5.14-6	

HCS7 Freeway Merge Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	E+P - Phase 2
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - On-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Acceleration Length (LA), ft	1500	760
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi), veh/h	2986	199
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	15.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.980	0.870
Flow Rate (vi), pc/h	3312	249
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.49	0.12

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	18.1
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (M _s)	0.289
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	1328
Distance to Downstream Ramp (L _{DOWN}), ft	-	On-Ramp Influence Area Speed (S _R), mi/h	61.9
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FM})	0.599	Outer Lanes Freeway Speed (S _O), mi/h	67.0
Flow in Lanes 1 and 2 (v ₁₂), pc/h	1984	Ramp Junction Speed (S), mi/h	63.7
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	2233	Average Density (D), pc/mi/ln	18.6
Level of Service (LOS)	B	5.14-7	

HCS7 Freeway Diverge Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	E+P - Phase 2
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - Off-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Deceleration Length (L _D), ft	1500	260
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V _i), veh/h	3301	315
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	1.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.990	0.990
Flow Rate (v _i), pc/h	3624	346
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.50	0.16

Speed and Density

Upstream Equilibrium Distance (L _{EQ}), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	23.3
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (D _s)	0.329
Downstream Equilibrium Distance (L _{EQ}), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	1137
Distance to Downstream Ramp (L _{DOWN}), ft	-	Off-Ramp Influence Area Speed (S _R), mi/h	60.8
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FD})	0.653	Outer Lanes Freeway Speed (S _O), mi/h	76.3
Flow in Lanes 1 and 2 (v ₁₂), pc/h	2487	Ramp Junction Speed (S), mi/h	64.9
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	-	Average Density (D), pc/mi/ln	18.6
Level of Service (LOS)	C	5.14-8	

APPENDIX 5.15:

E+P (BUILDOUT) CONDITIONS FREEWAY MERGE/DIVERGE ANALYSIS WORKSHEETS

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HCS7 Freeway Diverge Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	E+P - BO
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - Off-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Deceleration Length (L _D), ft	1500	230
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V _i), veh/h	4765	304
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	4.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.962	0.909
Flow Rate (v _i), pc/h	5384	364
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.75	0.17

Speed and Density

Upstream Equilibrium Distance (L _{EQ}), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	31.6
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (D _s)	0.331
Downstream Equilibrium Distance (L _{EQ}), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	1963
Distance to Downstream Ramp (L _{DOWN}), ft	-	Off-Ramp Influence Area Speed (S _R), mi/h	60.7
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FD})	0.609	Outer Lanes Freeway Speed (S _O), mi/h	73.0
Flow in Lanes 1 and 2 (v ₁₂), pc/h	3421	Ramp Junction Speed (S), mi/h	64.7
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	-	Average Density (D), pc/mi/ln	27.7
Level of Service (LOS)	D	5.15-1	

HCS7 Freeway Merge Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	E+P - BO
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - On-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Acceleration Length (LA), ft	1500	690
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi), veh/h	4461	396
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	4.00	7.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.962	0.935
Flow Rate (vi), pc/h	5040	460
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.76	0.22

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	28.1
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (M _s)	0.384
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	2031
Distance to Downstream Ramp (L _{DOWN}), ft	-	On-Ramp Influence Area Speed (S _R), mi/h	59.2
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FM})	0.597	Outer Lanes Freeway Speed (S _O), mi/h	64.5
Flow in Lanes 1 and 2 (v ₁₂), pc/h	3009	Ramp Junction Speed (S), mi/h	61.1
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	3469	Average Density (D), pc/mi/ln	30.0
Level of Service (LOS)	D	5.15-2	

HCS7 Freeway Merge Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	E+P - BO
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - On-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Acceleration Length (LA), ft	1500	760
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi), veh/h	3915	230
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	4.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.980	0.962
Flow Rate (vi), pc/h	4342	260
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.64	0.12

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	23.0
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (M _s)	0.321
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	1741
Distance to Downstream Ramp (L _{DOWN}), ft	-	On-Ramp Influence Area Speed (S _R), mi/h	61.0
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FM})	0.599	Outer Lanes Freeway Speed (S _O), mi/h	65.5
Flow in Lanes 1 and 2 (v ₁₂), pc/h	2601	Ramp Junction Speed (S), mi/h	62.6
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	2861	Average Density (D), pc/mi/ln	24.5
Level of Service (LOS)	C	5.15-3	

HCS7 Freeway Diverge Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	E+P - BO
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - Off-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Deceleration Length (L _D), ft	1500	260
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V _i), veh/h	4244	329
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	4.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.980	0.962
Flow Rate (v _i), pc/h	4707	372
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.65	0.18

Speed and Density

Upstream Equilibrium Distance (L _{EQ}), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	28.4
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (D _s)	0.331
Downstream Equilibrium Distance (L _{EQ}), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	1626
Distance to Downstream Ramp (L _{DOWN}), ft	-	Off-Ramp Influence Area Speed (S _R), mi/h	60.7
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FD})	0.625	Outer Lanes Freeway Speed (S _O), mi/h	74.3
Flow in Lanes 1 and 2 (v ₁₂), pc/h	3081	Ramp Junction Speed (S), mi/h	64.8
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	-	Average Density (D), pc/mi/ln	24.2
Level of Service (LOS)	D	5.15-4	

HCS7 Freeway Diverge Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	E+P - BO
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - Off-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Deceleration Length (L _D), ft	1500	230
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V _i), veh/h	5421	279
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	4.00	3.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.962	0.971
Flow Rate (v _i), pc/h	6125	312
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.85	0.15

Speed and Density

Upstream Equilibrium Distance (L _{EQ}), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	34.5
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (D _s)	0.326
Downstream Equilibrium Distance (L _{EQ}), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	2366
Distance to Downstream Ramp (L _{DOWN}), ft	-	Off-Ramp Influence Area Speed (S _R), mi/h	60.9
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FD})	0.593	Outer Lanes Freeway Speed (S _O), mi/h	71.5
Flow in Lanes 1 and 2 (v ₁₂), pc/h	3759	Ramp Junction Speed (S), mi/h	64.6
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	-	Average Density (D), pc/mi/ln	31.6
Level of Service (LOS)	D	5.15-5	

HCS7 Freeway Merge Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	E+P - BO
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - On-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Acceleration Length (LA), ft	1500	690
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi), veh/h	5142	354
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	4.00	4.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.962	0.962
Flow Rate (vi), pc/h	5810	400
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.86	0.19

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	31.2
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (M _s)	0.446
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	2341
Distance to Downstream Ramp (L _{DOWN}), ft	-	On-Ramp Influence Area Speed (S _R), mi/h	57.5
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FM})	0.597	Outer Lanes Freeway Speed (S _O), mi/h	63.2
Flow in Lanes 1 and 2 (v ₁₂), pc/h	3469	Ramp Junction Speed (S), mi/h	59.5
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	3869	Average Density (D), pc/mi/ln	34.8
Level of Service (LOS)	D	5.15-6	

HCS7 Freeway Merge Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	E+P - BO
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - On-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Acceleration Length (LA), ft	1500	760
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi), veh/h	2986	235
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	12.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.980	0.893
Flow Rate (vi), pc/h	3312	286
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.50	0.14

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	18.4
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (M _s)	0.290
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	1328
Distance to Downstream Ramp (L _{DOWN}), ft	-	On-Ramp Influence Area Speed (S _R), mi/h	61.9
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FM})	0.599	Outer Lanes Freeway Speed (S _O), mi/h	67.0
Flow in Lanes 1 and 2 (v ₁₂), pc/h	1984	Ramp Junction Speed (S), mi/h	63.7
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	2270	Average Density (D), pc/mi/ln	18.8
Level of Service (LOS)	B	5.15-7	

HCS7 Freeway Diverge Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	E+P - BO
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - Off-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Deceleration Length (L _D), ft	1500	260
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V _i), veh/h	3339	353
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	1.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.990	0.990
Flow Rate (v _i), pc/h	3666	388
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.51	0.18

Speed and Density

Upstream Equilibrium Distance (L _{EQ}), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	23.6
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (D _s)	0.333
Downstream Equilibrium Distance (L _{EQ}), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	1144
Distance to Downstream Ramp (L _{DOWN}), ft	-	Off-Ramp Influence Area Speed (S _R), mi/h	60.7
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FD})	0.651	Outer Lanes Freeway Speed (S _O), mi/h	76.2
Flow in Lanes 1 and 2 (v ₁₂), pc/h	2522	Ramp Junction Speed (S), mi/h	64.8
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	-	Average Density (D), pc/mi/ln	18.9
Level of Service (LOS)	C	5.15-8	

APPENDIX 5.16:

**E+P (PHASE 1) CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS
WITH IMPROVEMENTS**

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Timings

S. Nichols Mixed-Use Development (JN 10878)

5: Strickland Av./Gunnerson St. & Riverside Dr. (SR-74)

05/21/2018



Lane Group	EBT	WBL	WBT	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↩	↩	↩	↩	↩	↩	↩	↩
Traffic Volume (vph)	828	2	622	2	11	46	3	5
Future Volume (vph)	828	2	622	2	11	46	3	5
Turn Type	NA	Perm	NA	NA	Perm	Perm	NA	Perm
Protected Phases	4		8	2			6	
Permitted Phases		8			2	6		6
Detector Phase	4	8	8	2	2	6	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	22.4	22.4	22.4	21.6	21.6	22.4	22.4	22.4
Total Split (s)	93.0	93.0	93.0	27.0	27.0	27.0	27.0	27.0
Total Split (%)	77.5%	77.5%	77.5%	22.5%	22.5%	22.5%	22.5%	22.5%
Yellow Time (s)	4.4	4.4	4.4	3.6	3.6	4.4	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.4	5.4	5.4	4.6	4.6		5.4	5.4
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	Min	Min	Min	Min	Min
Act Effect Green (s)	29.9	29.9	29.9	12.3	12.3		11.5	11.5
Actuated g/C Ratio	0.57	0.57	0.57	0.23	0.23		0.22	0.22
v/c Ratio	0.81	0.01	0.64	0.00	0.03		0.17	0.01
Control Delay	16.1	5.0	10.7	20.5	6.4		22.0	1.6
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay	16.1	5.0	10.7	20.5	6.4		22.0	1.6
LOS	B	A	B	C	A		C	A
Approach Delay	16.1		10.7	8.5			20.2	
Approach LOS	B		B	A			C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 52.8

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 13.9

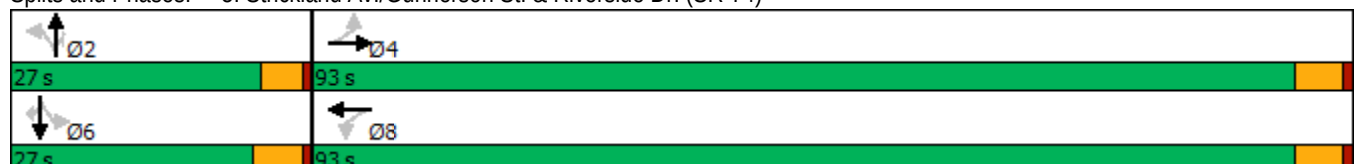
Intersection LOS: B

Intersection Capacity Utilization 73.3%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 5: Strickland Av./Gunnerson St. & Riverside Dr. (SR-74)



												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	828	3	2	622	35	0	2	11	46	3	5
Future Volume (veh/h)	0	828	3	2	622	35	0	2	11	46	3	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	854	3	2	641	36	0	2	0	47	3	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	150	1055	4	279	994	56	0	390		423	23	
Arrive On Green	0.00	0.57	0.57	0.57	0.57	0.57	0.00	0.21	0.00	0.21	0.21	0.00
Sat Flow, veh/h	762	1863	7	644	1754	99	0	1870	1585	1333	109	1585
Grp Volume(v), veh/h	0	0	857	2	0	677	0	2	0	50	0	0
Grp Sat Flow(s),veh/h/ln	762	0	1869	644	0	1853	0	1870	1585	1442	0	1585
Q Serve(g_s), s	0.0	0.0	17.6	0.1	0.0	12.0	0.0	0.0	0.0	1.2	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	17.6	17.7	0.0	12.0	0.0	0.0	0.0	1.3	0.0	0.0
Prop In Lane	1.00		0.00	1.00		0.05	0.00		1.00	0.94		1.00
Lane Grp Cap(c), veh/h	150	0	1059	279	0	1050	0	390		446	0	
V/C Ratio(X)	0.00	0.00	0.81	0.01	0.00	0.64	0.00	0.01		0.11	0.00	
Avail Cap(c_a), veh/h	1109	0	3411	1090	0	3381	0	873		793	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	8.3	15.4	0.0	7.1	0.0	15.1	0.0	15.6	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	1.5	0.0	0.0	0.7	0.0	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	4.4	0.0	0.0	2.8	0.0	0.0	0.0	0.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	9.9	15.4	0.0	7.8	0.0	15.1	0.0	15.7	0.0	0.0
LnGrp LOS	A	A	A	B	A	A	A	B		B	A	
Approach Vol, veh/h	857			679			2			50		
Approach Delay, s/veh	9.9			7.8			15.1			15.7		
Approach LOS	A			A			B			B		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	15.4			32.6			15.4			32.6		
Change Period (Y+Rc), s	* 5.4			5.4			5.4			5.4		
Max Green Setting (Gmax), s	* 22			87.6			21.6			87.6		
Max Q Clear Time (g_c+I1), s	2.0			19.6			3.3			19.7		
Green Ext Time (p_c), s	0.0			7.6			0.1			5.2		

Intersection Summary

HCM 6th Ctrl Delay 9.2

HCM 6th LOS A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

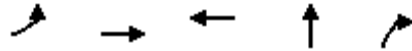
Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Timings

S. Nichols Mixed-Use Development (JN 10878)

10: I-15 NB Ramps & Nichols Rd.

07/03/2018

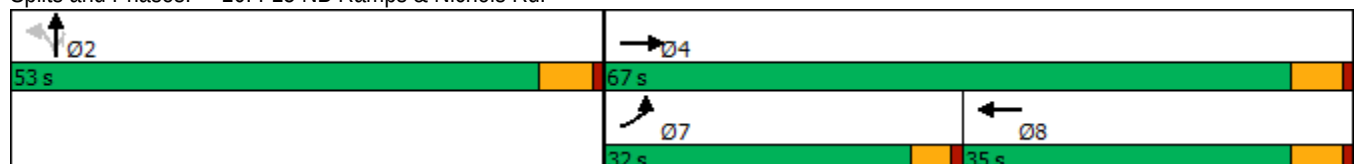


Lane Group	EBL	EBT	WBT	NBT	NBR
Lane Configurations					
Traffic Volume (vph)	74	322	141	3	110
Future Volume (vph)	74	322	141	3	110
Turn Type	Prot	NA	NA	NA	Perm
Protected Phases	7	4	8	2	
Permitted Phases					2
Detector Phase	7	4	8	2	2
Switch Phase					
Minimum Initial (s)	5.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	22.8	22.8	22.8	22.8
Total Split (s)	32.0	67.0	35.0	53.0	53.0
Total Split (%)	26.7%	55.8%	29.2%	44.2%	44.2%
Yellow Time (s)	3.6	4.8	4.8	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	5.8	5.8	5.8
Lead/Lag	Lead		Lag		
Lead-Lag Optimize?	Yes		Yes		
Recall Mode	None	None	None	Min	Min
Act Effect Green (s)	9.5	33.0	22.1	15.2	15.2
Actuated g/C Ratio	0.16	0.54	0.36	0.25	0.25
v/c Ratio	0.44	0.53	0.62	0.53	0.35
Control Delay	32.8	10.9	21.9	27.4	6.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	32.8	10.9	21.9	27.4	6.4
LOS	C	B	C	C	A
Approach Delay		15.0	21.9	18.3	
Approach LOS		B	C	B	

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 60.7
Natural Cycle: 60
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.62
Intersection Signal Delay: 17.8
Intersection LOS: B
Intersection Capacity Utilization 43.3%
ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 10: I-15 NB Ramps & Nichols Rd.



HCM 6th Signalized Intersection Summary
10: I-15 NB Ramps & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

07/03/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	74	322	0	0	141	95	140	3	110	0	0	0
Future Volume (veh/h)	74	322	0	0	141	95	140	3	110	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1826	1826	0	0	1737	1737	1811	1900	1811			
Adj Flow Rate, veh/h	119	519	0	0	227	153	226	5	177			
Peak Hour Factor	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62			
Percent Heavy Veh, %	5	5	0	0	11	11	6	0	6			
Cap, veh/h	154	914	0	0	296	199	410	9	347			
Arrive On Green	0.09	0.50	0.00	0.00	0.31	0.31	0.23	0.23	0.23			
Sat Flow, veh/h	1739	1826	0	0	967	652	1772	39	1502			
Grp Volume(v), veh/h	119	519	0	0	0	380	231	0	177			
Grp Sat Flow(s),veh/h/ln	1739	1826	0	0	0	1620	1811	0	1502			
Q Serve(g_s), s	2.9	8.6	0.0	0.0	0.0	9.2	4.9	0.0	4.4			
Cycle Q Clear(g_c), s	2.9	8.6	0.0	0.0	0.0	9.2	4.9	0.0	4.4			
Prop In Lane	1.00		0.00	0.00		0.40	0.98		1.00			
Lane Grp Cap(c), veh/h	154	914	0	0	0	495	419	0	347			
V/C Ratio(X)	0.77	0.57	0.00	0.00	0.00	0.77	0.55	0.00	0.51			
Avail Cap(c_a), veh/h	1102	2584	0	0	0	1094	1977	0	1639			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	0.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	19.3	7.5	0.0	0.0	0.0	13.6	14.6	0.0	14.5			
Incr Delay (d2), s/veh	3.1	0.6	0.0	0.0	0.0	2.5	1.1	0.0	1.2			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.1	1.9	0.0	0.0	0.0	2.7	1.6	0.0	1.2			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.4	8.1	0.0	0.0	0.0	16.1	15.8	0.0	15.6			
LnGrp LOS	C	A	A	A	A	B	B	A	B			
Approach Vol, veh/h	638			380			408					
Approach Delay, s/veh	10.8			16.1			15.7					
Approach LOS	B			B			B					
Timer - Assigned Phs	2			4			7			8		
Phs Duration (G+Y+Rc), s	15.8			27.4			8.4			19.0		
Change Period (Y+Rc), s	5.8			5.8			4.6			5.8		
Max Green Setting (Gmax), s	47.2			61.2			27.4			29.2		
Max Q Clear Time (g_c+l1), s	6.9			10.6			4.9			11.2		
Green Ext Time (p_c), s	1.9			3.3			0.1			2.0		
Intersection Summary												
HCM 6th Ctrl Delay	13.6											
HCM 6th LOS	B											

Intersection	
Intersection Delay, s/veh	40.2
Intersection LOS	E

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	166	23	184	65	18	416
Future Vol, veh/h	166	23	184	65	18	416
Peak Hour Factor	0.66	0.66	0.66	0.66	0.66	0.66
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	252	35	279	98	27	630
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	17.3	17.7	63.1
HCM LOS	C	C	F

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	88%	4%
Vol Thru, %	74%	0%	96%
Vol Right, %	26%	12%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	249	189	434
LT Vol	0	166	18
Through Vol	184	0	416
RT Vol	65	23	0
Lane Flow Rate	377	286	658
Geometry Grp	1	1	1
Degree of Util (X)	0.609	0.533	1.016
Departure Headway (Hd)	5.81	6.699	5.563
Convergence, Y/N	Yes	Yes	Yes
Cap	615	536	651
Service Time	3.903	4.791	3.64
HCM Lane V/C Ratio	0.613	0.534	1.011
HCM Control Delay	17.7	17.3	63.1
HCM Lane LOS	C	C	F
HCM 95th-tile Q	4.1	3.1	16.2

Intersection

Intersection Delay, s/veh	14.1
Intersection LOS	B

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	166	23	184	65	18	416
Future Vol, veh/h	166	23	184	65	18	416
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	180	25	200	71	20	452
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	11.8	11.1	16.8
HCM LOS	B	B	C

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	88%	4%
Vol Thru, %	74%	0%	96%
Vol Right, %	26%	12%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	249	189	434
LT Vol	0	166	18
Through Vol	184	0	416
RT Vol	65	23	0
Lane Flow Rate	271	205	472
Geometry Grp	1	1	1
Degree of Util (X)	0.379	0.334	0.651
Departure Headway (Hd)	5.04	5.846	4.971
Convergence, Y/N	Yes	Yes	Yes
Cap	715	614	731
Service Time	3.069	3.882	2.971
HCM Lane V/C Ratio	0.379	0.334	0.646
HCM Control Delay	11.1	11.8	16.8
HCM Lane LOS	B	B	C
HCM 95th-tile Q	1.8	1.5	4.9

Intersection

Intersection Delay, s/veh 54.6

Intersection LOS F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕			↕	↕
Traffic Vol, veh/h	129	0	263	6	0	15	166	105	6	8	346	228
Future Vol, veh/h	129	0	263	6	0	15	166	105	6	8	346	228
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	187	0	381	9	0	22	241	152	9	12	501	330
Number of Lanes	0	1	0	0	1	0	1	1	0	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	1
HCM Control Delay	69.2	12.5	19.2	63.2
HCM LOS	F	B	C	F

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	33%	29%	2%	0%
Vol Thru, %	0%	95%	0%	0%	98%	0%
Vol Right, %	0%	5%	67%	71%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	166	111	392	21	354	228
LT Vol	166	0	129	6	8	0
Through Vol	0	105	0	0	346	0
RT Vol	0	6	263	15	0	228
Lane Flow Rate	241	161	568	30	513	330
Geometry Grp	7	7	2	2	7	7
Degree of Util (X)	0.56	0.35	1.019	0.071	1.076	0.626
Departure Headway (Hd)	8.683	8.124	6.637	8.802	7.666	6.93
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	419	446	551	409	477	525
Service Time	6.383	5.824	4.637	6.802	5.366	4.63
HCM Lane V/C Ratio	0.575	0.361	1.031	0.073	1.075	0.629
HCM Control Delay	21.9	15.1	69.2	12.5	90.7	20.5
HCM Lane LOS	C	C	F	B	F	C
HCM 95th-tile Q	3.3	1.5	15.1	0.2	16.2	4.3

Intersection

Intersection Delay, s/veh 19.3

Intersection LOS C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	↕
Traffic Vol, veh/h	129	0	263	6	0	15	166	105	6	8	346	228
Future Vol, veh/h	129	0	263	6	0	15	166	105	6	8	346	228
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	140	0	286	7	0	16	180	114	7	9	376	248
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	1	1
HCM Control Delay	22	10.6	17	18.8
HCM LOS	C	B	C	C

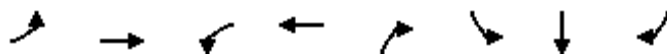
Lane	NBLn1	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	60%	33%	29%	2%	0%
Vol Thru, %	38%	0%	0%	98%	0%
Vol Right, %	2%	67%	71%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	277	392	21	354	228
LT Vol	166	129	6	8	0
Through Vol	105	0	0	346	0
RT Vol	6	263	15	0	228
Lane Flow Rate	301	426	23	385	248
Geometry Grp	5	2	2	7	7
Degree of Util (X)	0.541	0.703	0.046	0.695	0.397
Departure Headway (Hd)	6.474	5.936	7.204	6.499	5.774
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	551	605	500	550	617
Service Time	4.573	4.019	5.204	4.293	3.568
HCM Lane V/C Ratio	0.546	0.704	0.046	0.7	0.402
HCM Control Delay	17	22	10.6	23	12.4
HCM Lane LOS	C	C	B	C	B
HCM 95th-tile Q	3.2	5.7	0.1	5.4	1.9

Timings

S. Nichols Mixed-Use Development (JN 10878)

5: Strickland Av./Gunnerson St. & Riverside Dr. (SR-74)

05/21/2018



Lane Group	EBL	EBT	WBL	WBT	NBR	SBL	SBT	SBR
Lane Configurations								
Traffic Volume (vph)	2	835	6	856	6	28	1	2
Future Volume (vph)	2	835	6	856	6	28	1	2
Turn Type	Perm	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		8			6	
Permitted Phases	4		8		2	6		6
Detector Phase	4	4	8	8	2	6	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	22.4	22.4	22.4	22.4	21.6	22.4	22.4	22.4
Total Split (s)	93.0	93.0	93.0	93.0	27.0	27.0	27.0	27.0
Total Split (%)	77.5%	77.5%	77.5%	77.5%	22.5%	22.5%	22.5%	22.5%
Yellow Time (s)	4.4	4.4	4.4	4.4	3.6	4.4	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.4	5.4	5.4	5.4	4.6		5.4	5.4
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	Min	Min	Min	Min
Act Effect Green (s)	40.3	40.3	40.3	40.3	12.5		11.6	11.6
Actuated g/C Ratio	0.63	0.63	0.63	0.63	0.20		0.18	0.18
v/c Ratio	0.01	0.73	0.02	0.86	0.01		0.12	0.01
Control Delay	4.0	11.6	4.0	17.3	0.0		29.2	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay	4.0	11.6	4.0	17.3	0.0		29.2	0.0
LOS	A	B	A	B	A		C	A
Approach Delay		11.6		17.2			27.4	
Approach LOS		B		B			C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 63.6

Natural Cycle: 70

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 14.8

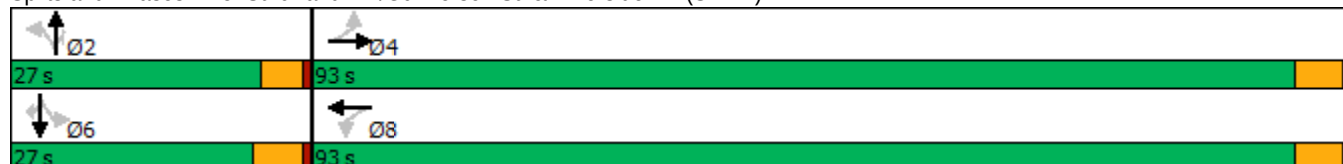
Intersection LOS: B

Intersection Capacity Utilization 73.7%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 5: Strickland Av./Gunnerson St. & Riverside Dr. (SR-74)



												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	835	4	6	856	115	0	0	6	28	1	2
Future Volume (veh/h)	2	835	4	6	856	115	0	0	6	28	1	2
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	2	861	4	6	882	119	0	0	0	29	1	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	245	1199	6	340	1040	140	0	319		355	10	
Arrive On Green	0.64	0.64	0.64	0.64	0.64	0.64	0.00	0.00	0.00	0.17	0.17	0.00
Sat Flow, veh/h	563	1860	9	640	1613	218	0	1870	1585	1372	60	1585
Grp Volume(v), veh/h	2	0	865	6	0	1001	0	0	0	30	0	0
Grp Sat Flow(s),veh/h/ln	563	0	1869	640	0	1831	0	1870	1585	1432	0	1585
Q Serve(g_s), s	0.2	0.0	17.9	0.4	0.0	25.1	0.0	0.0	0.0	1.0	0.0	0.0
Cycle Q Clear(g_c), s	25.2	0.0	17.9	18.3	0.0	25.1	0.0	0.0	0.0	1.0	0.0	0.0
Prop In Lane	1.00		0.00	1.00		0.12	0.00		1.00	0.97		1.00
Lane Grp Cap(c), veh/h	245	0	1205	340	0	1181	0	319		366	0	
V/C Ratio(X)	0.01	0.00	0.72	0.02	0.00	0.85	0.00	0.00		0.08	0.00	
Avail Cap(c_a), veh/h	724	0	2796	884	0	2740	0	716		649	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	18.0	0.0	6.9	12.9	0.0	8.1	0.0	0.0	0.0	20.5	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.8	0.0	0.0	1.8	0.0	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	4.2	0.0	0.0	6.0	0.0	0.0	0.0	0.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.1	0.0	7.7	12.9	0.0	9.9	0.0	0.0	0.0	20.6	0.0	0.0
LnGrp LOS	B	A	A	B	A	A	A	A		C	A	
Approach Vol, veh/h	867			1007			0			A	30	A
Approach Delay, s/veh	7.7			10.0			0.0				20.6	
Approach LOS	A			A							C	
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	15.4			43.2			15.4			43.2		
Change Period (Y+Rc), s	* 5.4			5.4			5.4			5.4		
Max Green Setting (Gmax), s	* 22			87.6			21.6			87.6		
Max Q Clear Time (g_c+I1), s	0.0			27.2			3.0			27.1		
Green Ext Time (p_c), s	0.0			7.7			0.1			10.7		

Intersection Summary

HCM 6th Ctrl Delay	9.1
HCM 6th LOS	A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

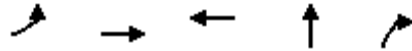
Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Timings

S. Nichols Mixed-Use Development (JN 10878)

10: I-15 NB Ramps & Nichols Rd.

07/03/2018



Lane Group	EBL	EBT	WBT	NBT	NBR
Lane Configurations					
Traffic Volume (vph)	140	189	119	1	37
Future Volume (vph)	140	189	119	1	37
Turn Type	Prot	NA	NA	NA	Perm
Protected Phases	7	4	8	2	
Permitted Phases					2
Detector Phase	7	4	8	2	2
Switch Phase					
Minimum Initial (s)	5.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	22.8	22.8	22.8	22.8
Total Split (s)	32.0	67.0	35.0	53.0	53.0
Total Split (%)	26.7%	55.8%	29.2%	44.2%	44.2%
Yellow Time (s)	3.6	4.8	4.8	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	5.8	5.8	5.8
Lead/Lag	Lead		Lag		
Lead-Lag Optimize?	Yes		Yes		
Recall Mode	None	None	None	Min	Min
Act Effect Green (s)	15.5	38.4	17.9	24.7	24.7
Actuated g/C Ratio	0.20	0.51	0.24	0.33	0.33
v/c Ratio	0.64	0.33	0.65	0.72	0.11
Control Delay	39.8	13.1	35.5	32.0	5.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	39.8	13.1	35.5	32.0	5.6
LOS	D	B	D	C	A
Approach Delay		24.5	35.5	28.6	
Approach LOS		C	D	C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 75.7

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.72

Intersection Signal Delay: 28.3

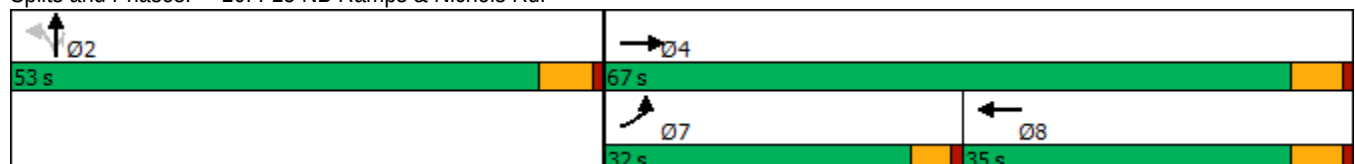
Intersection LOS: C

Intersection Capacity Utilization 44.1%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 10: I-15 NB Ramps & Nichols Rd.



HCM 6th Signalized Intersection Summary
10: I-15 NB Ramps & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

07/03/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	140	189	0	0	119	43	252	1	37	0	0	0
Future Volume (veh/h)	140	189	0	0	119	43	252	1	37	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1826	1826	0	0	1737	1737	1811	1900	1811			
Adj Flow Rate, veh/h	226	305	0	0	192	69	406	2	60			
Peak Hour Factor	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62			
Percent Heavy Veh, %	5	5	0	0	11	11	6	0	6			
Cap, veh/h	284	856	0	0	260	93	537	3	448			
Arrive On Green	0.16	0.47	0.00	0.00	0.21	0.21	0.30	0.30	0.30			
Sat Flow, veh/h	1739	1826	0	0	1220	438	1801	9	1502			
Grp Volume(v), veh/h	226	305	0	0	0	261	408	0	60			
Grp Sat Flow(s),veh/h/ln	1739	1826	0	0	0	1658	1810	0	1502			
Q Serve(g_s), s	6.2	5.3	0.0	0.0	0.0	7.3	10.2	0.0	1.5			
Cycle Q Clear(g_c), s	6.2	5.3	0.0	0.0	0.0	7.3	10.2	0.0	1.5			
Prop In Lane	1.00		0.00	0.00		0.26	1.00		1.00			
Lane Grp Cap(c), veh/h	284	856	0	0	0	353	540	0	448			
V/C Ratio(X)	0.80	0.36	0.00	0.00	0.00	0.74	0.76	0.00	0.13			
Avail Cap(c_a), veh/h	957	2245	0	0	0	973	1716	0	1424			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	0.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	20.0	8.4	0.0	0.0	0.0	18.3	15.8	0.0	12.8			
Incr Delay (d2), s/veh	2.0	0.3	0.0	0.0	0.0	3.0	2.2	0.0	0.1			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	2.2	1.4	0.0	0.0	0.0	2.6	3.6	0.0	0.4			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.0	8.7	0.0	0.0	0.0	21.3	18.0	0.0	12.9			
LnGrp LOS	C	A	A	A	A	C	B	A	B			
Approach Vol, veh/h	531			261			468					
Approach Delay, s/veh	14.3			21.3			17.4					
Approach LOS	B			C			B					
Timer - Assigned Phs	2			4			7			8		
Phs Duration (G+Y+Rc), s	20.6			29.1			12.7			16.4		
Change Period (Y+Rc), s	5.8			5.8			4.6			5.8		
Max Green Setting (Gmax), s	47.2			61.2			27.4			29.2		
Max Q Clear Time (g_c+l1), s	12.2			7.3			8.2			9.3		
Green Ext Time (p_c), s	2.7			1.7			0.3			1.3		
Intersection Summary												
HCM 6th Ctrl Delay	16.9											
HCM 6th LOS	B											

Intersection

Intersection Delay, s/veh	9.3
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	12	17	129	24	48	152
Future Vol, veh/h	12	17	129	24	48	152
Peak Hour Factor	0.66	0.66	0.66	0.66	0.66	0.66
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	18	26	195	36	73	230
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	8.1	8.9	9.7
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	41%	24%
Vol Thru, %	84%	0%	76%
Vol Right, %	16%	59%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	153	29	200
LT Vol	0	12	48
Through Vol	129	0	152
RT Vol	24	17	0
Lane Flow Rate	232	44	303
Geometry Grp	1	1	1
Degree of Util (X)	0.274	0.059	0.356
Departure Headway (Hd)	4.255	4.815	4.234
Convergence, Y/N	Yes	Yes	Yes
Cap	848	747	836
Service Time	2.261	2.826	2.334
HCM Lane V/C Ratio	0.274	0.059	0.362
HCM Control Delay	8.9	8.1	9.7
HCM Lane LOS	A	A	A
HCM 95th-tile Q	1.1	0.2	1.6

Intersection

Intersection Delay, s/veh	9.3
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	14	0	29	5	0	1	13	138	4	6	148	10
Future Vol, veh/h	14	0	29	5	0	1	13	138	4	6	148	10
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	20	0	42	7	0	1	19	200	6	9	214	14
Number of Lanes	0	1	0	0	1	0	1	1	0	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	1
HCM Control Delay	8.1	8.3	9.4	9.6
HCM LOS	A	A	A	A

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	33%	83%	4%	0%
Vol Thru, %	0%	97%	0%	0%	96%	0%
Vol Right, %	0%	3%	67%	17%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	13	142	43	6	154	10
LT Vol	13	0	14	5	6	0
Through Vol	0	138	0	0	148	0
RT Vol	0	4	29	1	0	10
Lane Flow Rate	19	206	62	9	223	14
Geometry Grp	7	7	2	2	7	7
Degree of Util (X)	0.028	0.279	0.081	0.013	0.304	0.017
Departure Headway (Hd)	5.395	4.873	4.699	5.184	4.906	4.184
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	665	739	763	690	734	857
Service Time	3.115	2.593	2.725	3.217	2.626	1.904
HCM Lane V/C Ratio	0.029	0.279	0.081	0.013	0.304	0.016
HCM Control Delay	8.3	9.5	8.1	8.3	9.8	7
HCM Lane LOS	A	A	A	A	A	A
HCM 95th-tile Q	0.1	1.1	0.3	0	1.3	0.1

APPENDIX 5.17:

**E+P (PHASE 2) CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS
WITH IMPROVEMENTS**

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Timings

S. Nichols Mixed-Use Development (JN 10878)

5: Strickland Av./Gunnerson St. & Riverside Dr. (SR-74)

05/21/2018



Lane Group	EBT	WBL	WBT	NBT	NBR	SBL	SBT	SBR
Lane Configurations	EB	WB	WB	EB	EB	SB	EB	EB
Traffic Volume (vph)	830	2	630	2	11	46	3	5
Future Volume (vph)	830	2	630	2	11	46	3	5
Turn Type	NA	Perm	NA	NA	Perm	Perm	NA	Perm
Protected Phases	4		8	2			6	
Permitted Phases		8			2	6		6
Detector Phase	4	8	8	2	2	6	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	22.4	22.4	22.4	21.6	21.6	22.4	22.4	22.4
Total Split (s)	93.0	93.0	93.0	27.0	27.0	27.0	27.0	27.0
Total Split (%)	77.5%	77.5%	77.5%	22.5%	22.5%	22.5%	22.5%	22.5%
Yellow Time (s)	4.4	4.4	4.4	3.6	3.6	4.4	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.4	5.4	5.4	4.6	4.6		5.4	5.4
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	Min	Min	Min	Min	Min
Act Effect Green (s)	30.0	30.0	30.0	12.3	12.3		11.5	11.5
Actuated g/C Ratio	0.57	0.57	0.57	0.23	0.23		0.22	0.22
v/c Ratio	0.81	0.01	0.65	0.00	0.03		0.17	0.01
Control Delay	16.1	5.0	10.8	20.5	6.4		22.1	1.2
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay	16.1	5.0	10.8	20.5	6.4		22.1	1.2
LOS	B	A	B	C	A		C	A
Approach Delay	16.1		10.8	8.5			20.2	
Approach LOS	B		B	A			C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 52.9

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 13.9

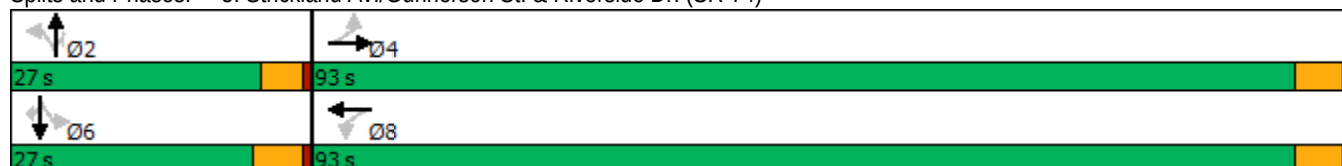
Intersection LOS: B

Intersection Capacity Utilization 73.4%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 5: Strickland Av./Gunnerson St. & Riverside Dr. (SR-74)



												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	830	3	2	630	35	0	2	11	46	3	5
Future Volume (veh/h)	0	830	3	2	630	35	0	2	11	46	3	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	856	3	2	649	36	0	2	0	47	3	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	150	1057	4	278	996	55	0	389		422	23	
Arrive On Green	0.00	0.57	0.57	0.57	0.57	0.57	0.00	0.21	0.00	0.21	0.21	0.00
Sat Flow, veh/h	757	1863	7	643	1755	97	0	1870	1585	1333	109	1585
Grp Volume(v), veh/h	0	0	859	2	0	685	0	2	0	50	0	0
Grp Sat Flow(s),veh/h/ln	757	0	1869	643	0	1853	0	1870	1585	1442	0	1585
Q Serve(g_s), s	0.0	0.0	17.7	0.1	0.0	12.2	0.0	0.0	0.0	1.2	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	17.7	17.8	0.0	12.2	0.0	0.0	0.0	1.3	0.0	0.0
Prop In Lane	1.00		0.00	1.00		0.05	0.00		1.00	0.94		1.00
Lane Grp Cap(c), veh/h	150	0	1061	278	0	1052	0	389		445	0	
V/C Ratio(X)	0.00	0.00	0.81	0.01	0.00	0.65	0.00	0.01		0.11	0.00	
Avail Cap(c_a), veh/h	1098	0	3404	1084	0	3374	0	871		791	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	8.3	15.4	0.0	7.1	0.0	15.1	0.0	15.6	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	1.5	0.0	0.0	0.7	0.0	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	4.3	0.0	0.0	2.9	0.0	0.0	0.0	0.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	9.9	15.5	0.0	7.8	0.0	15.1	0.0	15.7	0.0	0.0
LnGrp LOS	A	A	A	B	A	A	A	B		B	A	
Approach Vol, veh/h	859			687			2			A		
Approach Delay, s/veh	9.9			7.8			15.1			15.7		
Approach LOS	A			A			B			B		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	15.4			32.7			15.4			32.7		
Change Period (Y+Rc), s	* 5.4			5.4			5.4			5.4		
Max Green Setting (Gmax), s	* 22			87.6			21.6			87.6		
Max Q Clear Time (g_c+I1), s	2.0			19.7			3.3			19.8		
Green Ext Time (p_c), s	0.0			7.6			0.1			5.3		

Intersection Summary

HCM 6th Ctrl Delay 9.2

HCM 6th LOS A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

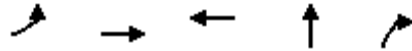
Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Timings

S. Nichols Mixed-Use Development (JN 10878)

10: I-15 NB Ramps & Nichols Rd.

05/21/2018

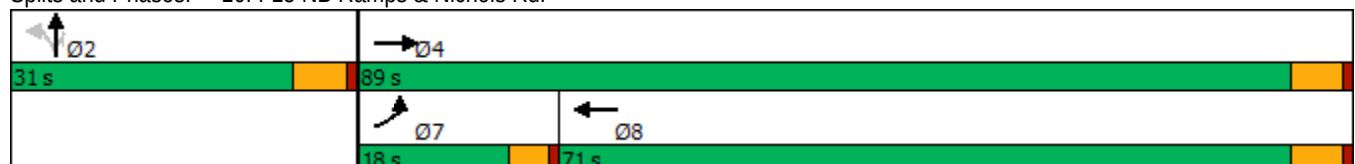


Lane Group	EBL	EBT	WBT	NBT	NBR
Lane Configurations					
Traffic Volume (vph)	74	336	183	3	118
Future Volume (vph)	74	336	183	3	118
Turn Type	Prot	NA	NA	NA	Perm
Protected Phases	7	4	8	2	
Permitted Phases					2
Detector Phase	7	4	8	2	2
Switch Phase					
Minimum Initial (s)	5.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	22.8	22.8	22.8	22.8
Total Split (s)	18.0	89.0	71.0	31.0	31.0
Total Split (%)	15.0%	74.2%	59.2%	25.8%	25.8%
Yellow Time (s)	3.6	4.8	4.8	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	5.8	5.8	5.8
Lead/Lag	Lead		Lag		
Lead-Lag Optimize?	Yes		Yes		
Recall Mode	None	None	None	Min	Min
Act Effect Green (s)	10.7	37.6	26.0	15.7	15.7
Actuated g/C Ratio	0.16	0.57	0.39	0.24	0.24
v/c Ratio	0.43	0.53	0.72	0.56	0.38
Control Delay	36.1	10.4	24.0	31.9	7.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	36.1	10.4	24.0	31.9	7.1
LOS	D	B	C	C	A
Approach Delay		15.1	24.0	20.7	
Approach LOS		B	C	C	

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 66.2
Natural Cycle: 60
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.72
Intersection Signal Delay: 19.3
Intersection LOS: B
Intersection Capacity Utilization 45.0%
ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 10: I-15 NB Ramps & Nichols Rd.



HCM 6th Signalized Intersection Summary
10: I-15 NB Ramps & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

05/21/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	74	336	0	0	183	118	140	3	118	0	0	0
Future Volume (veh/h)	74	336	0	0	183	118	140	3	118	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1826	1826	0	0	1737	1737	1811	1900	1811			
Adj Flow Rate, veh/h	119	542	0	0	295	190	226	5	190			
Peak Hour Factor	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62			
Percent Heavy Veh, %	5	5	0	0	11	11	6	0	6			
Cap, veh/h	155	1018	0	0	370	238	363	8	307			
Arrive On Green	0.09	0.56	0.00	0.00	0.37	0.37	0.20	0.20	0.20			
Sat Flow, veh/h	1739	1826	0	0	987	636	1772	39	1501			
Grp Volume(v), veh/h	119	542	0	0	0	485	231	0	190			
Grp Sat Flow(s),veh/h/ln	1739	1826	0	0	0	1623	1811	0	1501			
Q Serve(g_s), s	3.3	9.1	0.0	0.0	0.0	13.0	5.7	0.0	5.6			
Cycle Q Clear(g_c), s	3.3	9.1	0.0	0.0	0.0	13.0	5.7	0.0	5.6			
Prop In Lane	1.00		0.00	0.00		0.39	0.98		1.00			
Lane Grp Cap(c), veh/h	155	1018	0	0	0	608	371	0	307			
V/C Ratio(X)	0.77	0.53	0.00	0.00	0.00	0.80	0.62	0.00	0.62			
Avail Cap(c_a), veh/h	477	3111	0	0	0	2166	935	0	775			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	0.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	21.8	6.8	0.0	0.0	0.0	13.6	17.7	0.0	17.7			
Incr Delay (d2), s/veh	7.8	0.4	0.0	0.0	0.0	2.5	1.7	0.0	2.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.5	2.0	0.0	0.0	0.0	3.8	2.1	0.0	1.7			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.6	7.2	0.0	0.0	0.0	16.1	19.4	0.0	19.7			
LnGrp LOS	C	A	A	A	A	B	B	A	B			
Approach Vol, veh/h	661		485				421					
Approach Delay, s/veh	11.2		16.1				19.5					
Approach LOS	B		B				B					
Timer - Assigned Phs	2		4		7		8					
Phs Duration (G+Y+Rc), s	15.8		33.0		8.9		24.1					
Change Period (Y+Rc), s	5.8		5.8		4.6		5.8					
Max Green Setting (Gmax), s	25.2		83.2		13.4		65.2					
Max Q Clear Time (g_c+l1), s	7.7		11.1		5.3		15.0					
Green Ext Time (p_c), s	1.7		3.5		0.2		3.3					
Intersection Summary												
HCM 6th Ctrl Delay	15.0											
HCM 6th LOS	B											

Intersection

Intersection Delay, s/veh 44.7

Intersection LOS E

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	166	23	188	65	18	427
Future Vol, veh/h	166	23	188	65	18	427
Peak Hour Factor	0.66	0.66	0.66	0.66	0.66	0.66
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	252	35	285	98	27	647
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left NB			WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right SB		WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	17.3	17.9	71.5
HCM LOS	C	C	F

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	88%	4%
Vol Thru, %	74%	0%	96%
Vol Right, %	26%	12%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	253	189	445
LT Vol	0	166	18
Through Vol	188	0	427
RT Vol	65	23	0
Lane Flow Rate	383	286	674
Geometry Grp	1	1	1
Degree of Util (X)	0.614	0.529	1.046
Departure Headway (Hd)	5.927	6.843	5.586
Convergence, Y/N	Yes	Yes	Yes
Cap	613	530	647
Service Time	3.927	4.843	3.636
HCM Lane V/C Ratio	0.625	0.54	1.042
HCM Control Delay	17.9	17.3	71.5
HCM Lane LOS	C	C	F
HCM 95th-tile Q	4.2	3.1	17.8

Intersection

Intersection Delay, s/veh	14.5
Intersection LOS	B

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	166	23	188	65	18	427
Future Vol, veh/h	166	23	188	65	18	427
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	180	25	204	71	20	464
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	11.9	11.3	17.5
HCM LOS	B	B	C

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	88%	4%
Vol Thru, %	74%	0%	96%
Vol Right, %	26%	12%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	253	189	445
LT Vol	0	166	18
Through Vol	188	0	427
RT Vol	65	23	0
Lane Flow Rate	275	205	484
Geometry Grp	1	1	1
Degree of Util (X)	0.387	0.336	0.67
Departure Headway (Hd)	5.063	5.887	4.983
Convergence, Y/N	Yes	Yes	Yes
Cap	710	610	730
Service Time	3.095	3.926	2.983
HCM Lane V/C Ratio	0.387	0.336	0.663
HCM Control Delay	11.3	11.9	17.5
HCM Lane LOS	B	B	C
HCM 95th-tile Q	1.8	1.5	5.2

Intersection	
Intersection Delay, s/veh	64.8
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	↕
Traffic Vol, veh/h	129	0	263	6	0	15	166	109	6	8	357	228
Future Vol, veh/h	129	0	263	6	0	15	166	109	6	8	357	228
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	187	0	381	9	0	22	241	158	9	12	517	330
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	1	1
HCM Control Delay	77	13	39.5	70.6
HCM LOS	F	B	E	F

Lane	NBLn1	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	59%	33%	29%	2%	0%
Vol Thru, %	39%	0%	0%	98%	0%
Vol Right, %	2%	67%	71%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	281	392	21	365	228
LT Vol	166	129	6	8	0
Through Vol	109	0	0	357	0
RT Vol	6	263	15	0	228
Lane Flow Rate	407	568	30	529	330
Geometry Grp	5	2	2	7	7
Degree of Util (X)	0.838	1.043	0.074	1.107	0.626
Departure Headway (Hd)	7.754	6.846	9.23	7.848	7.114
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	472	534	390	466	512
Service Time	5.754	4.846	7.23	5.548	4.814
HCM Lane V/C Ratio	0.862	1.064	0.077	1.135	0.645
HCM Control Delay	39.5	77	13	101.6	21
HCM Lane LOS	E	F	B	F	C
HCM 95th-tile Q	8.3	15.8	0.2	17.2	4.3

Intersection

Intersection Delay, s/veh 19.9

Intersection LOS C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	↕
Traffic Vol, veh/h	129	0	263	6	0	15	166	109	6	8	357	228
Future Vol, veh/h	129	0	263	6	0	15	166	109	6	8	357	228
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	140	0	286	7	0	16	180	118	7	9	388	248
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	1	1
HCM Control Delay	22.3	10.6	17.4	19.8
HCM LOS	C	B	C	C

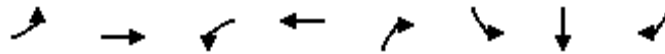
Lane	NBLn1	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	59%	33%	29%	2%	0%
Vol Thru, %	39%	0%	0%	98%	0%
Vol Right, %	2%	67%	71%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	281	392	21	365	228
LT Vol	166	129	6	8	0
Through Vol	109	0	0	357	0
RT Vol	6	263	15	0	228
Lane Flow Rate	305	426	23	397	248
Geometry Grp	5	2	2	7	7
Degree of Util (X)	0.551	0.707	0.046	0.718	0.399
Departure Headway (Hd)	6.498	5.972	7.267	6.517	5.793
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	550	601	496	551	615
Service Time	4.598	4.057	5.267	4.313	3.588
HCM Lane V/C Ratio	0.555	0.709	0.046	0.721	0.403
HCM Control Delay	17.4	22.3	10.6	24.4	12.4
HCM Lane LOS	C	C	B	C	B
HCM 95th-tile Q	3.3	5.7	0.1	5.9	1.9

Timings

S. Nichols Mixed-Use Development (JN 10878)

5: Strickland Av./Gunnerson St. & Riverside Dr. (SR-74)

05/21/2018



Lane Group	EBL	EBT	WBL	WBT	NBR	SBL	SBT	SBR
Lane Configurations								
Traffic Volume (vph)	2	844	6	861	6	28	1	2
Future Volume (vph)	2	844	6	861	6	28	1	2
Turn Type	Perm	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		8			6	
Permitted Phases	4		8		2	6		6
Detector Phase	4	4	8	8	2	6	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	22.4	22.4	22.4	22.4	21.6	22.4	22.4	22.4
Total Split (s)	93.0	93.0	93.0	93.0	27.0	27.0	27.0	27.0
Total Split (%)	77.5%	77.5%	77.5%	77.5%	22.5%	22.5%	22.5%	22.5%
Yellow Time (s)	4.4	4.4	4.4	4.4	3.6	4.4	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.4	5.4	5.4	5.4	4.6		5.4	5.4
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	Min	Min	Min	Min
Act Effect Green (s)	40.8	40.8	40.8	40.8	12.5		11.7	11.7
Actuated g/C Ratio	0.64	0.64	0.64	0.64	0.20		0.18	0.18
v/c Ratio	0.01	0.74	0.02	0.86	0.01		0.12	0.01
Control Delay	4.0	11.7	4.0	17.4	0.0		29.6	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay	4.0	11.7	4.0	17.4	0.0		29.6	0.0
LOS	A	B	A	B	A		C	A
Approach Delay		11.7		17.3			27.8	
Approach LOS		B		B			C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 64.1

Natural Cycle: 75

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 14.9

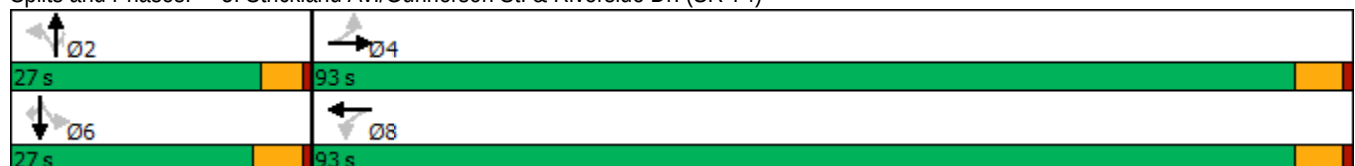
Intersection LOS: B

Intersection Capacity Utilization 74.2%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 5: Strickland Av./Gunnerson St. & Riverside Dr. (SR-74)



												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	844	4	6	861	115	0	0	6	28	1	2
Future Volume (veh/h)	2	844	4	6	861	115	0	0	6	28	1	2
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	2	870	4	6	888	119	0	0	0	29	1	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	243	1205	6	336	1046	140	0	317		352	10	
Arrive On Green	0.65	0.65	0.65	0.65	0.65	0.65	0.00	0.00	0.00	0.17	0.17	0.00
Sat Flow, veh/h	560	1860	9	634	1615	216	0	1870	1585	1372	60	1585
Grp Volume(v), veh/h	2	0	874	6	0	1007	0	0	0	30	0	0
Grp Sat Flow(s),veh/h/ln	560	0	1869	634	0	1831	0	1870	1585	1432	0	1585
Q Serve(g_s), s	0.2	0.0	18.3	0.4	0.0	25.4	0.0	0.0	0.0	1.0	0.0	0.0
Cycle Q Clear(g_c), s	25.6	0.0	18.3	18.6	0.0	25.4	0.0	0.0	0.0	1.0	0.0	0.0
Prop In Lane	1.00		0.00	1.00		0.12	0.00		1.00	0.97		1.00
Lane Grp Cap(c), veh/h	243	0	1210	336	0	1186	0	317		363	0	
V/C Ratio(X)	0.01	0.00	0.72	0.02	0.00	0.85	0.00	0.00		0.08	0.00	
Avail Cap(c_a), veh/h	712	0	2774	867	0	2718	0	710		644	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	18.2	0.0	6.9	13.1	0.0	8.1	0.0	0.0	0.0	20.8	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.8	0.0	0.0	1.8	0.0	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	4.3	0.0	0.0	6.1	0.0	0.0	0.0	0.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.2	0.0	7.7	13.1	0.0	9.9	0.0	0.0	0.0	20.9	0.0	0.0
LnGrp LOS	B	A	A	B	A	A	A	A		C	A	
Approach Vol, veh/h	876			1013			0			A	30	A
Approach Delay, s/veh	7.7			10.0			0.0				20.9	
Approach LOS	A			A							C	
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	15.4			43.6			15.4			43.6		
Change Period (Y+Rc), s	* 5.4			5.4			5.4			5.4		
Max Green Setting (Gmax), s	* 22			87.6			21.6			87.6		
Max Q Clear Time (g_c+I1), s	0.0			27.6			3.0			27.4		
Green Ext Time (p_c), s	0.0			7.9			0.1			10.8		

Intersection Summary

HCM 6th Ctrl Delay	9.1
HCM 6th LOS	A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

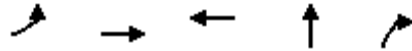
Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Timings

S. Nichols Mixed-Use Development (JN 10878)

10: I-15 NB Ramps & Nichols Rd.

05/21/2018



Lane Group	EBL	EBT	WBT	NBT	NBR
Lane Configurations					
Traffic Volume (vph)	140	235	147	1	62
Future Volume (vph)	140	235	147	1	62
Turn Type	Prot	NA	NA	NA	Perm
Protected Phases	7	4	8	2	
Permitted Phases					2
Detector Phase	7	4	8	2	2
Switch Phase					
Minimum Initial (s)	5.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	22.8	22.8	22.8	22.8
Total Split (s)	18.0	89.0	71.0	31.0	31.0
Total Split (%)	15.0%	74.2%	59.2%	25.8%	25.8%
Yellow Time (s)	3.6	4.8	4.8	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	5.8	5.8	5.8
Lead/Lag	Lead		Lag		
Lead-Lag Optimize?	Yes		Yes		
Recall Mode	None	None	None	Min	Min
Act Effect Green (s)	13.5	36.7	18.7	25.3	25.3
Actuated g/C Ratio	0.18	0.50	0.25	0.34	0.34
v/c Ratio	0.72	0.42	0.75	0.68	0.18
Control Delay	44.9	13.2	34.5	29.2	7.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	44.9	13.2	34.5	29.2	7.4
LOS	D	B	C	C	A
Approach Delay		25.0	34.5	24.9	
Approach LOS		C	C	C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 73.7

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.75

Intersection Signal Delay: 27.2

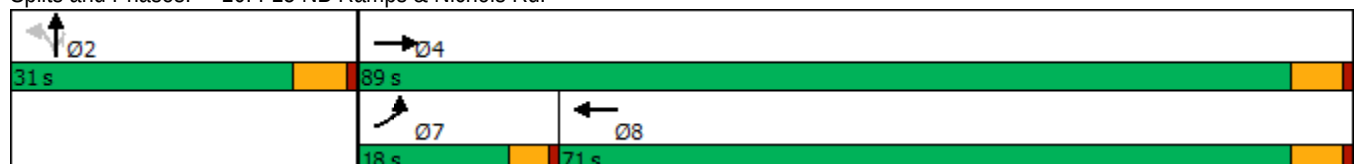
Intersection LOS: C

Intersection Capacity Utilization 46.5%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 10: I-15 NB Ramps & Nichols Rd.



HCM 6th Signalized Intersection Summary
10: I-15 NB Ramps & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

05/21/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	140	235	0	0	147	58	252	1	62	0	0	0
Future Volume (veh/h)	140	235	0	0	147	58	252	1	62	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1826	1826	0	0	1737	1737	1811	1900	1811			
Adj Flow Rate, veh/h	226	379	0	0	237	94	406	2	100			
Peak Hour Factor	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62			
Percent Heavy Veh, %	5	5	0	0	11	11	6	0	6			
Cap, veh/h	280	921	0	0	307	122	510	3	425			
Arrive On Green	0.16	0.50	0.00	0.00	0.26	0.26	0.28	0.28	0.28			
Sat Flow, veh/h	1739	1826	0	0	1183	469	1801	9	1502			
Grp Volume(v), veh/h	226	379	0	0	0	331	408	0	100			
Grp Sat Flow(s),veh/h/ln	1739	1826	0	0	0	1653	1810	0	1502			
Q Serve(g_s), s	6.8	7.1	0.0	0.0	0.0	10.1	11.4	0.0	2.8			
Cycle Q Clear(g_c), s	6.8	7.1	0.0	0.0	0.0	10.1	11.4	0.0	2.8			
Prop In Lane	1.00		0.00	0.00		0.28	1.00		1.00			
Lane Grp Cap(c), veh/h	280	921	0	0	0	428	513	0	425			
V/C Ratio(X)	0.81	0.41	0.00	0.00	0.00	0.77	0.80	0.00	0.24			
Avail Cap(c_a), veh/h	426	2780	0	0	0	1972	835	0	693			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	0.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	22.1	8.5	0.0	0.0	0.0	18.7	18.1	0.0	15.0			
Incr Delay (d2), s/veh	6.6	0.3	0.0	0.0	0.0	3.0	2.9	0.0	0.3			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	2.9	2.0	0.0	0.0	0.0	3.5	4.3	0.0	0.8			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.7	8.8	0.0	0.0	0.0	21.8	21.0	0.0	15.3			
LnGrp LOS	C	A	A	A	A	C	C	A	B			
Approach Vol, veh/h	605					331		508				
Approach Delay, s/veh	16.2					21.8		19.9				
Approach LOS	B					C		B				
Timer - Assigned Phs	2		4			7		8				
Phs Duration (G+Y+Rc), s	21.3		33.4			13.4		20.0				
Change Period (Y+Rc), s	5.8		5.8			4.6		5.8				
Max Green Setting (Gmax), s	25.2		83.2			13.4		65.2				
Max Q Clear Time (g_c+l1), s	13.4		9.1			8.8		12.1				
Green Ext Time (p_c), s	2.1		2.3			0.2		2.0				
Intersection Summary												
HCM 6th Ctrl Delay			18.8									
HCM 6th LOS			B									

Intersection

Intersection Delay, s/veh 9.5

Intersection LOS A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	12	17	142	24	48	159
Future Vol, veh/h	12	17	142	24	48	159
Peak Hour Factor	0.66	0.66	0.66	0.66	0.66	0.66
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	18	26	215	36	73	241
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left NB			WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right SB		WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	8.2	9.1	10
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	41%	23%
Vol Thru, %	86%	0%	77%
Vol Right, %	14%	59%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	166	29	207
LT Vol	0	12	48
Through Vol	142	0	159
RT Vol	24	17	0
Lane Flow Rate	252	44	314
Geometry Grp	1	1	1
Degree of Util (X)	0.299	0.06	0.379
Departure Headway (Hd)	4.274	4.88	4.356
Convergence, Y/N	Yes	Yes	Yes
Cap	843	734	831
Service Time	2.291	2.909	2.356
HCM Lane V/C Ratio	0.299	0.06	0.378
HCM Control Delay	9.1	8.2	10
HCM Lane LOS	A	A	A
HCM 95th-tile Q	1.3	0.2	1.8

Intersection

Intersection Delay, s/veh 9.5

Intersection LOS A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕			↕	↕
Traffic Vol, veh/h	14	0	29	5	0	1	13	151	4	6	155	10
Future Vol, veh/h	14	0	29	5	0	1	13	151	4	6	155	10
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	20	0	42	7	0	1	19	219	6	9	225	14
Number of Lanes	0	1	0	0	1	0	1	1	0	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	1
HCM Control Delay	8.2	8.4	9.6	9.7
HCM LOS	A	A	A	A

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	33%	83%	4%	0%
Vol Thru, %	0%	97%	0%	0%	96%	0%
Vol Right, %	0%	3%	67%	17%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	13	155	43	6	161	10
LT Vol	13	0	14	5	6	0
Through Vol	0	151	0	0	155	0
RT Vol	0	4	29	1	0	10
Lane Flow Rate	19	225	62	9	233	14
Geometry Grp	7	7	2	2	7	7
Degree of Util (X)	0.028	0.305	0.083	0.013	0.319	0.017
Departure Headway (Hd)	5.405	4.885	4.767	5.254	4.923	4.202
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	663	737	752	681	733	852
Service Time	3.129	2.609	2.794	3.29	2.645	1.924
HCM Lane V/C Ratio	0.029	0.305	0.082	0.013	0.318	0.016
HCM Control Delay	8.3	9.7	8.2	8.4	9.9	7
HCM Lane LOS	A	A	A	A	A	A
HCM 95th-tile Q	0.1	1.3	0.3	0	1.4	0.1

APPENDIX 5.18:

**E+P (BUILDOUT) CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS
WITH IMPROVEMENTS**

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Timings

S. Nichols Mixed-Use Development (JN 10878)

5: Strickland Av./Gunnerson St. & Riverside Dr. (SR-74)

05/21/2018



Lane Group	EBT	WBL	WBT	NBT	NBR	SBL	SBT	SBR
Lane Configurations	EB	WB	WB	EB	EB	SB	EB	EB
Traffic Volume (vph)	859	12	647	2	25	60	3	5
Future Volume (vph)	859	12	647	2	25	60	3	5
Turn Type	NA	Perm	NA	NA	Perm	Perm	NA	Perm
Protected Phases	4		8	2			6	
Permitted Phases		8			2	6		6
Detector Phase	4	8	8	2	2	6	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	24.5	23.4	23.4	22.6	22.6	23.4	23.4	23.4
Total Split (s)	93.0	93.0	93.0	27.0	27.0	27.0	27.0	27.0
Total Split (%)	77.5%	77.5%	77.5%	22.5%	22.5%	22.5%	22.5%	22.5%
Yellow Time (s)	4.4	4.4	4.4	3.6	3.6	4.4	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.4	5.4	5.4	4.6	4.6		5.4	5.4
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	Min	Min	Min	Min	Min
Act Effect Green (s)	32.3	32.3	32.3	12.4	12.4		11.5	11.5
Actuated g/C Ratio	0.59	0.59	0.59	0.22	0.22		0.21	0.21
v/c Ratio	0.82	0.07	0.66	0.00	0.07		0.23	0.01
Control Delay	16.0	5.7	10.7	22.0	10.8		24.4	1.2
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay	16.0	5.7	10.7	22.0	10.8		24.4	1.2
LOS	B	A	B	C	B		C	A
Approach Delay	16.0		10.6	11.6			22.8	
Approach LOS	B		B	B			C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 55.2

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.82

Intersection Signal Delay: 13.9

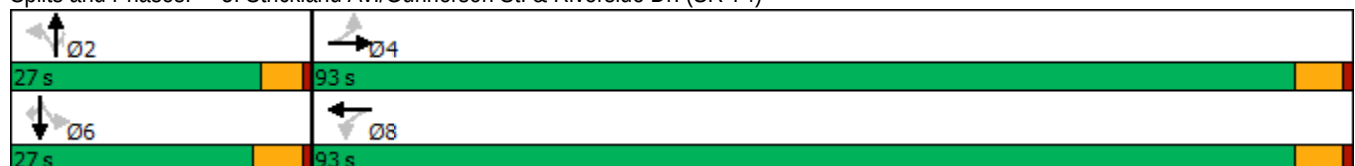
Intersection LOS: B

Intersection Capacity Utilization 74.9%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 5: Strickland Av./Gunnerson St. & Riverside Dr. (SR-74)



													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (veh/h)	0	859	3	12	647	45	0	2	25	60	3	5	
Future Volume (veh/h)	0	859	3	12	647	45	0	2	25	60	3	5	
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach	No			No			No			No			
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	
Adj Flow Rate, veh/h	0	886	3	12	667	46	0	2	0	62	3	0	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2	
Cap, veh/h	145	1085	4	272	1007	69	0	376		413	17		
Arrive On Green	0.00	0.58	0.58	0.58	0.58	0.58	0.00	0.20	0.00	0.20	0.20	0.00	
Sat Flow, veh/h	737	1863	6	625	1730	119	0	1870	1585	1352	84	1585	
Grp Volume(v), veh/h	0	0	889	12	0	713	0	2	0	65	0	0	
Grp Sat Flow(s),veh/h/ln	737	0	1869	625	0	1849	0	1870	1585	1435	0	1585	
Q Serve(g_s), s	0.0	0.0	18.9	0.8	0.0	13.1	0.0	0.0	0.0	1.8	0.0	0.0	
Cycle Q Clear(g_c), s	0.0	0.0	18.9	19.6	0.0	13.1	0.0	0.0	0.0	1.9	0.0	0.0	
Prop In Lane	1.00		0.00	1.00		0.06	0.00		1.00	0.95		1.00	
Lane Grp Cap(c), veh/h	145	0	1088	272	0	1077	0	376		429	0		
V/C Ratio(X)	0.00	0.00	0.82	0.04	0.00	0.66	0.00	0.01		0.15	0.00		
Avail Cap(c_a), veh/h	1012	0	3288	1008	0	3253	0	841		763	0		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	
Uniform Delay (d), s/veh	0.0	0.0	8.3	16.1	0.0	7.1	0.0	15.9	0.0	16.6	0.0	0.0	
Incr Delay (d2), s/veh	0.0	0.0	1.6	0.1	0.0	0.7	0.0	0.0	0.0	0.2	0.0	0.0	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	0.0	0.0	4.6	0.1	0.0	3.1	0.0	0.0	0.0	0.5	0.0	0.0	
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	0.0	0.0	9.8	16.2	0.0	7.8	0.0	15.9	0.0	16.8	0.0	0.0	
LnGrp LOS	A	A	A	B	A	A	A	B		B	A		
Approach Vol, veh/h	889		725			2		A		65			A
Approach Delay, s/veh	9.8		7.9			15.9				16.8			
Approach LOS	A		A			B				B			
Timer - Assigned Phs	2		4		6		8						
Phs Duration (G+Y+Rc), s	15.4		34.4		15.4		34.4						
Change Period (Y+Rc), s	* 5.4		5.4		5.4		5.4						
Max Green Setting (Gmax), s	* 22		87.6		21.6		87.6						
Max Q Clear Time (g_c+l1), s	2.0		20.9		3.9		21.6						
Green Ext Time (p_c), s	0.0		8.1		0.2		5.7						
Intersection Summary													
HCM 6th Ctrl Delay	9.3												
HCM 6th LOS	A												
Notes													
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.													
Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.													

Intersection

Intersection Delay, s/veh 27.9

Intersection LOS D

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	473	32	168	237	37	187
Future Vol, veh/h	473	32	168	237	37	187
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	544	37	193	272	43	215
Number of Lanes	1	0	1	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	2	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	2
HCM Control Delay	45.9	13.8	13
HCM LOS	E	B	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2
Vol Left, %	100%	0%	0%	100%	0%
Vol Thru, %	0%	0%	94%	0%	100%
Vol Right, %	0%	100%	6%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	37	187	505	168	237
LT Vol	37	0	0	168	0
Through Vol	0	0	473	0	237
RT Vol	0	187	32	0	0
Lane Flow Rate	43	215	580	193	272
Geometry Grp	7	7	4	7	7
Degree of Util (X)	0.091	0.388	0.935	0.358	0.467
Departure Headway (Hd)	7.719	6.492	5.8	6.68	6.171
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	463	552	627	537	583
Service Time	5.483	4.255	3.846	4.439	3.929
HCM Lane V/C Ratio	0.093	0.389	0.925	0.359	0.467
HCM Control Delay	11.3	13.3	45.9	13.1	14.3
HCM Lane LOS	B	B	E	B	B
HCM 95th-tile Q	0.3	1.8	12.4	1.6	2.5

Timings
9: I-15 SB Ramps & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

05/21/2018

	→	↘	↙	←	↘	↓
Lane Group	EBT	EBR	WBL	WBT	SBL	SBT
Lane Configurations	↑	↑	↘	↑	↘	↑
Traffic Volume (vph)	393	267	123	343	236	6
Future Volume (vph)	393	267	123	343	236	6
Turn Type	NA	Perm	Prot	NA	Perm	NA
Protected Phases	4		3	8		6
Permitted Phases		4			6	
Detector Phase	4	4	3	8	6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0	10.0
Minimum Split (s)	22.8	22.8	9.6	22.8	26.8	26.8
Total Split (s)	52.0	52.0	27.0	79.0	41.0	41.0
Total Split (%)	43.3%	43.3%	22.5%	65.8%	34.2%	34.2%
Yellow Time (s)	4.8	4.8	3.6	4.8	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.8	4.6	5.8	5.8	5.8
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Recall Mode	None	None	None	None	Min	Min
Act Effect Green (s)	32.2	32.2	15.8	53.0	23.0	23.0
Actuated g/C Ratio	0.36	0.36	0.18	0.60	0.26	0.26
v/c Ratio	0.78	0.45	0.64	0.41	0.73	0.22
Control Delay	35.7	4.5	50.2	11.3	42.7	9.8
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.0
Total Delay	35.7	4.5	50.2	11.4	42.7	9.8
LOS	D	A	D	B	D	A
Approach Delay	23.1			21.6		35.3
Approach LOS	C			C		D

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 88.5

Natural Cycle: 75

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 25.2

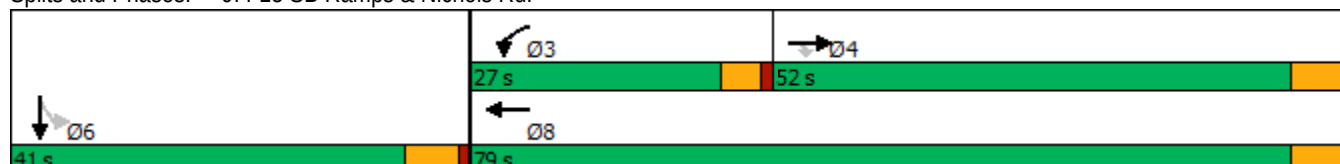
Intersection LOS: C

Intersection Capacity Utilization 54.1%

ICU Level of Service A

Analysis Period (min) 15

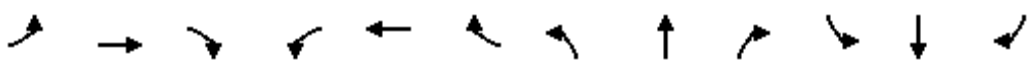
Splits and Phases: 9: I-15 SB Ramps & Nichols Rd.



HCM 6th Signalized Intersection Summary 9: I-15 SB Ramps & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

05/21/2018

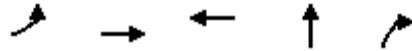
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↑	↑	↑					↑	↑	
Traffic Volume (veh/h)	0	393	267	123	343	0	0	0	0	236	6	62
Future Volume (veh/h)	0	393	267	123	343	0	0	0	0	236	6	62
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1856	1856	1530	1856	0				1781	907	1781
Adj Flow Rate, veh/h	0	524	356	164	457	0				315	8	83
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75				0.75	0.75	0.75
Percent Heavy Veh, %	0	3	3	25	3	0				8	67	8
Cap, veh/h	0	670	567	202	1068	0				393	16	165
Arrive On Green	0.00	0.36	0.36	0.14	0.58	0.00				0.23	0.23	0.23
Sat Flow, veh/h	0	1856	1572	1457	1856	0				1697	68	711
Grp Volume(v), veh/h	0	524	356	164	457	0				315	0	91
Grp Sat Flow(s),veh/h/ln	0	1856	1572	1457	1856	0				1697	0	779
Q Serve(g_s), s	0.0	15.2	11.3	6.6	8.4	0.0				10.6	0.0	6.1
Cycle Q Clear(g_c), s	0.0	15.2	11.3	6.6	8.4	0.0				10.6	0.0	6.1
Prop In Lane	0.00		1.00	1.00		0.00				1.00		0.91
Lane Grp Cap(c), veh/h	0	670	567	202	1068	0				393	0	181
V/C Ratio(X)	0.00	0.78	0.63	0.81	0.43	0.00				0.80	0.00	0.50
Avail Cap(c_a), veh/h	0	1422	1205	541	2253	0				991	0	455
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	17.2	15.9	25.2	7.2	0.0				21.8	0.0	20.1
Incr Delay (d2), s/veh	0.0	2.0	1.1	7.6	0.3	0.0				3.8	0.0	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	5.6	3.5	2.4	2.2	0.0				4.0	0.0	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	19.2	17.1	32.8	7.5	0.0				25.7	0.0	22.3
LnGrp LOS	A	B	B	C	A	A				C	A	C
Approach Vol, veh/h		880			621						406	
Approach Delay, s/veh		18.3			14.2						24.9	
Approach LOS		B			B						C	
Timer - Assigned Phs			3	4		6		8				
Phs Duration (G+Y+Rc), s			13.0	27.6		19.8		40.5				
Change Period (Y+Rc), s			4.6	5.8		5.8		5.8				
Max Green Setting (Gmax), s			22.4	46.2		35.2		73.2				
Max Q Clear Time (g_c+I1), s			8.6	17.2		12.6		10.4				
Green Ext Time (p_c), s			0.3	4.6		1.4		2.8				
Intersection Summary												
HCM 6th Ctrl Delay			18.4									
HCM 6th LOS			B									

Timings

S. Nichols Mixed-Use Development (JN 10878)

10: I-15 NB Ramps & Nichols Rd.

05/21/2018

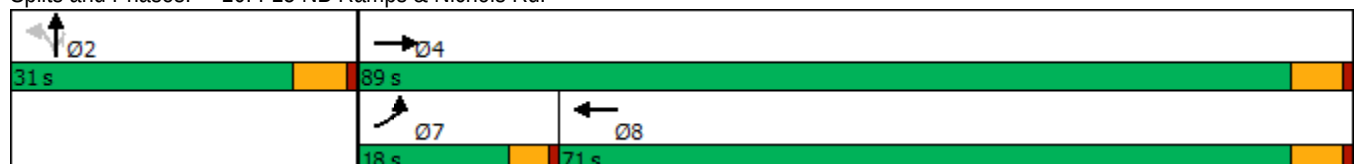


Lane Group	EBL	EBT	WBT	NBT	NBR
Lane Configurations					
Traffic Volume (vph)	74	556	326	3	186
Future Volume (vph)	74	556	326	3	186
Turn Type	Prot	NA	NA	NA	Perm
Protected Phases	7	4	8	2	
Permitted Phases					2
Detector Phase	7	4	8	2	2
Switch Phase					
Minimum Initial (s)	5.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	22.8	22.8	22.8	22.8
Total Split (s)	18.0	89.0	71.0	31.0	31.0
Total Split (%)	15.0%	74.2%	59.2%	25.8%	25.8%
Yellow Time (s)	3.6	4.8	4.8	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	5.8	5.8	5.8
Lead/Lag	Lead		Lag		
Lead-Lag Optimize?	Yes		Yes		
Recall Mode	None	None	None	Min	Min
Act Effect Green (s)	11.4	66.1	49.7	18.5	18.5
Actuated g/C Ratio	0.12	0.68	0.51	0.19	0.19
v/c Ratio	0.59	0.73	0.89	0.70	0.67
Control Delay	58.8	14.2	35.0	51.3	22.5
Queue Delay	0.0	0.5	0.0	0.0	0.0
Total Delay	58.8	14.7	35.0	51.3	22.5
LOS	E	B	C	D	C
Approach Delay		19.9	35.0	35.1	
Approach LOS		B	C	D	

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 96.9
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.89
Intersection Signal Delay: 28.4
Intersection Capacity Utilization 54.1%
Analysis Period (min) 15
Intersection LOS: C
ICU Level of Service A

Splits and Phases: 10: I-15 NB Ramps & Nichols Rd.



HCM 6th Signalized Intersection Summary
10: I-15 NB Ramps & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

05/21/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	74	556	0	0	326	153	140	3	186	0	0	0
Future Volume (veh/h)	74	556	0	0	326	153	140	3	186	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1826	1826	0	0	1737	1737	1811	1900	1811			
Adj Flow Rate, veh/h	119	897	0	0	526	247	226	5	300			
Peak Hour Factor	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62			
Percent Heavy Veh, %	5	5	0	0	11	11	6	0	6			
Cap, veh/h	149	1184	0	0	574	270	402	9	340			
Arrive On Green	0.09	0.65	0.00	0.00	0.51	0.51	0.23	0.23	0.23			
Sat Flow, veh/h	1739	1826	0	0	1118	525	1772	39	1502			
Grp Volume(v), veh/h	119	897	0	0	0	773	231	0	300			
Grp Sat Flow(s),veh/h/ln	1739	1826	0	0	0	1643	1811	0	1502			
Q Serve(g_s), s	6.2	31.6	0.0	0.0	0.0	40.2	10.5	0.0	18.0			
Cycle Q Clear(g_c), s	6.2	31.6	0.0	0.0	0.0	40.2	10.5	0.0	18.0			
Prop In Lane	1.00		0.00	0.00		0.32	0.98		1.00			
Lane Grp Cap(c), veh/h	149	1184	0	0	0	843	411	0	340			
V/C Ratio(X)	0.80	0.76	0.00	0.00	0.00	0.92	0.56	0.00	0.88			
Avail Cap(c_a), veh/h	251	1633	0	0	0	1151	491	0	407			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	0.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	41.7	11.3	0.0	0.0	0.0	20.8	31.9	0.0	34.8			
Incr Delay (d2), s/veh	9.4	1.4	0.0	0.0	0.0	9.1	1.2	0.0	17.4			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	3.0	10.2	0.0	0.0	0.0	15.3	4.5	0.0	7.8			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.1	12.7	0.0	0.0	0.0	29.9	33.1	0.0	52.2			
LnGrp LOS	D	B	A	A	A	C	C	A	D			
Approach Vol, veh/h	1016			773			531					
Approach Delay, s/veh	17.2			29.9			43.9					
Approach LOS	B			C			D					
Timer - Assigned Phs	2			4			7			8		
Phs Duration (G+Y+Rc), s	26.9			66.1			12.6			53.6		
Change Period (Y+Rc), s	5.8			5.8			4.6			5.8		
Max Green Setting (Gmax), s	25.2			83.2			13.4			65.2		
Max Q Clear Time (g_c+l1), s	20.0			33.6			8.2			42.2		
Green Ext Time (p_c), s	1.1			7.8			0.1			5.5		
Intersection Summary												
HCM 6th Ctrl Delay	27.5											
HCM 6th LOS	C											

Intersection

Intersection Delay, s/veh 76.1

Intersection LOS F

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	166	37	242	65	28	462
Future Vol, veh/h	166	37	242	65	28	462
Peak Hour Factor	0.66	0.66	0.66	0.66	0.66	0.66
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	252	56	367	98	42	700
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left NB			WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right SB		WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	19.7	26.7	130.4
HCM LOS	C	D	F

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	82%	6%
Vol Thru, %	79%	0%	94%
Vol Right, %	21%	18%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	307	203	490
LT Vol	0	166	28
Through Vol	242	0	462
RT Vol	65	37	0
Lane Flow Rate	465	308	742
Geometry Grp	1	1	1
Degree of Util (X)	0.765	0.579	1.211
Departure Headway (Hd)	6.254	7.217	5.87
Convergence, Y/N	Yes	Yes	Yes
Cap	581	504	616
Service Time	4.254	5.217	3.914
HCM Lane V/C Ratio	0.8	0.611	1.205
HCM Control Delay	26.7	19.7	130.4
HCM Lane LOS	D	C	F
HCM 95th-tile Q	6.9	3.6	26.5

Intersection	
Intersection Delay, s/veh	17.7
Intersection LOS	C

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	166	37	242	65	28	462
Future Vol, veh/h	166	37	242	65	28	462
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	180	40	263	71	30	502
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	12.8	13.2	22.6
HCM LOS	B	B	C

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	82%	6%
Vol Thru, %	79%	0%	94%
Vol Right, %	21%	18%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	307	203	490
LT Vol	0	166	28
Through Vol	242	0	462
RT Vol	65	37	0
Lane Flow Rate	334	221	533
Geometry Grp	1	1	1
Degree of Util (X)	0.487	0.375	0.76
Departure Headway (Hd)	5.259	6.126	5.135
Convergence, Y/N	Yes	Yes	Yes
Cap	684	587	703
Service Time	3.299	4.172	3.169
HCM Lane V/C Ratio	0.488	0.376	0.758
HCM Control Delay	13.2	12.8	22.6
HCM Lane LOS	B	B	C
HCM 95th-tile Q	2.7	1.7	7.1

Intersection

Intersection Delay, s/veh 71.8

Intersection LOS F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕			↕	↕
Traffic Vol, veh/h	129	0	263	6	0	15	166	163	6	8	392	228
Future Vol, veh/h	129	0	263	6	0	15	166	163	6	8	392	228
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	187	0	381	9	0	22	241	236	9	12	568	330
Number of Lanes	0	1	0	0	1	0	1	1	0	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	2
Conflicting Approach Left SB		NB	EB	WB
Conflicting Lanes Left	2	2	1	1
Conflicting Approach Right NB		SB	WB	EB
Conflicting Lanes Right	2	2	1	1
HCM Control Delay	76.7	12.9	21.1	97.8
HCM LOS	F	B	C	F

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	33%	29%	2%	0%
Vol Thru, %	0%	96%	0%	0%	98%	0%
Vol Right, %	0%	4%	67%	71%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	166	169	392	21	400	228
LT Vol	166	0	129	6	8	0
Through Vol	0	163	0	0	392	0
RT Vol	0	6	263	15	0	228
Lane Flow Rate	241	245	568	30	580	330
Geometry Grp	7	7	2	2	7	7
Degree of Util (X)	0.56	0.535	1.042	0.073	1.218	0.629
Departure Headway (Hd)	8.822	8.275	6.833	9.22	7.849	7.113
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	411	438	534	391	470	512
Service Time	6.522	5.975	4.833	7.22	5.549	4.813
HCM Lane V/C Ratio	0.586	0.559	1.064	0.077	1.234	0.645
HCM Control Delay	22.2	20.1	76.7	12.9	141.5	21.1
HCM Lane LOS	C	C	F	B	F	C
HCM 95th-tile Q	3.3	3.1	15.8	0.2	22	4.3

Intersection	
Intersection Delay, s/veh	22.4
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	129	0	263	6	0	15	166	163	6	8	392	228
Future Vol, veh/h	129	0	263	6	0	15	166	163	6	8	392	228
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	140	0	286	7	0	16	180	177	7	9	426	248
Number of Lanes	0	1	0	0	1	0	1	1	0	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	1
HCM Control Delay	23.9	11	14.5	26.1
HCM LOS	C	B	B	D

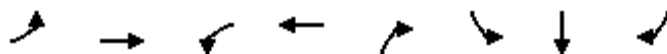
Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	33%	29%	2%	0%
Vol Thru, %	0%	96%	0%	0%	98%	0%
Vol Right, %	0%	4%	67%	71%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	166	169	392	21	400	228
LT Vol	166	0	129	6	8	0
Through Vol	0	163	0	0	392	0
RT Vol	0	6	263	15	0	228
Lane Flow Rate	180	184	426	23	435	248
Geometry Grp	7	7	2	2	7	7
Degree of Util (X)	0.386	0.365	0.725	0.048	0.821	0.418
Departure Headway (Hd)	7.697	7.157	6.233	7.539	6.8	6.073
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	469	505	584	475	535	597
Service Time	5.415	4.875	4.233	5.577	4.5	3.773
HCM Lane V/C Ratio	0.384	0.364	0.729	0.048	0.813	0.415
HCM Control Delay	15.2	13.9	23.9	11	33.5	13.1
HCM Lane LOS	C	B	C	B	D	B
HCM 95th-tile Q	1.8	1.7	6.1	0.2	8.2	2.1

Timings

S. Nichols Mixed-Use Development (JN 10878)

5: Strickland Av./Gunnerson St. & Riverside Dr. (SR-74)

05/21/2018



Lane Group	EBL	EBT	WBL	WBT	NBR	SBL	SBT	SBR
Lane Configurations								
Traffic Volume (vph)	2	861	15	879	15	37	1	2
Future Volume (vph)	2	861	15	879	15	37	1	2
Turn Type	Perm	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		8			6	
Permitted Phases	4		8		2	6		6
Detector Phase	4	4	8	8	2	6	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	24.5	24.5	23.4	23.4	22.6	23.4	23.4	23.4
Total Split (s)	93.0	93.0	93.0	93.0	27.0	27.0	27.0	27.0
Total Split (%)	77.5%	77.5%	77.5%	77.5%	22.5%	22.5%	22.5%	22.5%
Yellow Time (s)	4.4	4.4	4.4	4.4	3.6	4.4	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.4	5.4	5.4	5.4	4.6		5.4	5.4
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	Min	Min	Min	Min
Act Effect Green (s)	43.4	43.4	43.4	43.4	12.6		11.7	11.7
Actuated g/C Ratio	0.65	0.65	0.65	0.65	0.19		0.18	0.18
v/c Ratio	0.01	0.74	0.06	0.87	0.03		0.16	0.01
Control Delay	4.0	11.5	4.3	17.5	0.1		31.9	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay	4.0	11.5	4.3	17.5	0.1		31.9	0.0
LOS	A	B	A	B	A		C	A
Approach Delay		11.4		17.3			30.3	
Approach LOS		B		B			C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 66.8

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 14.8

Intersection LOS: B

Intersection Capacity Utilization 75.1%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 5: Strickland Av./Gunnerson St. & Riverside Dr. (SR-74)



												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	861	4	15	879	124	0	0	15	37	1	2
Future Volume (veh/h)	2	861	4	15	879	124	0	0	15	37	1	2
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	2	888	4	15	906	128	0	0	0	38	1	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	238	1231	6	337	1060	150	0	304		341	8	
Arrive On Green	0.66	0.66	0.66	0.66	0.66	0.66	0.00	0.00	0.00	0.16	0.16	0.00
Sat Flow, veh/h	546	1860	8	624	1603	226	0	1870	1585	1382	46	1585
Grp Volume(v), veh/h	2	0	892	15	0	1034	0	0	0	39	0	0
Grp Sat Flow(s),veh/h/ln	546	0	1869	624	0	1830	0	1870	1585	1429	0	1585
Q Serve(g_s), s	0.2	0.0	19.0	1.0	0.0	27.0	0.0	0.0	0.0	1.4	0.0	0.0
Cycle Q Clear(g_c), s	27.2	0.0	19.0	20.0	0.0	27.0	0.0	0.0	0.0	1.4	0.0	0.0
Prop In Lane	1.00		0.00	1.00		0.12	0.00		1.00	0.97		1.00
Lane Grp Cap(c), veh/h	238	0	1236	337	0	1210	0	304		348	0	
V/C Ratio(X)	0.01	0.00	0.72	0.04	0.00	0.85	0.00	0.00		0.11	0.00	
Avail Cap(c_a), veh/h	655	0	2664	813	0	2608	0	682		617	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	18.7	0.0	6.7	13.2	0.0	8.1	0.0	0.0	0.0	22.1	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.8	0.1	0.0	1.8	0.0	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	4.5	0.1	0.0	6.4	0.0	0.0	0.0	0.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.7	0.0	7.5	13.3	0.0	9.9	0.0	0.0	0.0	22.3	0.0	0.0
LnGrp LOS	B	A	A	B	A	A	A	A		C	A	
Approach Vol, veh/h	894			1049			0			A	39	A
Approach Delay, s/veh	7.6			10.0			0.0				22.3	
Approach LOS	A			A							C	
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	15.4			46.0			15.4			46.0		
Change Period (Y+Rc), s	* 5.4			5.4			5.4			5.4		
Max Green Setting (Gmax), s	* 22			87.6			21.6			87.6		
Max Q Clear Time (g_c+I1), s	0.0			29.2			3.4			29.0		
Green Ext Time (p_c), s	0.0			8.2			0.1			11.6		

Intersection Summary

HCM 6th Ctrl Delay	9.1
HCM 6th LOS	A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection

Intersection Delay, s/veh 20.6

Intersection LOS C

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	238	54	289	296	78	329
Future Vol, veh/h	238	54	289	296	78	329
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	274	62	332	340	90	378
Number of Lanes	1	0	1	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	2	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	2
HCM Control Delay	19.9	21.4	20.1
HCM LOS	C	C	C

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2
Vol Left, %	100%	0%	0%	100%	0%
Vol Thru, %	0%	0%	82%	0%	100%
Vol Right, %	0%	100%	18%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	78	329	292	289	296
LT Vol	78	0	0	289	0
Through Vol	0	0	238	0	296
RT Vol	0	329	54	0	0
Lane Flow Rate	90	378	336	332	340
Geometry Grp	7	7	4	7	7
Degree of Util (X)	0.192	0.679	0.618	0.659	0.627
Departure Headway (Hd)	7.692	6.467	6.624	7.147	6.637
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	464	556	544	502	541
Service Time	5.47	4.243	4.699	4.93	4.419
HCM Lane V/C Ratio	0.194	0.68	0.618	0.661	0.628
HCM Control Delay	12.3	22	19.9	22.8	20
HCM Lane LOS	B	C	C	C	C
HCM 95th-tile Q	0.7	5.1	4.2	4.7	4.3

Timings
9: I-15 SB Ramps & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

05/21/2018

	→	↘	↙	←	↘	↓
Lane Group	EBT	EBR	WBL	WBT	SBL	SBT
Lane Configurations	↑	↑	↘	↑	↘	↑
Traffic Volume (vph)	365	268	84	453	145	2
Future Volume (vph)	365	268	84	453	145	2
Turn Type	NA	Perm	Prot	NA	Perm	NA
Protected Phases	4		3	8		6
Permitted Phases		4			6	
Detector Phase	4	4	3	8	6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0	10.0
Minimum Split (s)	22.8	22.8	9.6	22.8	26.8	26.8
Total Split (s)	52.0	52.0	27.0	79.0	41.0	41.0
Total Split (%)	43.3%	43.3%	22.5%	65.8%	34.2%	34.2%
Yellow Time (s)	4.8	4.8	3.6	4.8	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.8	4.6	5.8	5.8	5.8
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Recall Mode	None	None	None	None	Min	Min
Act Effect Green (s)	26.7	26.7	12.1	39.6	15.8	15.8
Actuated g/C Ratio	0.39	0.39	0.18	0.58	0.23	0.23
v/c Ratio	0.68	0.43	0.44	0.57	0.50	0.39
Control Delay	24.6	3.9	36.8	10.7	32.7	8.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.6	3.9	36.8	10.8	32.7	8.2
LOS	C	A	D	B	C	A
Approach Delay	15.9			14.8		20.9
Approach LOS	B			B		C

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 68.5

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.68

Intersection Signal Delay: 16.4

Intersection LOS: B

Intersection Capacity Utilization 56.0%

ICU Level of Service B

Analysis Period (min) 15

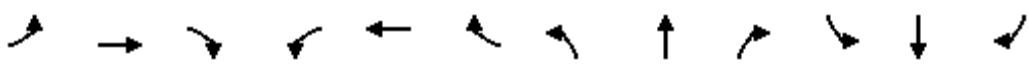
Splits and Phases: 9: I-15 SB Ramps & Nichols Rd.



HCM 6th Signalized Intersection Summary 9: I-15 SB Ramps & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

05/21/2018

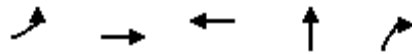
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↑	↑	↑					↑	↑	
Traffic Volume (veh/h)	0	365	268	84	453	0	0	0	0	145	2	132
Future Volume (veh/h)	0	365	268	84	453	0	0	0	0	145	2	132
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1856	1856	1530	1856	0				1781	907	1781
Adj Flow Rate, veh/h	0	487	357	112	604	0				193	3	176
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75				0.75	0.75	0.75
Percent Heavy Veh, %	0	3	3	25	3	0				8	67	8
Cap, veh/h	0	637	540	138	962	0				475	4	212
Arrive On Green	0.00	0.34	0.34	0.09	0.52	0.00				0.28	0.28	0.28
Sat Flow, veh/h	0	1856	1572	1457	1856	0				1697	13	758
Grp Volume(v), veh/h	0	487	357	112	604	0				193	0	179
Grp Sat Flow(s),veh/h/ln	0	1856	1572	1457	1856	0				1697	0	771
Q Serve(g_s), s	0.0	13.4	11.1	4.3	13.4	0.0				5.3	0.0	12.5
Cycle Q Clear(g_c), s	0.0	13.4	11.1	4.3	13.4	0.0				5.3	0.0	12.5
Prop In Lane	0.00		1.00	1.00		0.00				1.00		0.98
Lane Grp Cap(c), veh/h	0	637	540	138	962	0				475	0	216
V/C Ratio(X)	0.00	0.76	0.66	0.81	0.63	0.00				0.41	0.00	0.83
Avail Cap(c_a), veh/h	0	1491	1264	568	2363	0				1039	0	472
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	16.8	16.0	25.5	9.9	0.0				16.8	0.0	19.4
Incr Delay (d2), s/veh	0.0	1.9	1.4	10.6	0.7	0.0				0.6	0.0	8.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	4.9	3.4	1.7	3.9	0.0				1.8	0.0	2.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	18.7	17.4	36.1	10.6	0.0				17.4	0.0	27.4
LnGrp LOS	A	B	B	D	B	A				B	A	C
Approach Vol, veh/h		844			716						372	
Approach Delay, s/veh		18.2			14.6						22.2	
Approach LOS		B			B						C	
Timer - Assigned Phs			3	4		6			8			
Phs Duration (G+Y+Rc), s			10.1	25.6		21.9			35.6			
Change Period (Y+Rc), s			4.6	5.8		5.8			5.8			
Max Green Setting (Gmax), s			22.4	46.2		35.2			73.2			
Max Q Clear Time (g_c+I1), s			6.3	15.4		14.5			15.4			
Green Ext Time (p_c), s			0.2	4.3		1.6			4.1			
Intersection Summary												
HCM 6th Ctrl Delay			17.6									
HCM 6th LOS			B									

Timings

S. Nichols Mixed-Use Development (JN 10878)

10: I-15 NB Ramps & Nichols Rd.

05/21/2018

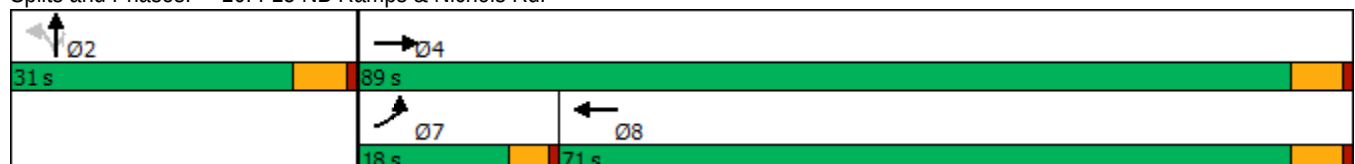


Lane Group	EBL	EBT	WBT	NBT	NBR
Lane Configurations	←	→	←	→	←
Traffic Volume (vph)	140	370	285	1	100
Future Volume (vph)	140	370	285	1	100
Turn Type	Prot	NA	NA	NA	Perm
Protected Phases	7	4	8	2	
Permitted Phases					2
Detector Phase	7	4	8	2	2
Switch Phase					
Minimum Initial (s)	5.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	22.8	22.8	22.8	22.8
Total Split (s)	18.0	89.0	71.0	31.0	31.0
Total Split (%)	15.0%	74.2%	59.2%	25.8%	25.8%
Yellow Time (s)	3.6	4.8	4.8	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	5.8	5.8	5.8
Lead/Lag	Lead		Lag		
Lead-Lag Optimize?	Yes		Yes		
Recall Mode	None	None	None	Min	Min
Act Effect Green (s)	13.6	56.9	38.7	25.5	25.5
Actuated g/C Ratio	0.14	0.60	0.41	0.27	0.27
v/c Ratio	0.91	0.55	0.88	0.86	0.32
Control Delay	82.2	12.7	38.8	54.8	10.5
Queue Delay	0.0	0.1	0.0	0.0	0.0
Total Delay	82.2	12.8	38.8	54.8	10.5
LOS	F	B	D	D	B
Approach Delay		31.9	38.8	42.2	
Approach LOS		C	D	D	

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 94.2
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.91
Intersection Signal Delay: 37.0
Intersection Capacity Utilization 56.0%
Analysis Period (min) 15
Intersection LOS: D
ICU Level of Service B

Splits and Phases: 10: I-15 NB Ramps & Nichols Rd.



HCM 6th Signalized Intersection Summary
10: I-15 NB Ramps & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

05/21/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	140	370	0	0	285	94	252	1	100	0	0	0
Future Volume (veh/h)	140	370	0	0	285	94	252	1	100	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1826	1826	0	0	1737	1737	1811	1900	1811			
Adj Flow Rate, veh/h	226	597	0	0	460	152	406	2	161			
Peak Hour Factor	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62			
Percent Heavy Veh, %	5	5	0	0	11	11	6	0	6			
Cap, veh/h	260	1123	0	0	516	171	456	2	380			
Arrive On Green	0.15	0.61	0.00	0.00	0.41	0.41	0.25	0.25	0.25			
Sat Flow, veh/h	1739	1826	0	0	1250	413	1801	9	1502			
Grp Volume(v), veh/h	226	597	0	0	0	612	408	0	161			
Grp Sat Flow(s),veh/h/ln	1739	1826	0	0	0	1663	1810	0	1502			
Q Serve(g_s), s	11.2	16.4	0.0	0.0	0.0	30.0	19.1	0.0	7.9			
Cycle Q Clear(g_c), s	11.2	16.4	0.0	0.0	0.0	30.0	19.1	0.0	7.9			
Prop In Lane	1.00		0.00	0.00		0.25	1.00		1.00			
Lane Grp Cap(c), veh/h	260	1123	0	0	0	687	458	0	380			
V/C Ratio(X)	0.87	0.53	0.00	0.00	0.00	0.89	0.89	0.00	0.42			
Avail Cap(c_a), veh/h	265	1730	0	0	0	1235	519	0	431			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	0.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	36.5	9.7	0.0	0.0	0.0	23.9	31.6	0.0	27.4			
Incr Delay (d2), s/veh	24.9	0.4	0.0	0.0	0.0	4.3	16.0	0.0	0.7			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	6.3	5.3	0.0	0.0	0.0	11.3	9.8	0.0	2.7			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	61.4	10.1	0.0	0.0	0.0	28.2	47.6	0.0	28.2			
LnGrp LOS	E	B	A	A	A	C	D	A	C			
Approach Vol, veh/h	823			612			569					
Approach Delay, s/veh	24.2			28.2			42.1					
Approach LOS	C			C			D					
Timer - Assigned Phs	2			4			7			8		
Phs Duration (G+Y+Rc), s	28.0			59.8			17.7			42.1		
Change Period (Y+Rc), s	5.8			5.8			4.6			5.8		
Max Green Setting (Gmax), s	25.2			83.2			13.4			65.2		
Max Q Clear Time (g_c+l1), s	21.1			18.4			13.2			32.0		
Green Ext Time (p_c), s	1.1			4.0			0.0			4.2		
Intersection Summary												
HCM 6th Ctrl Delay	30.5											
HCM 6th LOS	C											

Intersection

Intersection Delay, s/veh 10.5

Intersection LOS B

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	12	26	175	24	57	192
Future Vol, veh/h	12	26	175	24	57	192
Peak Hour Factor	0.66	0.66	0.66	0.66	0.66	0.66
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	18	39	265	36	86	291
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left NB			WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right SB		WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	8.5	10	11.3
HCM LOS	A	A	B

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	32%	23%
Vol Thru, %	88%	0%	77%
Vol Right, %	12%	68%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	199	38	249
LT Vol	0	12	57
Through Vol	175	0	192
RT Vol	24	26	0
Lane Flow Rate	302	58	377
Geometry Grp	1	1	1
Degree of Util (X)	0.369	0.081	0.465
Departure Headway (Hd)	4.4	5.051	4.436
Convergence, Y/N	Yes	Yes	Yes
Cap	817	708	811
Service Time	2.424	3.094	2.46
HCM Lane V/C Ratio	0.37	0.082	0.465
HCM Control Delay	10	8.5	11.3
HCM Lane LOS	A	A	B
HCM 95th-tile Q	1.7	0.3	2.5

Intersection

Intersection Delay, s/veh10.3

Intersection LOS B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕			↕	↕
Traffic Vol, veh/h	14	0	29	5	0	1	13	184	4	6	188	10
Future Vol, veh/h	14	0	29	5	0	1	13	184	4	6	188	10
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	20	0	42	7	0	1	19	267	6	9	272	14
Number of Lanes	0	1	0	0	1	0	1	1	0	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	2
Conflicting Approach Left SB		NB	EB	WB
Conflicting Lanes Left	2	2	1	1
Conflicting Approach RightNB		SB	WB	EB
Conflicting Lanes Right	2	2	1	1
HCM Control Delay	8.5	8.6	10.5	10.6
HCM LOS	A	A	B	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	33%	83%	3%	0%
Vol Thru, %	0%	98%	0%	0%	97%	0%
Vol Right, %	0%	2%	67%	17%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	13	188	43	6	194	10
LT Vol	13	0	14	5	6	0
Through Vol	0	184	0	0	188	0
RT Vol	0	4	29	1	0	10
Lane Flow Rate	19	272	62	9	281	14
Geometry Grp	7	7	2	2	7	7
Degree of Util (X)	0.029	0.374	0.086	0.013	0.388	0.017
Departure Headway (Hd)	5.453	4.935	4.986	5.485	4.966	4.248
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	658	730	717	651	725	843
Service Time	3.178	2.66	3.024	3.533	2.692	1.973
HCM Lane V/C Ratio	0.029	0.373	0.086	0.014	0.388	0.017
HCM Control Delay	8.3	10.6	8.5	8.6	10.8	7
HCM Lane LOS	A	B	A	A	B	A
HCM 95th-tile Q	0.1	1.7	0.3	0	1.8	0.1

APPENDIX 6.1:

EA (2020) CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

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Timings
1: Lake St. & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

08/09/2018

									
Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBL	SBT	Ø5
Lane Configurations									
Traffic Volume (vph)	16	4	184	5	701	361	18	283	
Future Volume (vph)	16	4	184	5	701	361	18	283	
Turn Type	Perm	NA	Perm	NA	NA	Perm	Prot	NA	
Protected Phases		4		8	2		1	6	5
Permitted Phases	4		8			2			
Detector Phase	4	4	8	8	2	2	1	6	
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	5.0	10.0	5.0
Minimum Split (s)	14.6	14.6	16.2	16.2	16.2	16.2	9.6	16.2	9.6
Total Split (s)	42.2	42.2	42.2	42.2	42.2	42.2	35.6	42.2	35.6
Total Split (%)	35.2%	35.2%	35.2%	35.2%	35.2%	35.2%	29.7%	35.2%	30%
Yellow Time (s)	3.6	3.6	5.2	5.2	5.2	5.2	3.6	5.2	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		4.6		6.2	6.2	6.2	4.6	6.2	
Lead/Lag					Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	Max	Max	None	Max	None
Act Effect Green (s)		19.0		17.4	36.9	36.9	5.7	40.6	
Actuated g/C Ratio		0.27		0.25	0.52	0.52	0.08	0.57	
v/c Ratio		0.05		0.72	0.78	0.44	0.13	0.29	
Control Delay		20.3		36.4	24.5	10.5	37.0	9.4	
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay		20.3		36.4	24.5	10.5	37.0	9.4	
LOS		C		D	C	B	D	A	
Approach Delay		20.3		36.4	19.7			11.0	
Approach LOS		C		D	B			B	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 70.7

Natural Cycle: 75

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 20.4

Intersection LOS: C

Intersection Capacity Utilization 61.2%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 1: Lake St. & Nichols Rd.

 Ø1	 Ø2	 Ø4
35.6 s	42.2 s	42.2 s
 Ø5	 Ø6	 Ø8
35.6 s	42.2 s	42.2 s

HCM 6th Signalized Intersection Summary 1: Lake St. & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

08/09/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	4	0	184	5	40	0	701	361	18	283	4
Future Volume (veh/h)	16	4	0	184	5	40	0	701	361	18	283	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	17	4	0	198	5	31	0	754	0	19	304	4
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	341	71	0	341	6	38	3	992		40	1142	15
Arrive On Green	0.20	0.20	0.00	0.20	0.20	0.20	0.00	0.53	0.00	0.02	0.62	0.62
Sat Flow, veh/h	1245	359	0	1233	31	193	1781	1870	1585	1781	1842	24
Grp Volume(v), veh/h	21	0	0	234	0	0	0	754	0	19	0	308
Grp Sat Flow(s),veh/h/ln	1603	0	0	1458	0	0	1781	1870	1585	1781	0	1866
Q Serve(g_s), s	0.0	0.0	0.0	9.7	0.0	0.0	0.0	21.5	0.0	0.7	0.0	5.1
Cycle Q Clear(g_c), s	0.6	0.0	0.0	10.4	0.0	0.0	0.0	21.5	0.0	0.7	0.0	5.1
Prop In Lane	0.81		0.00	0.85		0.13	1.00		1.00	1.00		0.01
Lane Grp Cap(c), veh/h	412	0	0	385	0	0	3	992		40	0	1157
V/C Ratio(X)	0.05	0.00	0.00	0.61	0.00	0.00	0.00	0.76		0.48	0.00	0.27
Avail Cap(c_a), veh/h	927	0	0	865	0	0	813	992		813	0	1157
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.1	0.0	0.0	26.0	0.0	0.0	0.0	12.6	0.0	32.8	0.0	5.9
Incr Delay (d2), s/veh	0.1	0.0	0.0	1.5	0.0	0.0	0.0	5.5	0.0	3.3	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.0	3.3	0.0	0.0	0.0	7.9	0.0	0.3	0.0	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.2	0.0	0.0	27.5	0.0	0.0	0.0	18.0	0.0	36.2	0.0	6.4
LnGrp LOS	C	A	A	C	A	A	A	B		D	A	A
Approach Vol, veh/h		21			234			754	A		327	
Approach Delay, s/veh		22.2			27.5			18.0			8.2	
Approach LOS		C			C			B			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.1	42.2		19.6	0.0	48.3		19.6				
Change Period (Y+Rc), s	4.6	6.2		* 6.2	4.6	6.2		6.2				
Max Green Setting (Gmax), s	31.0	36.0		* 38	31.0	36.0		36.0				
Max Q Clear Time (g_c+I1), s	2.7	23.5		2.6	0.0	7.1		12.4				
Green Ext Time (p_c), s	0.0	5.1		0.1	0.0	2.4		1.1				
Intersection Summary												
HCM 6th Ctrl Delay				17.3								
HCM 6th LOS				B								
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.												

Timings
2: Lake St. & Alberhill Ranch Rd.

S. Nichols Mixed-Use Development (JN 10878)

08/09/2018

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	59	49	1054	50	19	431
Future Volume (vph)	59	49	1054	50	19	431
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2		
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	15.1	15.1	16.2	16.2	11.2	16.2
Total Split (s)	15.1	15.1	93.7	93.7	11.2	104.9
Total Split (%)	12.6%	12.6%	78.1%	78.1%	9.3%	87.4%
Yellow Time (s)	4.1	4.1	5.2	5.2	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	6.2	6.2	6.2	6.2
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	Max	Max	None	Max
Act Effect Green (s)	10.0	10.0	98.5	98.5	5.0	103.0
Actuated g/C Ratio	0.08	0.08	0.82	0.82	0.04	0.86
v/c Ratio	0.43	0.29	0.73	0.04	0.27	0.29
Control Delay	61.9	18.4	11.5	1.5	65.3	2.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.9	18.4	11.5	1.5	65.3	2.7
LOS	E	B	B	A	E	A
Approach Delay	42.2		11.1			5.3
Approach LOS	D		B			A

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.73

Intersection Signal Delay: 11.6

Intersection LOS: B

Intersection Capacity Utilization 73.2%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 2: Lake St. & Alberhill Ranch Rd.



HCM 6th Signalized Intersection Summary 2: Lake St. & Alberhill Ranch Rd.

S. Nichols Mixed-Use Development (JN 10878)

08/09/2018

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	59	49	1054	50	19	431
Future Volume (veh/h)	59	49	1054	50	19	431
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	63	28	1121	44	20	459
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	142	126	1410	1192	36	1545
Arrive On Green	0.08	0.08	0.75	0.75	0.02	0.83
Sat Flow, veh/h	1781	1585	1870	1582	1781	1870
Grp Volume(v), veh/h	63	28	1121	44	20	459
Grp Sat Flow(s),veh/h/ln	1781	1585	1870	1582	1781	1870
Q Serve(g_s), s	4.0	2.0	44.0	0.8	1.3	6.8
Cycle Q Clear(g_c), s	4.0	2.0	44.0	0.8	1.3	6.8
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	142	126	1410	1192	36	1545
V/C Ratio(X)	0.44	0.22	0.80	0.04	0.55	0.30
Avail Cap(c_a), veh/h	149	133	1410	1192	75	1545
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.5	51.5	9.0	3.7	58.0	2.4
Incr Delay (d2), s/veh	0.8	0.3	4.7	0.1	4.8	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.8	14.1	0.2	0.6	1.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	53.3	51.9	13.8	3.8	62.8	2.9
LnGrp LOS	D	D	B	A	E	A
Approach Vol, veh/h	91		1165			479
Approach Delay, s/veh	52.8		13.4			5.4
Approach LOS	D		B			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	8.6	96.3			104.9	14.6
Change Period (Y+Rc), s	6.2	6.2			6.2	5.1
Max Green Setting (Gmax), s	5.0	87.5			98.7	10.0
Max Q Clear Time (g_c+I1), s	3.3	46.0			8.8	6.0
Green Ext Time (p_c), s	0.0	11.6			2.7	0.0
Intersection Summary						
HCM 6th Ctrl Delay			13.3			
HCM 6th LOS			B			

Intersection

Intersection Delay, s/veh 11.8

Intersection LOS B

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	374	17	36	188	40	72
Future Vol, veh/h	374	17	36	188	40	72
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	425	19	41	214	45	82
Number of Lanes	1	0	0	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	1
HCM Control Delay	13.3	10.3	9.3
HCM LOS	B	B	A

Lane	NBLn1	NBLn2	EBLn1	WBLn1
Vol Left, %	100%	0%	0%	16%
Vol Thru, %	0%	0%	96%	84%
Vol Right, %	0%	100%	4%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	40	72	391	224
LT Vol	40	0	0	36
Through Vol	0	0	374	188
RT Vol	0	72	17	0
Lane Flow Rate	45	82	444	255
Geometry Grp	7	7	2	2
Degree of Util (X)	0.083	0.122	0.562	0.34
Departure Headway (Hd)	6.599	5.383	4.556	4.809
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	540	660	791	743
Service Time	4.381	3.164	2.601	2.864
HCM Lane V/C Ratio	0.083	0.124	0.561	0.343
HCM Control Delay	10	8.9	13.3	10.3
HCM Lane LOS	A	A	B	B
HCM 95th-tile Q	0.3	0.4	3.6	1.5

Timings
4: Lakeshore Dr. & Riverside Dr. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

08/09/2018

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations		 						 		 	
Traffic Volume (vph)	20	461	147	134	550	351	277	305	207	178	9
Future Volume (vph)	20	461	147	134	550	351	277	305	207	178	9
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2	1	6	
Permitted Phases			4			8					6
Detector Phase	7	4	4	3	8	8	5	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	32.4	32.4	9.6	33.4	33.4	9.6	34.7	9.6	32.7	32.7
Total Split (s)	9.6	35.6	35.6	22.0	48.0	48.0	28.0	38.4	24.0	34.4	34.4
Total Split (%)	8.0%	29.7%	29.7%	18.3%	40.0%	40.0%	23.3%	32.0%	20.0%	28.7%	28.7%
Yellow Time (s)	3.6	4.4	4.4	3.6	4.4	4.4	3.6	3.7	3.6	3.7	3.7
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.4	5.4	4.6	5.4	5.4	4.6	4.7	4.6	4.7	4.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	None	Max	Max
Act Effect Green (s)	5.0	27.7	27.7	13.4	40.4	40.4	22.0	34.6	17.4	30.0	30.0
Actuated g/C Ratio	0.04	0.25	0.25	0.12	0.36	0.36	0.20	0.31	0.15	0.27	0.27
v/c Ratio	0.28	0.59	0.32	0.72	0.93	0.51	0.90	0.44	0.85	0.21	0.02
Control Delay	64.7	41.0	7.2	67.8	56.7	8.4	75.0	31.3	75.4	34.9	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.7	41.0	7.2	67.8	56.7	8.4	75.0	31.3	75.4	34.9	0.1
LOS	E	D	A	E	E	A	E	C	E	C	A
Approach Delay		33.9			41.8			48.7		55.4	
Approach LOS		C			D			D		E	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 112.6

Natural Cycle: 100

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.93

Intersection Signal Delay: 43.7

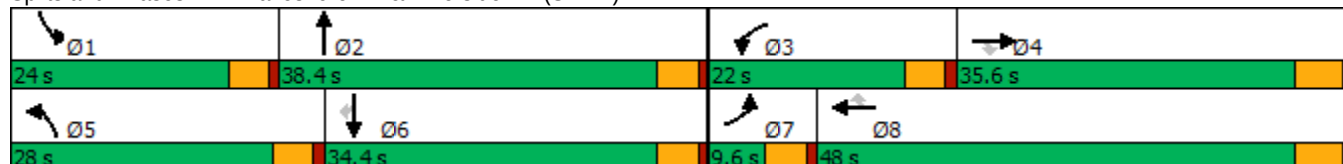
Intersection LOS: D

Intersection Capacity Utilization 85.7%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 4: Lakeshore Dr. & Riverside Dr. (SR-74)



HCM 6th Signalized Intersection Summary 4: Lakeshore Dr. & Riverside Dr. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

08/09/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	461	147	134	550	351	277	305	113	207	178	9
Future Volume (veh/h)	20	461	147	134	550	351	277	305	113	207	178	9
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	22	518	102	151	618	15	311	343	62	233	200	7
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	39	971	432	180	658	557	339	925	165	262	939	419
Arrive On Green	0.02	0.27	0.27	0.10	0.35	0.35	0.19	0.31	0.31	0.15	0.26	0.26
Sat Flow, veh/h	1781	3554	1582	1781	1870	1584	1781	3010	538	1781	3554	1585
Grp Volume(v), veh/h	22	518	102	151	618	15	311	201	204	233	200	7
Grp Sat Flow(s),veh/h/ln	1781	1777	1582	1781	1870	1584	1781	1777	1772	1781	1777	1585
Q Serve(g_s), s	1.4	13.9	5.6	9.4	36.0	0.7	19.3	9.9	10.1	14.4	4.9	0.4
Cycle Q Clear(g_c), s	1.4	13.9	5.6	9.4	36.0	0.7	19.3	9.9	10.1	14.4	4.9	0.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.30	1.00		1.00
Lane Grp Cap(c), veh/h	39	971	432	180	658	557	339	546	544	262	939	419
V/C Ratio(X)	0.56	0.53	0.24	0.84	0.94	0.03	0.92	0.37	0.37	0.89	0.21	0.02
Avail Cap(c_a), veh/h	79	971	432	276	709	600	371	546	544	307	939	419
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.4	34.8	31.8	49.7	35.3	23.8	44.7	30.4	30.5	47.1	32.3	30.6
Incr Delay (d2), s/veh	4.5	0.6	0.3	7.9	19.6	0.0	25.0	1.9	2.0	21.5	0.5	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	5.9	2.1	4.5	19.2	0.3	10.8	4.5	4.6	7.9	2.2	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.0	35.3	32.0	57.6	54.8	23.9	69.7	32.3	32.5	68.6	32.8	30.7
LnGrp LOS	E	D	C	E	D	C	E	C	C	E	C	C
Approach Vol, veh/h	642		784				716		440			
Approach Delay, s/veh	35.6		54.8				48.6		51.7			
Approach LOS	D		D				D		D			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	21.1	39.3	16.0	36.1	26.0	34.4	7.1	45.0				
Change Period (Y+Rc), s	4.6	* 4.7	4.6	5.4	4.6	* 4.7	4.6	5.4				
Max Green Setting (Gmax), s	19.4	* 34	17.4	30.2	23.4	* 30	5.0	42.6				
Max Q Clear Time (g_c+I1), s	16.4	12.1	11.4	15.9	21.3	6.9	3.4	38.0				
Green Ext Time (p_c), s	0.1	2.4	0.1	3.1	0.1	1.2	0.0	1.6				
Intersection Summary												
HCM 6th Ctrl Delay			47.8									
HCM 6th LOS			D									
Notes												

Intersection

Int Delay, s/veh 3.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	860	3	2	645	36	0	2	11	48	3	5
Future Vol, veh/h	0	860	3	2	645	36	0	2	11	48	3	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Stop	-	-	Stop
Storage Length	-	-	-	-	-	-	-	-	75	-	-	75
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	887	3	2	665	37	0	2	11	49	3	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	702	0	0	890	0	0	1578	1595	889	1578	1578	684
Stage 1	-	-	-	-	-	-	889	889	-	688	688	-
Stage 2	-	-	-	-	-	-	689	706	-	890	890	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	895	-	-	761	-	-	89	107	342	89	109	449
Stage 1	-	-	-	-	-	-	338	361	-	436	447	-
Stage 2	-	-	-	-	-	-	436	439	-	337	361	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	895	-	-	761	-	-	86	107	342	85	109	449
Mov Cap-2 Maneuver	-	-	-	-	-	-	86	107	-	85	109	-
Stage 1	-	-	-	-	-	-	338	361	-	436	445	-
Stage 2	-	-	-	-	-	-	426	437	-	324	361	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	19.5	90.2
HCM LOS			C	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	107	342	895	-	-	761	-	-	86	449
HCM Lane V/C Ratio	0.019	0.033	-	-	-	0.003	-	-	0.611	0.011
HCM Control Delay (s)	39.3	15.9	0	-	-	9.7	0	-	97.8	13.1
HCM Lane LOS	E	C	A	-	-	A	A	-	F	B
HCM 95th %tile Q(veh)	0.1	0.1	0	-	-	0	-	-	2.8	0

Intersection												
Int Delay, s/veh	3.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	860	3	2	645	36	0	2	11	48	3	5
Future Vol, veh/h	0	860	3	2	645	36	0	2	11	48	3	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Stop	-	-	Stop
Storage Length	100	-	-	100	-	-	-	-	75	-	-	75
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	887	3	2	665	37	0	2	11	49	3	5
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	702	0	0	890	0	0	1578	1595	889	1578	1578	684
Stage 1	-	-	-	-	-	-	889	889	-	688	688	-
Stage 2	-	-	-	-	-	-	689	706	-	890	890	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	895	-	-	761	-	-	89	107	342	89	109	449
Stage 1	-	-	-	-	-	-	338	361	-	436	447	-
Stage 2	-	-	-	-	-	-	436	439	-	337	361	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	895	-	-	761	-	-	86	107	342	85	109	449
Mov Cap-2 Maneuver	-	-	-	-	-	-	86	107	-	85	109	-
Stage 1	-	-	-	-	-	-	338	361	-	436	446	-
Stage 2	-	-	-	-	-	-	427	438	-	324	361	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0			19.5			90.2		
HCM LOS							C			F		
Minor Lane/Major Mvmt	NBLn1 NBLn2		EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2		
Capacity (veh/h)	107	342	895	-	-	761	-	-	86	449		
HCM Lane V/C Ratio	0.019	0.033	-	-	-	0.003	-	-	0.611	0.011		
HCM Control Delay (s)	39.3	15.9	0	-	-	9.7	-	-	97.8	13.1		
HCM Lane LOS	E	C	A	-	-	A	-	-	F	B		
HCM 95th %tile Q(veh)	0.1	0.1	0	-	-	0	-	-	2.8	0		

Intersection

Int Delay, s/veh 3.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	419	33	97	191	38	95
Future Vol, veh/h	419	33	97	191	38	95
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	120	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	482	38	111	220	44	109

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	520
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.12
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.218
Pot Cap-1 Maneuver	-	-	1046
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1046
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	3	15.3
HCM LOS			C

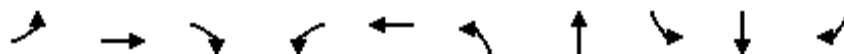
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	260	570	-	-	1046	-
HCM Lane V/C Ratio	0.168	0.192	-	-	0.107	-
HCM Control Delay (s)	21.6	12.8	-	-	8.9	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	0.6	0.7	-	-	0.4	-

Timings

S. Nichols Mixed-Use Development (JN 10878)

7: Collier Av. (SR-74)/Collier Av. & Riverside Dr. (SR-74)/Riverside Dr.

08/09/2018



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations		↔	↔		↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	77	10	832	5	1	636	74	1	54	47
Future Volume (vph)	77	10	832	5	1	636	74	1	54	47
Turn Type	Perm	NA	pm+ov	Perm	NA	Split	NA	Split	NA	Perm
Protected Phases		4	2		8	2	2	6	6	
Permitted Phases	4		4	8						6
Detector Phase	4	4	2	8	8	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	15.4	15.4	15.8	14.6	14.6	15.8	15.8	16.2	16.2	16.2
Total Split (s)	23.0	23.0	79.0	23.0	23.0	79.0	79.0	18.0	18.0	18.0
Total Split (%)	19.2%	19.2%	65.8%	19.2%	19.2%	65.8%	65.8%	15.0%	15.0%	15.0%
Yellow Time (s)	4.4	4.4	4.8	3.6	3.6	4.8	4.8	5.2	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.4	5.8		4.6	5.8	5.8	6.2	6.2	6.2
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	None	None	Max	None	None	Max	Max	Max	Max	Max
Act Effect Green (s)		13.2	91.9		14.0	73.3	73.3	11.8	11.8	11.8
Actuated g/C Ratio		0.11	0.79		0.12	0.63	0.63	0.10	0.10	0.10
v/c Ratio		0.58	0.64		0.04	0.60	0.08	0.01	0.30	0.21
Control Delay		63.5	4.0		39.4	15.8	7.9	48.0	53.7	6.8
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		63.5	4.0		39.4	15.8	7.9	48.0	53.7	6.8
LOS		E	A		D	B	A	D	D	A
Approach Delay		9.7			39.4		14.8		32.2	
Approach LOS		A			D		B		C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 115.7

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.64

Intersection Signal Delay: 13.2

Intersection LOS: B

Intersection Capacity Utilization 82.0%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 7: Collier Av. (SR-74)/Collier Av. & Riverside Dr. (SR-74)/Riverside Dr.

↖ ↗ Ø2	↖ ↗ Ø6	↖ ↗ Ø4
79 s	18 s	23 s
		↖ ↗ Ø8
		23 s

HCM 6th Signalized Intersection Summary S. Nichols Mixed-Use Development (JN 10878)
 7: Collier Av. (SR-74)/Collier Av. & Riverside Dr. (SR-74)/Riverside Dr. 08/09/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	77	10	832	5	1	2	636	74	10	1	54	47
Future Volume (veh/h)	77	10	832	5	1	2	636	74	10	1	54	47
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	81	11	810	5	1	0	669	78	10	1	57	9
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	251	31	1199	116	18	0	1087	991	127	175	184	156
Arrive On Green	0.15	0.15	0.15	0.15	0.15	0.00	0.61	0.61	0.61	0.10	0.10	0.10
Sat Flow, veh/h	1327	209	1585	414	125	0	1781	1625	208	1781	1870	1585
Grp Volume(v), veh/h	92	0	810	6	0	0	669	0	88	1	57	9
Grp Sat Flow(s),veh/h/ln	1536	0	1585	539	0	0	1781	0	1833	1781	1870	1585
Q Serve(g_s), s	0.0	0.0	17.6	0.0	0.0	0.0	28.1	0.0	2.4	0.1	3.4	0.6
Cycle Q Clear(g_c), s	5.9	0.0	17.6	5.9	0.0	0.0	28.1	0.0	2.4	0.1	3.4	0.6
Prop In Lane	0.88		1.00	0.83		0.00	1.00		0.11	1.00		1.00
Lane Grp Cap(c), veh/h	282	0	1199	134	0	0	1087	0	1118	175	184	156
V/C Ratio(X)	0.33	0.00	0.68	0.04	0.00	0.00	0.62	0.00	0.08	0.01	0.31	0.06
Avail Cap(c_a), veh/h	282	0	1199	139	0	0	1087	0	1118	175	184	156
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.2	0.0	5.7	44.0	0.0	0.0	14.6	0.0	9.6	48.8	50.3	49.1
Incr Delay (d2), s/veh	0.7	0.0	1.5	0.1	0.0	0.0	2.6	0.0	0.1	0.1	4.3	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	0.0	24.8	0.2	0.0	0.0	10.9	0.0	0.9	0.0	1.8	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.9	0.0	7.2	44.1	0.0	0.0	17.2	0.0	9.7	48.9	54.6	49.8
LnGrp LOS	D	A	A	D	A	A	B	A	A	D	D	D
Approach Vol, veh/h		902			6			757			67	
Approach Delay, s/veh		11.3			44.1			16.4			53.9	
Approach LOS		B			D			B			D	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		79.0		23.0		18.0		23.0				
Change Period (Y+Rc), s		5.8		5.4		6.2		* 5.4				
Max Green Setting (Gmax), s		73.2		17.6		11.8		* 18				
Max Q Clear Time (g_c+I1), s		30.1		19.6		5.4		7.9				
Green Ext Time (p_c), s		2.8		0.0		0.1		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			15.2									
HCM 6th LOS			B									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Timings

S. Nichols Mixed-Use Development (JN 10878)

8: Collier Av./Collier Av. (SR-74) & Central Av./Central Av. (SR-74)

08/09/2018

											
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 		 		 			 	 		
Traffic Volume (vph)	34	91	519	286	615	30	55	285	788	59	11
Future Volume (vph)	34	91	519	286	615	30	55	285	788	59	11
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	7	4	3	8	1	5	2	3	1	6	
Permitted Phases					8			2			6
Detector Phase	7	4	3	8	1	5	2	3	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	5.0	10.0	5.0	5.0	10.0	10.0
Minimum Split (s)	9.6	14.7	9.6	42.8	9.6	9.6	15.8	9.6	9.6	29.8	29.8
Total Split (s)	10.0	21.0	34.0	45.0	46.0	12.0	19.0	34.0	46.0	53.0	53.0
Total Split (%)	8.3%	17.5%	28.3%	37.5%	38.3%	10.0%	15.8%	28.3%	38.3%	44.2%	44.2%
Yellow Time (s)	3.6	3.7	3.6	4.8	3.6	3.6	4.8	3.6	3.6	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.7	4.6	5.8	4.6	4.6	5.8	4.6	4.6	5.8	5.8
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	None	None	Max	Max
Act Effect Green (s)	5.3	10.8	20.6	29.4	60.2	6.3	20.0	41.8	29.6	47.8	47.8
Actuated g/C Ratio	0.05	0.11	0.20	0.29	0.60	0.06	0.20	0.41	0.29	0.47	0.47
v/c Ratio	0.20	0.33	0.79	0.56	0.34	0.29	0.16	0.41	0.83	0.04	0.01
Control Delay	53.0	36.1	47.5	36.8	1.0	56.4	40.7	11.1	41.7	18.0	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.0	36.1	47.5	36.8	1.0	56.4	40.7	11.1	41.7	18.0	0.0
LOS	D	D	D	D	A	E	D	B	D	B	A
Approach Delay		39.8		25.2			19.2			39.5	
Approach LOS		D		C			B			D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 101

Natural Cycle: 95

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 29.6

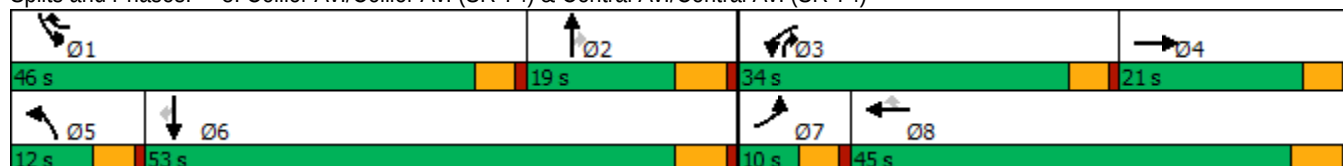
Intersection LOS: C

Intersection Capacity Utilization 64.9%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 8: Collier Av./Collier Av. (SR-74) & Central Av./Central Av. (SR-74)



HCM 6th Signalized Intersection Summary S. Nichols Mixed-Use Development (JN 10878)
 8: Collier Av./Collier Av. (SR-74) & Central Av./Central Av. (SR-74) 08/09/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	34	91	30	519	286	615	30	55	285	788	59	11
Future Volume (veh/h)	34	91	30	519	286	615	30	55	285	788	59	11
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	36	97	23	552	304	259	32	59	139	838	63	9
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	110	288	66	636	474	1442	53	441	660	931	1691	743
Arrive On Green	0.03	0.10	0.10	0.18	0.25	0.25	0.03	0.24	0.24	0.27	0.48	0.48
Sat Flow, veh/h	3456	2861	656	3456	1870	2724	1781	1870	1563	3456	3554	1562
Grp Volume(v), veh/h	36	59	61	552	304	259	32	59	139	838	63	9
Grp Sat Flow(s),veh/h/ln	1728	1777	1739	1728	1870	1362	1781	1870	1563	1728	1777	1562
Q Serve(g_s), s	1.0	3.1	3.2	15.4	14.4	5.0	1.8	2.5	5.6	23.2	0.9	0.3
Cycle Q Clear(g_c), s	1.0	3.1	3.2	15.4	14.4	5.0	1.8	2.5	5.6	23.2	0.9	0.3
Prop In Lane	1.00		0.38	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	110	179	175	636	474	1442	53	441	660	931	1691	743
V/C Ratio(X)	0.33	0.33	0.35	0.87	0.64	0.18	0.61	0.13	0.21	0.90	0.04	0.01
Avail Cap(c_a), veh/h	188	292	286	1024	739	1829	133	441	660	1442	1691	743
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.0	41.5	41.6	39.3	33.0	12.5	47.6	29.9	18.3	34.9	13.9	13.7
Incr Delay (d2), s/veh	0.6	1.1	1.2	2.7	1.5	0.1	4.2	0.6	0.7	3.7	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	1.4	1.4	6.5	6.4	1.4	0.8	1.1	2.0	9.6	0.4	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.6	42.5	42.7	42.0	34.5	12.5	51.7	30.5	19.0	38.6	13.9	13.7
LnGrp LOS	D	D	D	D	C	B	D	C	B	D	B	B
Approach Vol, veh/h		156			1115			230			910	
Approach Delay, s/veh		43.8			33.1			26.5			36.7	
Approach LOS		D			C			C			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	31.3	29.2	22.9	15.8	7.5	53.0	7.7	30.9				
Change Period (Y+Rc), s	4.6	5.8	4.6	* 5.8	4.6	5.8	4.6	5.8				
Max Green Setting (Gmax), s	41.4	13.2	29.4	* 16	7.4	47.2	5.4	39.2				
Max Q Clear Time (g_c+I1), s	25.2	7.6	17.4	5.2	3.8	2.9	3.0	16.4				
Green Ext Time (p_c), s	1.5	0.3	0.9	0.4	0.0	0.4	0.0	2.6				
Intersection Summary												
HCM 6th Ctrl Delay			34.5									
HCM 6th LOS			C									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Intersection

Intersection Delay, s/veh16.4

Intersection LOS C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↑	↑	↑						↕	
Traffic Vol, veh/h	0	237	278	58	224	0	0	0	0	171	6	65
Future Vol, veh/h	0	237	278	58	224	0	0	0	0	171	6	65
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles, %	0	3	3	25	3	0	0	0	0	8	67	13
Mvmt Flow	0	316	371	77	299	0	0	0	0	228	8	87
Number of Lanes	0	1	1	1	1	0	0	0	0	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	2
HCM Control Delay	16	16	17.7
HCM LOS	C	C	C

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	100%	0%	71%
Vol Thru, %	100%	0%	0%	100%	2%
Vol Right, %	0%	100%	0%	0%	27%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	237	278	58	224	242
LT Vol	0	0	58	0	171
Through Vol	237	0	0	224	6
RT Vol	0	278	0	0	65
Lane Flow Rate	316	371	77	299	323
Geometry Grp	7	7	7	7	2
Degree of Util (X)	0.551	0.573	0.161	0.547	0.572
Departure Headway (Hd)	6.28	5.567	7.487	6.595	6.386
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	572	645	477	544	565
Service Time	4.042	3.328	5.258	4.365	4.441
HCM Lane V/C Ratio	0.552	0.575	0.161	0.55	0.572
HCM Control Delay	16.5	15.6	11.7	17.1	17.7
HCM Lane LOS	C	C	B	C	C
HCM 95th-tile Q	3.3	3.6	0.6	3.3	3.6

Intersection												
Int Delay, s/veh	74.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	77	331	0	0	136	93	146	3	112	0	0	0
Future Vol, veh/h	77	331	0	0	136	93	146	3	112	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	230	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	62	62	62	62	62	62	62	62	62	62	62	62
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	124	534	0	0	219	150	235	5	181	0	0	0

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	369	0	- - - 0 1076 1151 534
Stage 1	-	-	- - - 782 782 -
Stage 2	-	-	- - - 294 369 -
Critical Hdwy	4.15	-	- - - 6.44 6.5 6.26
Critical Hdwy Stg 1	-	-	- - - 5.44 5.5 -
Critical Hdwy Stg 2	-	-	- - - 5.44 5.5 -
Follow-up Hdwy	2.245	-	- - - 3.536 4 3.354
Pot Cap-1 Maneuver	1173	-	0 0 - - 241 200 538
Stage 1	-	-	0 0 - - 447 408 -
Stage 2	-	-	0 0 - - 752 624 -
Platoon blocked, %	-	-	- -
Mov Cap-1 Maneuver	1173	-	- - - ~ 215 0 538
Mov Cap-2 Maneuver	-	-	- - - ~ 215 0 -
Stage 1	-	-	- - - 400 0 -
Stage 2	-	-	- - - 752 0 -

Approach	EB	WB	NB
HCM Control Delay, s	1.6	0	252.6
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR
Capacity (veh/h)	291	1173	-	-	-
HCM Lane V/C Ratio	1.447	0.106	-	-	-
HCM Control Delay (s)	252.6	8.4	-	-	-
HCM Lane LOS	F	A	-	-	-
HCM 95th %tile Q(veh)	23.1	0.4	-	-	-

Notes			
~: Volume exceeds capacity	\$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Intersection Delay, s/veh	40.3
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	77	331	0	0	136	93	146	3	112	0	0	0
Future Vol, veh/h	77	331	0	0	136	93	146	3	112	0	0	0
Peak Hour Factor	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	124	534	0	0	219	150	235	5	181	0	0	0
Number of Lanes	1	1	0	0	1	0	0	1	0	0	0	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	57.7	22.5	28.6
HCM LOS	F	C	D

Lane	NBLn1	EBLn1	EBLn2	WBLn1
Vol Left, %	56%	100%	0%	0%
Vol Thru, %	1%	0%	100%	59%
Vol Right, %	43%	0%	0%	41%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	261	77	331	229
LT Vol	146	77	0	0
Through Vol	3	0	331	136
RT Vol	112	0	0	93
Lane Flow Rate	421	124	534	369
Geometry Grp	2	7	7	5
Degree of Util (X)	0.772	0.253	1.012	0.678
Departure Headway (Hd)	6.604	7.332	6.821	6.608
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	547	489	534	547
Service Time	4.641	5.076	4.565	4.653
HCM Lane V/C Ratio	0.77	0.254	1	0.675
HCM Control Delay	28.6	12.6	68.2	22.5
HCM Lane LOS	D	B	F	C
HCM 95th-tile Q	7	1	14.5	5.1

Intersection						
Int Delay, s/veh	30.9					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	173	24	190	68	19	430
Future Vol, veh/h	173	24	190	68	19	430
Conflicting Peds, #/hr	0	1	0	3	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	66	66	66	66	66	66
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	262	36	288	103	29	652
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	1053	344	0	0	394	0
Stage 1	343	-	-	-	-	-
Stage 2	710	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	~ 251	699	-	-	1165	-
Stage 1	719	-	-	-	-	-
Stage 2	487	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 240	696	-	-	1162	-
Mov Cap-2 Maneuver	~ 240	-	-	-	-	-
Stage 1	689	-	-	-	-	-
Stage 2	487	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	141.3	0		0.3		
HCM LOS	F					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	-	261	1162	-	
HCM Lane V/C Ratio	-	-	1.144	0.025	-	
HCM Control Delay (s)	-	-	141.3	8.2	0	
HCM Lane LOS	-	-	F	A	A	
HCM 95th %tile Q(veh)	-	-	13.2	0.1	-	
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

Intersection

Int Delay, s/veh 5.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	173	24	190	68	19	430
Future Vol, veh/h	173	24	190	68	19	430
Conflicting Peds, #/hr	0	1	0	3	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	188	26	207	74	21	467

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	756	248	0
Stage 1	247	-	-
Stage 2	509	-	-
Critical Hdwy	6.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	-
Pot Cap-1 Maneuver	376	791	-
Stage 1	794	-	-
Stage 2	604	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	367	788	-
Mov Cap-2 Maneuver	367	-	-
Stage 1	774	-	-
Stage 2	604	-	-

Approach	WB	NB	SB
HCM Control Delay, s	24.6	0	0.3
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	393	1274
HCM Lane V/C Ratio	-	-	0.545	0.016
HCM Control Delay (s)	-	-	24.6	7.9
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	3.1	0

Intersection												
Int Delay, s/veh	355.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	134	0	274	6	0	16	173	108	6	8	357	237
Future Vol, veh/h	134	0	274	6	0	16	173	108	6	8	357	237
Conflicting Peds, #/hr	0	0	0	0	0	21	0	0	14	0	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	69	69	69	69	69	69	69	69	69	69	69	69
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	194	0	397	9	0	23	251	157	9	12	517	343
Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	1410	1396	690	1589	1563	197	861	0	0	180	0	0
Stage 1	714	714	-	678	678	-	-	-	-	-	-	-
Stage 2	696	682	-	911	885	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	~ 116	141	445	87	112	844	781	-	-	1396	-	-
Stage 1	422	435	-	442	452	-	-	-	-	-	-	-
Stage 2	432	450	-	328	363	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 79	88	445	~ 7	70	816	780	-	-	1377	-	-
Mov Cap-2 Maneuver	~ 79	88	-	~ 7	70	-	-	-	-	-	-	-
Stage 1	272	427	-	281	288	-	-	-	-	-	-	-
Stage 2	265	287	-	35	356	-	-	-	-	-	-	-
Approach	EB		WB			NB			SB			
HCM Control Delay, \$	1115.7		\$ 505			7.1			0.1			
HCM LOS	F		F									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	780	-	-	176	25	1377	-	-				
HCM Lane V/C Ratio	0.321	-	-	3.36	1.275	0.008	-	-				
HCM Control Delay (s)	11.8	0		\$ 1115.7	\$ 505	7.6	0	-				
HCM Lane LOS	B	A	-	F	F	A	A	-				
HCM 95th %tile Q(veh)	1.4	-	-	55.9	3.9	0	-	-				
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s			+: Computation Not Defined				*: All major volume in platoon			

Intersection												
Int Delay, s/veh	78.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	134	0	274	6	0	16	173	108	6	8	357	237
Future Vol, veh/h	134	0	274	6	0	16	173	108	6	8	357	237
Conflicting Peds, #/hr	0	0	0	0	0	21	0	0	14	0	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	146	0	298	7	0	17	188	117	7	9	388	258
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1062	1050	518	1195	1176	156	647	0	0	138	0	0
Stage 1	536	536	-	511	511	-	-	-	-	-	-	-
Stage 2	526	514	-	684	665	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	201	227	558	163	191	890	939	-	-	1446	-	-
Stage 1	529	523	-	545	537	-	-	-	-	-	-	-
Stage 2	535	535	-	439	458	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	160	174	557	62	146	861	938	-	-	1427	-	-
Mov Cap-2 Maneuver	160	174	-	62	146	-	-	-	-	-	-	-
Stage 1	415	517	-	422	416	-	-	-	-	-	-	-
Stage 2	403	415	-	202	453	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	249.5		26.5		5.9		0.1					
HCM LOS	F		D									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	938	-	-	307	191	1427	-	-				
HCM Lane V/C Ratio	0.2	-	-	1.445	0.125	0.006	-	-				
HCM Control Delay (s)	9.8	0	-	249.5	26.5	7.5	0	-				
HCM Lane LOS	A	A	-	F	D	A	A	-				
HCM 95th %tile O(veh)	0.7	-	-	24	0.4	0	-	-				

Timings
19: Dexter Av. & Central Av. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

08/09/2018

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	236	922	129	126	1428	194	103	261	71	147	387
Future Volume (vph)	236	922	129	126	1428	194	103	261	71	147	387
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2	1	6	7
Permitted Phases			4			8					6
Detector Phase	7	4	4	3	8	8	5	2	1	6	7
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0	5.0
Minimum Split (s)	9.6	26.8	26.8	9.6	26.8	26.8	9.6	42.4	9.6	15.8	9.6
Total Split (s)	26.0	42.4	42.4	21.1	37.5	37.5	19.5	43.5	13.0	37.0	26.0
Total Split (%)	21.7%	35.3%	35.3%	17.6%	31.3%	31.3%	16.3%	36.3%	10.8%	30.8%	21.7%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	4.8	3.6	4.4	3.6	4.8	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	5.8	4.6	5.8	5.8	4.6	5.4	4.6	5.8	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	None	Max	None
Act Effect Green (s)	19.4	38.3	38.3	12.9	31.8	31.8	11.4	39.3	7.8	33.0	58.3
Actuated g/C Ratio	0.17	0.33	0.33	0.11	0.27	0.27	0.10	0.34	0.07	0.28	0.50
v/c Ratio	0.88	0.61	0.23	0.70	0.90	0.37	0.65	0.63	0.66	0.31	0.50
Control Delay	77.0	35.3	5.1	69.7	49.2	6.9	68.9	38.2	80.5	36.0	16.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	77.0	35.3	5.1	69.7	49.2	6.9	68.9	38.2	80.5	36.0	16.7
LOS	E	D	A	E	D	A	E	D	F	D	B
Approach Delay		39.9			46.0			45.1		28.9	
Approach LOS		D			D			D		C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 116.5

Natural Cycle: 100

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 41.5

Intersection LOS: D

Intersection Capacity Utilization 85.8%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 19: Dexter Av. & Central Av. (SR-74)

			
Ø1	Ø2	Ø3	Ø4
13 s	43.5 s	21.1 s	42.4 s
			
Ø5	Ø6	Ø7	Ø8
19.5 s	37 s	26 s	37.5 s

HCM 6th Signalized Intersection Summary
19: Dexter Av. & Central Av. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

08/09/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  							
Traffic Volume (veh/h)	236	922	129	126	1428	194	103	261	91	71	147	387
Future Volume (veh/h)	236	922	129	126	1428	194	103	261	91	71	147	387
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	259	1013	99	138	1569	171	113	287	59	78	162	369
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	287	1732	538	166	1745	424	139	498	102	99	577	745
Arrive On Green	0.16	0.34	0.34	0.09	0.27	0.27	0.08	0.33	0.33	0.06	0.31	0.31
Sat Flow, veh/h	1781	5106	1585	1781	6434	1565	1781	1505	309	1781	1870	1585
Grp Volume(v), veh/h	259	1013	99	138	1569	171	113	0	346	78	162	369
Grp Sat Flow(s),veh/h/ln	1781	1702	1585	1781	1609	1565	1781	0	1814	1781	1870	1585
Q Serve(g_s), s	16.4	18.8	5.1	8.8	27.0	10.3	7.2	0.0	18.1	5.0	7.5	18.5
Cycle Q Clear(g_c), s	16.4	18.8	5.1	8.8	27.0	10.3	7.2	0.0	18.1	5.0	7.5	18.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.17	1.00		1.00
Lane Grp Cap(c), veh/h	287	1732	538	166	1745	424	139	0	601	99	577	745
V/C Ratio(X)	0.90	0.58	0.18	0.83	0.90	0.40	0.81	0.00	0.58	0.79	0.28	0.50
Avail Cap(c_a), veh/h	331	1732	538	255	1773	431	231	0	601	130	577	745
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.4	31.3	26.8	51.3	40.4	34.3	52.2	0.0	31.8	53.6	30.1	21.1
Incr Delay (d2), s/veh	22.9	0.5	0.2	7.6	6.6	0.6	4.3	0.0	4.0	15.2	1.2	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.9	7.5	1.9	4.1	11.0	3.9	3.3	0.0	8.4	2.6	3.5	6.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	70.2	31.8	26.9	58.9	47.0	34.9	56.5	0.0	35.8	68.9	31.3	23.4
LnGrp LOS	E	C	C	E	D	C	E	A	D	E	C	C
Approach Vol, veh/h		1371			1878			459			609	
Approach Delay, s/veh		38.7			46.7			40.9			31.3	
Approach LOS		D			D			D			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.0	43.9	15.3	44.8	13.6	41.3	23.1	37.0				
Change Period (Y+Rc), s	4.6	* 5.8	4.6	5.8	4.6	5.8	4.6	5.8				
Max Green Setting (Gmax), s	8.4	* 38	16.5	36.6	14.9	31.2	21.4	31.7				
Max Q Clear Time (g_c+I1), s	7.0	20.1	10.8	20.8	9.2	20.5	18.4	29.0				
Green Ext Time (p_c), s	0.0	1.8	0.1	6.2	0.1	1.6	0.1	2.2				
Intersection Summary												
HCM 6th Ctrl Delay			41.4									
HCM 6th LOS			D									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Timings

S. Nichols Mixed-Use Development (JN 10878)

20: Cambern Av./Cambern Av & Central Av. (SR-74)

08/09/2018

										
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	128	1064	1	1670	115	3	2	131	4	89
Future Volume (vph)	128	1064	1	1670	115	3	2	131	4	89
Turn Type	Prot	NA	Prot	NA	Perm	Perm	NA	Perm	NA	Perm
Protected Phases	7	4	3	8			2		6	
Permitted Phases					8	2		6		6
Detector Phase	7	4	3	8	8	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	24.8	9.6	25.5	25.5	34.7	34.7	14.7	14.7	14.7
Total Split (s)	12.0	75.4	9.6	73.0	73.0	35.0	35.0	35.0	35.0	35.0
Total Split (%)	10.0%	62.8%	8.0%	60.8%	60.8%	29.2%	29.2%	29.2%	29.2%	29.2%
Yellow Time (s)	3.6	4.8	3.6	5.5	5.5	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.6	5.8	4.6	6.5	6.5	4.7	4.7		4.7	4.7
Lead/Lag	Lead	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	Max	None	None	None	None	Max	Max	Max	Max	Max
Act Effect Green (s)	7.4	77.1	5.0	66.3	66.3	30.3	30.3		30.3	30.3
Actuated g/C Ratio	0.06	0.64	0.04	0.55	0.55	0.25	0.25		0.25	0.25
v/c Ratio	0.67	0.51	0.01	0.94	0.14	0.01	0.01		0.43	0.21
Control Delay	70.9	12.8	56.0	35.4	2.5	34.0	30.0		42.3	10.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay	70.9	12.8	56.0	35.4	2.5	34.0	30.0		42.3	10.4
LOS	E	B	E	D	A	C	C		D	B
Approach Delay		19.1		33.3			32.0		29.6	
Approach LOS		B		C			C		C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 119.8

Natural Cycle: 100

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.94

Intersection Signal Delay: 27.7

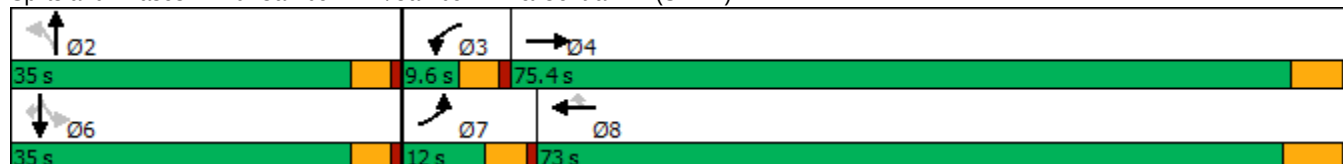
Intersection LOS: C

Intersection Capacity Utilization 92.7%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 20: Cambern Av./Cambern Av & Central Av. (SR-74)



HCM 6th Signalized Intersection Summary S. Nichols Mixed-Use Development (JN 10878)
 20: Cambern Av./Cambern Av & Central Av. (SR-74) 08/09/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	128	1064	1	1	1670	115	3	2	1	131	4	89
Future Volume (veh/h)	128	1064	1	1	1670	115	3	2	1	131	4	89
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	141	1169	1	1	1835	84	3	2	0	144	4	54
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	215	2229	2	2	1958	862	285	476	0	410	10	403
Arrive On Green	0.06	0.61	0.61	0.00	0.55	0.55	0.25	0.25	0.00	0.25	0.25	0.25
Sat Flow, veh/h	3456	3644	3	1781	3554	1564	1344	1870	0	1378	40	1583
Grp Volume(v), veh/h	141	570	600	1	1835	84	3	2	0	148	0	54
Grp Sat Flow(s),veh/h/ln	1728	1777	1870	1781	1777	1564	1344	1870	0	1419	0	1583
Q Serve(g_s), s	4.8	21.9	21.9	0.1	57.1	3.0	0.2	0.1	0.0	10.3	0.0	3.1
Cycle Q Clear(g_c), s	4.8	21.9	21.9	0.1	57.1	3.0	10.6	0.1	0.0	10.4	0.0	3.1
Prop In Lane	1.00		0.00	1.00		1.00	1.00		0.00	0.97		1.00
Lane Grp Cap(c), veh/h	215	1087	1144	2	1958	862	285	476	0	420	0	403
V/C Ratio(X)	0.66	0.52	0.52	0.41	0.94	0.10	0.01	0.00	0.00	0.35	0.00	0.13
Avail Cap(c_a), veh/h	215	1087	1144	75	1983	873	285	476	0	420	0	403
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	54.6	13.2	13.2	59.5	24.8	12.7	41.4	33.2	0.0	37.0	0.0	34.3
Incr Delay (d2), s/veh	14.7	0.6	0.6	36.4	9.2	0.1	0.1	0.0	0.0	2.3	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	8.0	8.4	0.1	23.1	1.0	0.1	0.0	0.0	3.9	0.0	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	69.3	13.8	13.8	95.9	34.1	12.8	41.5	33.2	0.0	39.3	0.0	35.0
LnGrp LOS	E	B	B	F	C	B	D	C	A	D	A	C
Approach Vol, veh/h		1311			1920			5			202	
Approach Delay, s/veh		19.8			33.2			38.2			38.2	
Approach LOS		B			C			D			D	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		35.0	4.8	79.4		35.0	12.0	72.2				
Change Period (Y+Rc), s		* 4.7	4.6	* 6.5		* 4.7	4.6	6.5				
Max Green Setting (Gmax), s		* 30	5.0	* 70		* 30	7.4	66.5				
Max Q Clear Time (g_c+I1), s		12.6	2.1	23.9		12.4	6.8	59.1				
Green Ext Time (p_c), s		0.0	0.0	13.9		0.9	0.0	6.5				
Intersection Summary												
HCM 6th Ctrl Delay			28.4									
HCM 6th LOS			C									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Timings
1: Lake St. & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

08/09/2018

									
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	1	6	236	0	1	377	171	30	879
Future Volume (vph)	1	6	236	0	1	377	171	30	879
Turn Type	Perm	NA	Perm	NA	Prot	NA	Perm	Prot	NA
Protected Phases		4		8	5	2		1	6
Permitted Phases	4		8				2		
Detector Phase	4	4	8	8	5	2	2	1	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	14.6	14.6	16.2	16.2	9.6	16.2	16.2	9.6	16.2
Total Split (s)	42.2	42.2	42.2	42.2	35.6	42.2	42.2	35.6	42.2
Total Split (%)	35.2%	35.2%	35.2%	35.2%	29.7%	35.2%	35.2%	29.7%	35.2%
Yellow Time (s)	3.6	3.6	5.2	5.2	3.6	5.2	5.2	3.6	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.6		6.2	4.6	6.2	6.2	4.6	6.2
Lead/Lag					Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	None	Max
Act Effect Green (s)		18.8		17.1	5.1	36.9	36.9	6.2	41.6
Actuated g/C Ratio		0.26		0.23	0.07	0.51	0.51	0.08	0.57
v/c Ratio		0.02		0.75	0.01	0.44	0.22	0.22	0.91
Control Delay		20.0		33.0	38.0	16.3	6.7	38.8	31.2
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		20.0		33.0	38.0	16.3	6.7	38.8	31.2
LOS		B		C	D	B	A	D	C
Approach Delay		20.0		33.0		13.4			31.4
Approach LOS		B		C		B			C

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 73

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.91

Intersection Signal Delay: 25.9

Intersection LOS: C

Intersection Capacity Utilization 77.6%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 1: Lake St. & Nichols Rd.

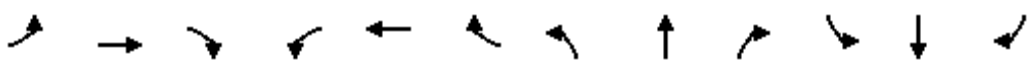
 Ø1	 Ø2	 Ø4
35.6 s	42.2 s	42.2 s
 Ø5	 Ø6	 Ø8
35.6 s	42.2 s	42.2 s

HCM 6th Signalized Intersection Summary

1: Lake St. & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

08/09/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↗	↖	↗	↖	↖	↖
Traffic Volume (veh/h)	1	6	1	236	0	19	1	377	171	30	879	1
Future Volume (veh/h)	1	6	1	236	0	19	1	377	171	30	879	1
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1	7	1	259	0	13	1	414	0	33	966	1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	74	351	46	406	0	15	2	939		60	998	1
Arrive On Green	0.23	0.23	0.23	0.23	0.00	0.23	0.00	0.50	0.00	0.03	0.53	0.53
Sat Flow, veh/h	80	1544	203	1353	0	68	1781	1870	1585	1781	1868	2
Grp Volume(v), veh/h	9	0	0	272	0	0	1	414	0	33	0	967
Grp Sat Flow(s),veh/h/ln	1826	0	0	1421	0	0	1781	1870	1585	1781	0	1870
Q Serve(g_s), s	0.0	0.0	0.0	12.8	0.0	0.0	0.0	10.2	0.0	1.3	0.0	35.8
Cycle Q Clear(g_c), s	0.3	0.0	0.0	13.1	0.0	0.0	0.0	10.2	0.0	1.3	0.0	35.8
Prop In Lane	0.11		0.11	0.95		0.05	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	471	0	0	421	0	0	2	939		60	0	999
V/C Ratio(X)	0.02	0.00	0.00	0.65	0.00	0.00	0.40	0.44		0.55	0.00	0.97
Avail Cap(c_a), veh/h	996	0	0	809	0	0	770	939		770	0	999
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.5	0.0	0.0	26.4	0.0	0.0	35.8	11.4	0.0	34.1	0.0	16.1
Incr Delay (d2), s/veh	0.0	0.0	0.0	1.7	0.0	0.0	34.7	1.5	0.0	2.9	0.0	21.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.0	4.1	0.0	0.0	0.0	3.7	0.0	0.6	0.0	17.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.5	0.0	0.0	28.1	0.0	0.0	70.5	12.9	0.0	37.1	0.0	37.9
LnGrp LOS	C	A	A	C	A	A	E	B		D	A	D
Approach Vol, veh/h		9			272			415	A		1000	
Approach Delay, s/veh		21.5			28.1			13.1			37.9	
Approach LOS		C			C			B			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.0	42.2		22.5	4.7	44.5		22.5				
Change Period (Y+Rc), s	4.6	6.2		* 6.2	4.6	6.2		6.2				
Max Green Setting (Gmax), s	31.0	36.0		* 38	31.0	36.0		36.0				
Max Q Clear Time (g_c+I1), s	3.3	12.2		2.3	2.0	37.8		15.1				
Green Ext Time (p_c), s	0.0	3.2		0.0	0.0	0.0		1.3				
Intersection Summary												
HCM 6th Ctrl Delay				30.2								
HCM 6th LOS				C								
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.												

Timings
2: Lake St. & Alberhill Ranch Rd.

S. Nichols Mixed-Use Development (JN 10878)

08/09/2018

	↖	↗	↑	↘	↙	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↖	↗	↑	↘	↙	↑
Traffic Volume (vph)	36	20	500	31	24	1053
Future Volume (vph)	36	20	500	31	24	1053
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2		
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	15.1	15.1	16.2	16.2	11.2	16.2
Total Split (s)	16.0	16.0	91.0	91.0	13.0	104.0
Total Split (%)	13.3%	13.3%	75.8%	75.8%	10.8%	86.7%
Yellow Time (s)	4.1	4.1	5.2	5.2	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	6.2	6.2	6.2	6.2
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	Max	Max	None	Max
Act Effect Green (s)	10.0	10.0	94.4	94.4	5.9	102.1
Actuated g/C Ratio	0.08	0.08	0.79	0.79	0.05	0.86
v/c Ratio	0.25	0.13	0.35	0.03	0.27	0.67
Control Delay	55.7	22.2	6.0	1.7	62.0	6.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.7	22.2	6.0	1.7	62.0	6.6
LOS	E	C	A	A	E	A
Approach Delay	43.9		5.8			7.8
Approach LOS	D		A			A

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 119.1

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.67

Intersection Signal Delay: 8.3

Intersection LOS: A

Intersection Capacity Utilization 73.2%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 2: Lake St. & Alberhill Ranch Rd.



HCM 6th Signalized Intersection Summary 2: Lake St. & Alberhill Ranch Rd.

S. Nichols Mixed-Use Development (JN 10878)

08/09/2018

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	36	20	500	31	24	1053
Future Volume (veh/h)	36	20	500	31	24	1053
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		0.98	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	37	7	510	29	24	1074
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	116	103	1425	1183	41	1567
Arrive On Green	0.07	0.07	0.76	0.76	0.02	0.84
Sat Flow, veh/h	1781	1585	1870	1553	1781	1870
Grp Volume(v), veh/h	37	7	510	29	24	1074
Grp Sat Flow(s),veh/h/ln	1781	1585	1870	1553	1781	1870
Q Serve(g_s), s	2.3	0.5	10.4	0.5	1.6	25.5
Cycle Q Clear(g_c), s	2.3	0.5	10.4	0.5	1.6	25.5
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	116	103	1425	1183	41	1567
V/C Ratio(X)	0.32	0.07	0.36	0.02	0.58	0.69
Avail Cap(c_a), veh/h	166	148	1425	1183	104	1567
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.1	51.2	4.6	3.4	56.4	3.6
Incr Delay (d2), s/veh	0.6	0.1	0.7	0.0	4.7	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.2	3.1	0.1	0.7	4.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	52.7	51.3	5.3	3.4	61.2	6.1
LnGrp LOS	D	D	A	A	E	A
Approach Vol, veh/h	44		539			1098
Approach Delay, s/veh	52.4		5.2			7.3
Approach LOS	D		A			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	8.9	95.1			104.0	12.7
Change Period (Y+Rc), s	6.2	6.2			6.2	5.1
Max Green Setting (Gmax), s	6.8	84.8			97.8	10.9
Max Q Clear Time (g_c+I1), s	3.6	12.4			27.5	4.3
Green Ext Time (p_c), s	0.0	3.2			11.0	0.0
Intersection Summary						
HCM 6th Ctrl Delay			7.8			
HCM 6th LOS			A			

Intersection

Intersection Delay, s/veh 9.9

Intersection LOS A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	190	19	77	247	9	63
Future Vol, veh/h	190	19	77	247	9	63
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	202	20	82	263	10	67
Number of Lanes	1	0	0	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	1
HCM Control Delay	9.1	10.7	8.5
HCM LOS	A	B	A

Lane	NBLn1	NBLn2	EBLn1	WBLn1
Vol Left, %	100%	0%	0%	24%
Vol Thru, %	0%	0%	91%	76%
Vol Right, %	0%	100%	9%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	9	63	209	324
LT Vol	9	0	0	77
Through Vol	0	0	190	247
RT Vol	0	63	19	0
Lane Flow Rate	10	67	222	345
Geometry Grp	7	7	2	2
Degree of Util (X)	0.017	0.095	0.274	0.423
Departure Headway (Hd)	6.288	5.076	4.442	4.416
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	569	705	809	817
Service Time	4.028	2.815	2.468	2.439
HCM Lane V/C Ratio	0.018	0.095	0.274	0.422
HCM Control Delay	9.1	8.4	9.1	10.7
HCM Lane LOS	A	A	A	B
HCM 95th-tile Q	0.1	0.3	1.1	2.1

Timings
4: Lakeshore Dr. & Riverside Dr. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

08/09/2018

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	30	495	274	122	617	310	202	261	276	320	16
Future Volume (vph)	30	495	274	122	617	310	202	261	276	320	16
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2	1	6	
Permitted Phases			4			8					6
Detector Phase	7	4	4	3	8	8	5	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	32.4	32.4	9.6	33.4	33.4	9.6	34.7	9.6	32.7	32.7
Total Split (s)	9.6	38.3	38.3	20.3	49.0	49.0	27.6	35.4	26.0	33.8	33.8
Total Split (%)	8.0%	31.9%	31.9%	16.9%	40.8%	40.8%	23.0%	29.5%	21.7%	28.2%	28.2%
Yellow Time (s)	3.6	4.4	4.4	3.6	4.4	4.4	3.6	3.7	3.6	3.7	3.7
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.4	5.4	4.6	5.4	5.4	4.6	4.7	4.6	4.7	4.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	None	Max	Max
Act Effect Green (s)	5.0	30.3	30.3	12.0	41.5	41.5	17.3	31.0	20.3	34.0	34.0
Actuated g/C Ratio	0.04	0.27	0.27	0.11	0.37	0.37	0.15	0.27	0.18	0.30	0.30
v/c Ratio	0.40	0.54	0.45	0.67	0.93	0.43	0.77	0.44	0.90	0.31	0.03
Control Delay	70.6	38.0	6.3	67.6	56.8	8.0	65.7	27.9	77.0	34.0	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	70.6	38.0	6.3	67.6	56.8	8.0	65.7	27.9	77.0	34.0	0.1
LOS	E	D	A	E	E	A	E	C	E	C	A
Approach Delay		28.4			43.6			40.1		52.6	
Approach LOS		C			D			D		D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 113.1

Natural Cycle: 110

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.93

Intersection Signal Delay: 40.8

Intersection LOS: D

Intersection Capacity Utilization 93.0%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 4: Lakeshore Dr. & Riverside Dr. (SR-74)

Ø1	Ø2	Ø3	Ø4
26 s	35.4 s	20.3 s	38.3 s
Ø5	Ø6	Ø7	Ø8
27.6 s	33.8 s	9.6 s	49 s

HCM 6th Signalized Intersection Summary 4: Lakeshore Dr. & Riverside Dr. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

08/09/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	495	274	122	617	310	202	261	162	276	320	16
Future Volume (veh/h)	30	495	274	122	617	310	202	261	162	276	320	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No				No				No			
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	31	510	162	126	636	166	208	269	63	285	330	12
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	49	1075	479	153	675	565	238	768	177	312	1100	485
Arrive On Green	0.03	0.30	0.30	0.09	0.36	0.36	0.13	0.27	0.27	0.18	0.31	0.31
Sat Flow, veh/h	1781	3554	1585	1781	1870	1564	1781	2867	660	1781	3554	1565
Grp Volume(v), veh/h	31	510	162	126	636	166	208	165	167	285	330	12
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1870	1564	1781	1777	1750	1781	1777	1565
Q Serve(g_s), s	2.0	13.4	9.1	8.0	37.7	8.7	13.1	8.6	8.9	18.0	8.1	0.6
Cycle Q Clear(g_c), s	2.0	13.4	9.1	8.0	37.7	8.7	13.1	8.6	8.9	18.0	8.1	0.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.38	1.00		1.00
Lane Grp Cap(c), veh/h	49	1075	479	153	675	565	238	476	469	312	1100	485
V/C Ratio(X)	0.64	0.47	0.34	0.82	0.94	0.29	0.88	0.35	0.36	0.91	0.30	0.02
Avail Cap(c_a), veh/h	78	1075	479	244	712	595	358	476	469	333	1100	485
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.2	32.5	31.1	51.5	35.4	26.2	48.7	33.9	34.0	46.4	30.1	27.5
Incr Delay (d2), s/veh	5.0	0.3	0.4	5.6	20.2	0.3	10.3	2.0	2.1	26.6	0.7	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	5.7	3.5	3.7	20.2	3.2	6.5	4.0	4.0	10.2	3.6	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.2	32.9	31.5	57.1	55.7	26.5	59.1	35.8	36.1	73.0	30.8	27.6
LnGrp LOS	E	C	C	E	E	C	E	D	D	E	C	C
Approach Vol, veh/h	703				928				540			
Approach Delay, s/veh	33.8				50.6				44.9			
Approach LOS	C				D				D			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	24.7	35.4	14.5	40.1	19.9	40.2	7.7	46.8				
Change Period (Y+Rc), s	4.6	* 4.7	4.6	5.4	4.6	* 4.7	4.6	5.4				
Max Green Setting (Gmax), s	21.4	* 31	15.7	32.9	23.0	* 29	5.0	43.6				
Max Q Clear Time (g_c+I1), s	20.0	10.9	10.0	15.4	15.1	10.1	4.0	39.7				
Green Ext Time (p_c), s	0.1	1.8	0.1	3.5	0.2	2.0	0.0	1.7				
Intersection Summary												
HCM 6th Ctrl Delay			45.1									
HCM 6th LOS			D									
Notes												

Intersection												
Int Delay, s/veh	2.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕	↕		↕	↕
Traffic Vol, veh/h	2	867	4	6	890	120	0	0	6	29	1	2
Future Vol, veh/h	2	867	4	6	890	120	0	0	6	29	1	2
Conflicting Peds, #/hr	0	0	0	0	0	1	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Stop	-	-	Stop
Storage Length	-	-	-	-	-	-	-	-	75	-	-	75
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	894	4	6	918	124	0	0	6	30	1	2
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1043	0	0	898	0	0	1893	1955	896	1893	1895	981
Stage 1	-	-	-	-	-	-	900	900	-	993	993	-
Stage 2	-	-	-	-	-	-	993	1055	-	900	902	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	667	-	-	756	-	-	53	64	339	53	70	303
Stage 1	-	-	-	-	-	-	333	357	-	296	323	-
Stage 2	-	-	-	-	-	-	296	302	-	333	356	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	666	-	-	756	-	-	51	62	339	51	68	303
Mov Cap-2 Maneuver	-	-	-	-	-	-	51	62	-	51	68	-
Stage 1	-	-	-	-	-	-	331	355	-	294	317	-
Stage 2	-	-	-	-	-	-	287	296	-	325	354	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.1			15.8			143.3		
HCM LOS							C			F		
Minor Lane/Major Mvmt	NBLn1		NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2	
Capacity (veh/h)	-		339	666	-	-	756	-	-	51	303	
HCM Lane V/C Ratio	-		0.018	0.003	-	-	0.008	-	-	0.606	0.007	
HCM Control Delay (s)	0		15.8	10.4	0	-	9.8	0	-	151.7	17	
HCM Lane LOS	A		C	B	A	-	A	A	-	F	C	
HCM 95th %tile Q(veh)	-		0.1	0	-	-	0	-	-	2.4	0	

Intersection												
Int Delay, s/veh	2.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	867	4	6	890	120	0	0	6	29	1	2
Future Vol, veh/h	2	867	4	6	890	120	0	0	6	29	1	2
Conflicting Peds, #/hr	0	0	0	0	0	1	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Stop	-	-	Stop
Storage Length	100	-	-	100	-	-	-	-	75	-	-	75
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	894	4	6	918	124	0	0	6	30	1	2

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1043	0	0	898	0	0	1893	1955	896	1893	1895	981
Stage 1	-	-	-	-	-	-	900	900	-	993	993	-
Stage 2	-	-	-	-	-	-	993	1055	-	900	902	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	667	-	-	756	-	-	53	64	339	53	70	303
Stage 1	-	-	-	-	-	-	333	357	-	296	323	-
Stage 2	-	-	-	-	-	-	296	302	-	333	356	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	666	-	-	756	-	-	52	63	339	52	69	303
Mov Cap-2 Maneuver	-	-	-	-	-	-	52	63	-	52	69	-
Stage 1	-	-	-	-	-	-	332	356	-	295	320	-
Stage 2	-	-	-	-	-	-	291	299	-	326	355	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.1			15.8			138.8		
HCM LOS							C			F		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	-	339	666	-	-	756	-	-	52	303
HCM Lane V/C Ratio	-	0.018	0.003	-	-	0.008	-	-	0.595	0.007
HCM Control Delay (s)	0	15.8	10.4	-	-	9.8	-	-	146.9	17
HCM Lane LOS	A	C	B	-	-	A	-	-	F	C
HCM 95th %tile Q(veh)	-	0.1	0	-	-	0	-	-	2.3	0

Intersection

Int Delay, s/veh 7.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	195	56	231	259	81	264
Future Vol, veh/h	195	56	231	259	81	264
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	120	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	207	60	246	276	86	281

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	267
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.12
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.218
Pot Cap-1 Maneuver	-	-	1297
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1297
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	4	16.6
HCM LOS			C

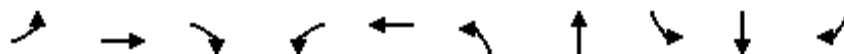
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	217	802	-	-	1297	-
HCM Lane V/C Ratio	0.397	0.35	-	-	0.189	-
HCM Control Delay (s)	32.1	11.9	-	-	8.4	-
HCM Lane LOS	D	B	-	-	A	-
HCM 95th %tile Q(veh)	1.8	1.6	-	-	0.7	-

Timings

S. Nichols Mixed-Use Development (JN 10878)

7: Collier Av. (SR-74)/Collier Av. & Riverside Dr. (SR-74)/Riverside Dr.

08/09/2018



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations		↰	↰		↰	↰	↰	↰	↰	↰
Traffic Volume (vph)	103	11	788	21	18	902	231	3	185	96
Future Volume (vph)	103	11	788	21	18	902	231	3	185	96
Turn Type	Perm	NA	pm+ov	Perm	NA	Split	NA	Split	NA	Perm
Protected Phases		4	2		8	2	2	6	6	
Permitted Phases	4		4	8						6
Detector Phase	4	4	2	8	8	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	15.4	15.4	15.8	14.6	14.6	15.8	15.8	16.2	16.2	16.2
Total Split (s)	19.0	19.0	79.0	19.0	19.0	79.0	79.0	22.0	22.0	22.0
Total Split (%)	15.8%	15.8%	65.8%	15.8%	15.8%	65.8%	65.8%	18.3%	18.3%	18.3%
Yellow Time (s)	4.4	4.4	4.8	3.6	3.6	4.8	4.8	5.2	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.4	5.8		4.6	5.8	5.8	6.2	6.2	6.2
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	None	None	Max	None	None	Max	Max	Max	Max	Max
Act Effect Green (s)		12.8	85.7		13.6	73.2	73.2	15.8	15.8	15.8
Actuated g/C Ratio		0.11	0.72		0.11	0.61	0.61	0.13	0.13	0.13
v/c Ratio		0.77	0.70		0.27	0.87	0.23	0.01	0.78	0.34
Control Delay		82.4	10.2		47.5	29.5	10.8	45.7	72.6	12.4
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		82.4	10.2		47.5	29.5	10.8	45.7	72.6	12.4
LOS		F	B		D	C	B	D	E	B
Approach Delay		19.2			47.5		25.4		52.0	
Approach LOS		B			D		C		D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 119.3

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 26.7

Intersection LOS: C

Intersection Capacity Utilization 85.5%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 7: Collier Av. (SR-74)/Collier Av. & Riverside Dr. (SR-74)/Riverside Dr.

 Ø2	 Ø6	 Ø4
79 s	22 s	19 s
		 Ø8
		19 s

HCM 6th Signalized Intersection Summary S. Nichols Mixed-Use Development (JN 10878)
 7: Collier Av. (SR-74)/Collier Av. & Riverside Dr. (SR-74)/Riverside Dr. 08/09/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	103	11	788	21	18	7	902	231	20	3	185	96
Future Volume (veh/h)	103	11	788	21	18	7	902	231	20	3	185	96
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	107	11	773	22	19	1	940	241	20	3	193	27
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	173	12	1145	51	32	1	1079	1030	86	233	245	207
Arrive On Green	0.12	0.12	0.12	0.12	0.12	0.12	0.61	0.61	0.61	0.13	0.13	0.13
Sat Flow, veh/h	977	100	1548	47	269	8	1781	1700	141	1781	1870	1585
Grp Volume(v), veh/h	118	0	773	42	0	0	940	0	261	3	193	27
Grp Sat Flow(s),veh/h/ln	1078	0	1548	324	0	0	1781	0	1841	1781	1870	1585
Q Serve(g_s), s	0.0	0.0	14.4	1.3	0.0	0.0	53.2	0.0	7.9	0.2	12.1	1.8
Cycle Q Clear(g_c), s	13.1	0.0	14.4	14.4	0.0	0.0	53.2	0.0	7.9	0.2	12.1	1.8
Prop In Lane	0.91		1.00	0.52		0.02	1.00		0.08	1.00		1.00
Lane Grp Cap(c), veh/h	185	0	1145	84	0	0	1079	0	1116	233	245	207
V/C Ratio(X)	0.64	0.00	0.68	0.50	0.00	0.00	0.87	0.00	0.23	0.01	0.79	0.13
Avail Cap(c_a), veh/h	185	0	1145	84	0	0	1079	0	1116	233	245	207
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.6	0.0	6.5	51.3	0.0	0.0	19.9	0.0	10.9	45.7	50.9	46.4
Incr Delay (d2), s/veh	7.0	0.0	1.6	4.5	0.0	0.0	9.6	0.0	0.5	0.1	22.3	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	0.0	23.8	1.4	0.0	0.0	22.2	0.0	3.1	0.1	7.0	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.6	0.0	8.1	55.8	0.0	0.0	29.5	0.0	11.4	45.8	73.2	47.7
LnGrp LOS	E	A	A	E	A	A	C	A	B	D	E	D
Approach Vol, veh/h		891			42			1201			223	
Approach Delay, s/veh		14.9			55.8			25.6			69.7	
Approach LOS		B			E			C			E	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		79.0		19.8		22.0		19.8				
Change Period (Y+Rc), s		5.8		5.4		6.2		* 5.4				
Max Green Setting (Gmax), s		73.2		13.6		15.8		* 14				
Max Q Clear Time (g_c+I1), s		55.2		16.4		14.1		16.4				
Green Ext Time (p_c), s		5.0		0.0		0.2		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			26.3									
HCM 6th LOS			C									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Timings

S. Nichols Mixed-Use Development (JN 10878)

8: Collier Av./Collier Av. (SR-74) & Central Av./Central Av. (SR-74)

08/09/2018

											
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	195	328	211	199	741	51	122	350	938	137	32
Future Volume (vph)	195	328	211	199	741	51	122	350	938	137	32
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	7	4	3	8	1	5	2	3	1	6	
Permitted Phases					8			2			6
Detector Phase	7	4	3	8	1	5	2	3	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	5.0	10.0	5.0	5.0	10.0	10.0
Minimum Split (s)	9.6	14.7	9.6	42.8	9.6	9.6	15.8	9.6	9.6	29.8	29.8
Total Split (s)	14.0	28.8	28.0	42.8	43.0	13.6	20.2	28.0	43.0	49.6	49.6
Total Split (%)	11.7%	24.0%	23.3%	35.7%	35.8%	11.3%	16.8%	23.3%	35.8%	41.3%	41.3%
Yellow Time (s)	3.6	3.7	3.6	4.8	3.6	3.6	4.8	3.6	3.6	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.7	4.6	5.8	4.6	4.6	5.8	4.6	4.6	5.8	5.8
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	None	None	Max	Max
Act Effect Green (s)	8.9	17.0	11.6	18.5	51.5	7.2	17.6	30.4	31.8	44.7	44.7
Actuated g/C Ratio	0.09	0.17	0.12	0.19	0.52	0.07	0.18	0.31	0.32	0.46	0.46
v/c Ratio	0.64	0.64	0.54	0.58	0.48	0.41	0.38	0.64	0.87	0.09	0.04
Control Delay	55.9	42.4	47.2	43.3	7.0	57.4	44.2	25.7	41.3	18.8	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.9	42.4	47.2	43.3	7.0	57.4	44.2	25.7	41.3	18.8	0.1
LOS	E	D	D	D	A	E	D	C	D	B	A
Approach Delay		47.0		20.7			33.2			37.4	
Approach LOS		D		C			C			D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 98.1

Natural Cycle: 105

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 32.6

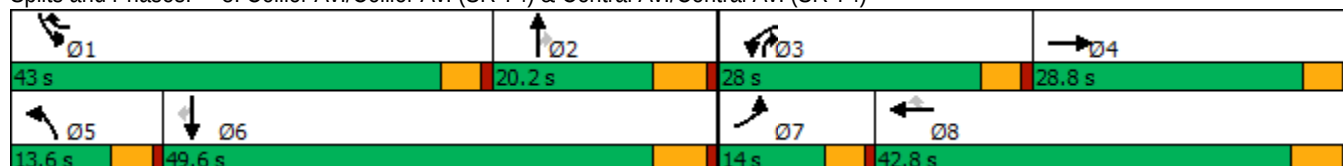
Intersection LOS: C

Intersection Capacity Utilization 71.6%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 8: Collier Av./Collier Av. (SR-74) & Central Av./Central Av. (SR-74)



HCM 6th Signalized Intersection Summary S. Nichols Mixed-Use Development (JN 10878)
 8: Collier Av./Collier Av. (SR-74) & Central Av./Central Av. (SR-74) 08/09/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	195	328	52	211	199	741	51	122	350	938	137	32
Future Volume (veh/h)	195	328	52	211	199	741	51	122	350	938	137	32
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	201	338	50	218	205	241	53	126	133	967	141	20
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	275	486	71	300	306	1313	73	405	476	1070	1726	759
Arrive On Green	0.08	0.16	0.16	0.09	0.16	0.16	0.04	0.22	0.22	0.31	0.49	0.49
Sat Flow, veh/h	3456	3109	456	3456	1870	2747	1781	1870	1561	3456	3554	1563
Grp Volume(v), veh/h	201	192	196	218	205	241	53	126	133	967	141	20
Grp Sat Flow(s),veh/h/ln	1728	1777	1788	1728	1870	1374	1781	1870	1561	1728	1777	1563
Q Serve(g_s), s	5.1	9.2	9.4	5.5	9.3	4.6	2.7	5.1	5.8	24.2	1.9	0.6
Cycle Q Clear(g_c), s	5.1	9.2	9.4	5.5	9.3	4.6	2.7	5.1	5.8	24.2	1.9	0.6
Prop In Lane	1.00		0.25	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	275	278	279	300	306	1313	73	405	476	1070	1726	759
V/C Ratio(X)	0.73	0.69	0.70	0.73	0.67	0.18	0.73	0.31	0.28	0.90	0.08	0.03
Avail Cap(c_a), veh/h	360	475	478	897	767	1990	178	405	476	1471	1726	759
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.6	36.0	36.1	40.1	35.4	13.7	42.8	29.7	23.9	29.9	12.4	12.1
Incr Delay (d2), s/veh	3.3	3.1	3.2	1.3	2.5	0.1	5.2	2.0	1.5	5.2	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	4.2	4.3	2.3	4.2	1.3	1.2	2.4	2.2	10.0	0.7	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.8	39.1	39.3	41.4	38.0	13.8	47.9	31.7	25.4	35.1	12.5	12.2
LnGrp LOS	D	D	D	D	D	B	D	C	C	D	B	B
Approach Vol, veh/h		589			664			312			1128	
Approach Delay, s/veh		40.8			30.3			31.7			31.8	
Approach LOS		D			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	32.5	25.4	12.4	19.9	8.3	49.6	11.8	20.6				
Change Period (Y+Rc), s	4.6	5.8	4.6	* 5.8	4.6	5.8	4.6	5.8				
Max Green Setting (Gmax), s	38.4	14.4	23.4	* 24	9.0	43.8	9.4	37.0				
Max Q Clear Time (g_c+I1), s	26.2	7.8	7.5	11.4	4.7	3.9	7.1	11.3				
Green Ext Time (p_c), s	1.7	0.5	0.3	1.8	0.0	0.9	0.1	2.0				
Intersection Summary												
HCM 6th Ctrl Delay			33.4									
HCM 6th LOS			C									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Intersection

Intersection Delay, s/veh14.1

Intersection LOS B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗	↖	↑						↕	
Traffic Vol, veh/h	0	249	279	26	353	0	0	0	0	81	2	137
Future Vol, veh/h	0	249	279	26	353	0	0	0	0	81	2	137
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	0	3	3	25	3	0	0	0	0	8	67	13
Mvmt Flow	0	265	297	28	376	0	0	0	0	86	2	146
Number of Lanes	0	1	1	1	1	0	0	0	0	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	2
HCM Control Delay	12.2	17.5	12.7
HCM LOS	B	C	B

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	100%	0%	37%
Vol Thru, %	100%	0%	0%	100%	1%
Vol Right, %	0%	100%	0%	0%	62%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	249	279	26	353	220
LT Vol	0	0	26	0	81
Through Vol	249	0	0	353	2
RT Vol	0	279	0	0	137
Lane Flow Rate	265	297	28	376	234
Geometry Grp	7	7	7	7	2
Degree of Util (X)	0.429	0.423	0.053	0.623	0.386
Departure Headway (Hd)	5.835	5.125	6.862	5.975	5.936
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	617	700	522	605	606
Service Time	3.573	2.863	4.604	3.717	3.979
HCM Lane V/C Ratio	0.429	0.424	0.054	0.621	0.386
HCM Control Delay	12.9	11.6	10	18.1	12.7
HCM Lane LOS	B	B	A	C	B
HCM 95th-tile Q	2.1	2.1	0.2	4.3	1.8

Intersection												
Int Delay, s/veh	14.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	146	184	0	0	117	41	262	1	31	0	0	0
Future Vol, veh/h	146	184	0	0	117	41	262	1	31	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	230	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	152	192	0	0	122	43	273	1	32	0	0	0

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	165	0	- - - 0 640 661 192
Stage 1	-	-	- - - 496 496 -
Stage 2	-	-	- - - 144 165 -
Critical Hdwy	4.15	-	- - - 6.44 6.5 6.26
Critical Hdwy Stg 1	-	-	- - - 5.44 5.5 -
Critical Hdwy Stg 2	-	-	- - - 5.44 5.5 -
Follow-up Hdwy	2.245	-	- - - 3.536 4 3.354
Pot Cap-1 Maneuver	1395	-	0 0 - - 436 385 839
Stage 1	-	-	0 0 - - 608 549 -
Stage 2	-	-	0 0 - - 878 766 -
Platoon blocked, %	-	-	- -
Mov Cap-1 Maneuver	1395	-	- - - 388 0 839
Mov Cap-2 Maneuver	-	-	- - - 388 0 -
Stage 1	-	-	- - - 542 0 -
Stage 2	-	-	- - - 878 0 -

Approach	EB	WB	NB
HCM Control Delay, s	3.5	0	35.3
HCM LOS	E		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR
Capacity (veh/h)	411	1395	-	-	-
HCM Lane V/C Ratio	0.745	0.109	-	-	-
HCM Control Delay (s)	35.3	7.9	-	-	-
HCM Lane LOS	E	A	-	-	-
HCM 95th %tile Q(veh)	6	0.4	-	-	-

Intersection	
Intersection Delay, s/veh	11.6
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	146	184	0	0	117	41	262	1	31	0	0	0
Future Vol, veh/h	146	184	0	0	117	41	262	1	31	0	0	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	152	192	0	0	122	43	273	1	32	0	0	0
Number of Lanes	1	1	0	0	1	0	0	1	0	0	0	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	11	10.2	13
HCM LOS	B	B	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1
Vol Left, %	89%	100%	0%	0%
Vol Thru, %	0%	0%	100%	74%
Vol Right, %	11%	0%	0%	26%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	294	146	184	158
LT Vol	262	146	0	0
Through Vol	1	0	184	117
RT Vol	31	0	0	41
Lane Flow Rate	306	152	192	165
Geometry Grp	2	7	7	5
Degree of Util (X)	0.461	0.262	0.303	0.248
Departure Headway (Hd)	5.423	6.201	5.695	5.422
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	668	581	632	663
Service Time	3.423	3.923	3.417	3.447
HCM Lane V/C Ratio	0.458	0.262	0.304	0.249
HCM Control Delay	13	11.1	10.9	10.2
HCM Lane LOS	B	B	B	B
HCM 95th-tile Q	2.4	1	1.3	1

Intersection

Int Delay, s/veh 1.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	12	18	131	25	50	156
Future Vol, veh/h	12	18	131	25	50	156
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	13	20	142	27	54	170

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	434	156	0
Stage 1	156	-	-
Stage 2	278	-	-
Critical Hdwy	6.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	-
Pot Cap-1 Maneuver	579	890	-
Stage 1	872	-	-
Stage 2	769	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	555	890	-
Mov Cap-2 Maneuver	555	-	-
Stage 1	835	-	-
Stage 2	769	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.3	0	1.9
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	717	1409
HCM Lane V/C Ratio	-	-	0.045	0.039
HCM Control Delay (s)	-	-	10.3	7.7
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.1	0.1

Intersection												
Int Delay, s/veh	1.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	15	0	30	5	0	1	14	140	4	6	152	10
Future Vol, veh/h	15	0	30	5	0	1	14	140	4	6	152	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	3
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	18	0	36	6	0	1	17	167	5	7	181	12
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	408	410	190	423	414	170	196	0	0	172	0	0
Stage 1	204	204	-	204	204	-	-	-	-	-	-	-
Stage 2	204	206	-	219	210	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	554	531	852	541	529	874	1377	-	-	1405	-	-
Stage 1	798	733	-	798	733	-	-	-	-	-	-	-
Stage 2	798	731	-	783	728	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	543	519	850	510	517	874	1373	-	-	1405	-	-
Mov Cap-2 Maneuver	543	519	-	510	517	-	-	-	-	-	-	-
Stage 1	784	726	-	787	723	-	-	-	-	-	-	-
Stage 2	786	721	-	746	721	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	10.4		11.7		0.7		0.3					
HCM LOS	B		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1373	-	-	715	548	1405	-	-				
HCM Lane V/C Ratio	0.012	-	-	0.075	0.013	0.005	-	-				
HCM Control Delay (s)	7.7	0	-	10.4	11.7	7.6	0	-				
HCM Lane LOS	A	A	-	B	B	A	A	-				
HCM 95th %tile O(veh)	0	-	-	0.2	0	0	-	-				

Timings
19: Dexter Av. & Central Av. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

08/09/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	352	1682	168	162	1157	70	124	135	70	95	328
Future Volume (vph)	352	1682	168	162	1157	70	124	135	70	95	328
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2	1	6	7
Permitted Phases			4			8					6
Detector Phase	7	4	4	3	8	8	5	2	1	6	7
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0	5.0
Minimum Split (s)	9.6	26.8	26.8	9.6	26.8	26.8	9.6	42.4	9.6	15.8	9.6
Total Split (s)	32.0	47.2	47.2	17.0	32.2	32.2	22.1	43.8	12.0	33.7	32.0
Total Split (%)	26.7%	39.3%	39.3%	14.2%	26.8%	26.8%	18.4%	36.5%	10.0%	28.1%	26.7%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	4.8	3.6	4.4	3.6	4.8	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	5.8	4.6	5.8	5.8	4.6	5.4	4.6	5.8	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	None	Max	None
Act Effect Green (s)	25.8	41.1	41.1	12.3	27.5	27.5	12.6	38.9	7.0	30.6	57.7
Actuated g/C Ratio	0.22	0.35	0.35	0.10	0.23	0.23	0.11	0.33	0.06	0.26	0.49
v/c Ratio	0.92	0.90	0.27	0.90	0.68	0.14	0.67	0.53	0.68	0.20	0.40
Control Delay	75.4	44.6	7.2	97.2	43.9	0.6	67.6	30.5	85.2	36.4	12.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	75.4	44.6	7.2	97.2	43.9	0.6	67.6	30.5	85.2	36.4	12.1
LOS	E	D	A	F	D	A	E	C	F	D	B
Approach Delay		46.7			48.0			41.1		27.1	
Approach LOS		D			D			D		C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 117.5

Natural Cycle: 100

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.92

Intersection Signal Delay: 44.4

Intersection LOS: D

Intersection Capacity Utilization 93.5%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 19: Dexter Av. & Central Av. (SR-74)

12 s	43.8 s	17 s	47.2 s
22.1 s	33.7 s	32 s	32.2 s

HCM 6th Signalized Intersection Summary
19: Dexter Av. & Central Av. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

08/09/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  							
Traffic Volume (veh/h)	352	1682	168	162	1157	70	124	135	175	70	95	328
Future Volume (veh/h)	352	1682	168	162	1157	70	124	135	175	70	95	328
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	359	1716	129	165	1181	47	127	138	119	71	97	272
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	385	1874	532	187	1745	364	154	298	257	91	540	794
Arrive On Green	0.22	0.34	0.34	0.10	0.23	0.23	0.09	0.32	0.32	0.05	0.29	0.29
Sat Flow, veh/h	1781	5443	1545	1781	7481	1560	1781	919	793	1781	1870	1565
Grp Volume(v), veh/h	359	1716	129	165	1181	47	127	0	257	71	97	272
Grp Sat Flow(s),veh/h/ln	1781	1814	1545	1781	1870	1560	1781	0	1712	1781	1870	1565
Q Serve(g_s), s	23.4	35.7	7.1	10.8	17.0	2.8	8.3	0.0	14.1	4.7	4.6	12.3
Cycle Q Clear(g_c), s	23.4	35.7	7.1	10.8	17.0	2.8	8.3	0.0	14.1	4.7	4.6	12.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.46	1.00		1.00
Lane Grp Cap(c), veh/h	385	1874	532	187	1745	364	154	0	555	91	540	794
V/C Ratio(X)	0.93	0.92	0.24	0.88	0.68	0.13	0.83	0.00	0.46	0.78	0.18	0.34
Avail Cap(c_a), veh/h	412	1903	540	187	1745	364	263	0	555	111	540	794
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.6	37.2	27.8	52.3	41.3	35.9	53.2	0.0	31.8	55.5	31.6	17.6
Incr Delay (d2), s/veh	26.5	7.4	0.2	34.8	1.1	0.2	4.2	0.0	2.8	19.9	0.7	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.8	16.3	2.6	6.5	7.7	1.1	3.8	0.0	6.1	2.5	2.1	4.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	72.1	44.5	28.0	87.1	42.4	36.0	57.4	0.0	34.6	75.4	32.3	18.7
LnGrp LOS	E	D	C	F	D	D	E	A	C	E	C	B
Approach Vol, veh/h		2204			1393			384			440	
Approach Delay, s/veh		48.1			47.5			42.1			30.9	
Approach LOS		D			D			D			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.6	44.2	17.0	46.6	14.8	40.0	30.2	33.4				
Change Period (Y+Rc), s	4.6	* 5.8	4.6	5.8	4.6	5.8	4.6	5.8				
Max Green Setting (Gmax), s	7.4	* 38	12.4	41.4	17.5	27.9	27.4	26.4				
Max Q Clear Time (g_c+I1), s	6.7	16.1	12.8	37.7	10.3	14.3	25.4	19.0				
Green Ext Time (p_c), s	0.0	1.4	0.0	3.0	0.1	1.2	0.1	4.2				
Intersection Summary												
HCM 6th Ctrl Delay			45.7									
HCM 6th LOS			D									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Timings

S. Nichols Mixed-Use Development (JN 10878)

20: Cambern Av./Cambern Av & Central Av. (SR-74)

08/09/2018



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT	SBR	Ø3
Lane Configurations	←←	→→	←←	→	←	→	→	→	→	
Traffic Volume (vph)	262	1806	1164	149	1	3	239	3	86	
Future Volume (vph)	262	1806	1164	149	1	3	239	3	86	
Turn Type	Prot	NA	NA	Perm	Perm	NA	Perm	NA	Perm	
Protected Phases	7	4	8			2		6		3
Permitted Phases				8	2		6		6	
Detector Phase	7	4	8	8	2	2	6	6	6	
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	5.0
Minimum Split (s)	9.6	24.8	25.5	25.5	34.7	34.7	14.7	14.7	14.7	9.6
Total Split (s)	19.8	74.0	63.8	63.8	36.4	36.4	36.4	36.4	36.4	9.6
Total Split (%)	16.5%	61.7%	53.2%	53.2%	30.3%	30.3%	30.3%	30.3%	30.3%	8%
Yellow Time (s)	3.6	4.8	5.5	5.5	3.7	3.7	3.7	3.7	3.7	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.6	5.8	6.5	6.5	4.7	4.7		4.7	4.7	
Lead/Lag	Lead	Lag	Lag	Lag						Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes						Yes
Recall Mode	Max	None	None	None	Max	Max	Max	Max	Max	None
Act Effect Green (s)	15.3	70.6	50.0	50.0	31.8	31.8		31.8	31.8	
Actuated g/C Ratio	0.14	0.63	0.44	0.44	0.28	0.28		0.28	0.28	
v/c Ratio	0.59	0.85	0.77	0.20	0.00	0.01		0.66	0.17	
Control Delay	52.7	21.5	30.4	3.4	32.0	29.2		46.8	4.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	52.7	21.5	30.4	3.4	32.0	29.2		46.8	4.0	
LOS	D	C	C	A	C	C		D	A	
Approach Delay		25.5	27.4			29.8		35.6		
Approach LOS		C	C			C		D		

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 112.9

Natural Cycle: 100

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.85

Intersection Signal Delay: 27.0

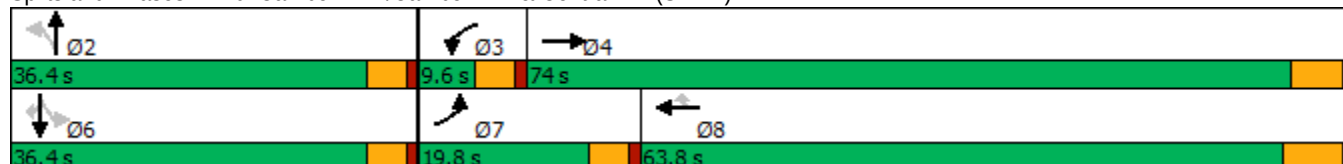
Intersection LOS: C

Intersection Capacity Utilization 86.8%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 20: Cambern Av./Cambern Av & Central Av. (SR-74)



HCM 6th Signalized Intersection Summary S. Nichols Mixed-Use Development (JN 10878)
 20: Cambern Av./Cambern Av & Central Av. (SR-74) 08/09/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	262	1806	1	0	1164	149	1	3	1	239	3	86
Future Volume (veh/h)	262	1806	1	0	1164	149	1	3	1	239	3	86
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	273	1881	1	0	1212	103	1	3	1	249	3	37
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	482	2211	1	2	1510	663	251	390	130	470	5	455
Arrive On Green	0.14	0.61	0.61	0.00	0.42	0.42	0.29	0.29	0.29	0.29	0.29	0.29
Sat Flow, veh/h	3456	3645	2	1781	3554	1561	1367	1342	447	1392	17	1565
Grp Volume(v), veh/h	273	917	965	0	1212	103	1	0	4	252	0	37
Grp Sat Flow(s),veh/h/ln	1728	1777	1870	1781	1777	1561	1367	0	1790	1409	0	1565
Q Serve(g_s), s	8.0	45.7	45.8	0.0	32.5	4.4	0.1	0.0	0.2	16.8	0.0	1.9
Cycle Q Clear(g_c), s	8.0	45.7	45.8	0.0	32.5	4.4	17.0	0.0	0.2	16.9	0.0	1.9
Prop In Lane	1.00		0.00	1.00		1.00	1.00		0.25	0.99		1.00
Lane Grp Cap(c), veh/h	482	1078	1134	2	1510	663	251	0	520	475	0	455
V/C Ratio(X)	0.57	0.85	0.85	0.00	0.80	0.16	0.00	0.00	0.01	0.53	0.00	0.08
Avail Cap(c_a), veh/h	482	1112	1170	82	1868	821	251	0	520	475	0	455
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	43.8	17.4	17.4	0.0	27.4	19.3	40.8	0.0	27.5	33.5	0.0	28.1
Incr Delay (d2), s/veh	4.8	6.6	6.3	0.0	2.4	0.2	0.0	0.0	0.0	4.2	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.7	17.8	18.6	0.0	12.8	1.5	0.0	0.0	0.1	6.3	0.0	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.6	24.0	23.7	0.0	29.8	19.5	40.8	0.0	27.5	37.7	0.0	28.4
LnGrp LOS	D	C	C	A	C	B	D	A	C	D	A	C
Approach Vol, veh/h	2155			1315			5			289		
Approach Delay, s/veh	27.0			29.0			30.2			36.5		
Approach LOS	C			C			C			D		
Timer - Assigned Phs	2			3			4			6		
Phs Duration (G+Y+Rc), s	36.4			0.0			72.6			36.4		
Change Period (Y+Rc), s	* 4.7			4.6			* 6.5			* 4.7		
Max Green Setting (Gmax), s	* 32			5.0			* 68			* 32		
Max Q Clear Time (g_c+I1), s	19.0			0.0			47.8			18.9		
Green Ext Time (p_c), s	0.0			0.0			16.5			1.2		
Intersection Summary												
HCM 6th Ctrl Delay			28.4									
HCM 6th LOS			C									
Notes												

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

APPENDIX 6.2:

EAP (2020) CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

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Timings
1: Lake St. & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

05/21/2018

									
Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBL	SBT	Ø5
Lane Configurations									
Traffic Volume (vph)	16	4	185	5	701	361	18	283	
Future Volume (vph)	16	4	185	5	701	361	18	283	
Turn Type	Perm	NA	Perm	NA	NA	Perm	Prot	NA	
Protected Phases		4		8	2		1	6	5
Permitted Phases	4		8			2			
Detector Phase	4	4	8	8	2	2	1	6	
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	5.0	10.0	5.0
Minimum Split (s)	14.6	14.6	16.2	16.2	16.2	16.2	9.6	16.2	9.6
Total Split (s)	42.2	42.2	42.2	42.2	42.2	42.2	35.6	42.2	35.6
Total Split (%)	35.2%	35.2%	35.2%	35.2%	35.2%	35.2%	29.7%	35.2%	30%
Yellow Time (s)	3.6	3.6	5.2	5.2	5.2	5.2	3.6	5.2	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		4.6		6.2	6.2	6.2	4.6	6.2	
Lead/Lag					Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	Max	Max	None	Max	None
Act Effect Green (s)		19.1		17.4	36.8	36.8	5.7	40.6	
Actuated g/C Ratio		0.27		0.25	0.52	0.52	0.08	0.57	
v/c Ratio		0.05		0.72	0.78	0.44	0.13	0.29	
Control Delay		20.2		36.5	24.5	10.5	37.0	9.4	
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay		20.2		36.5	24.5	10.5	37.0	9.4	
LOS		C		D	C	B	D	A	
Approach Delay		20.3		36.5	19.8			11.0	
Approach LOS		C		D	B			B	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 70.7

Natural Cycle: 75

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 20.5

Intersection LOS: C

Intersection Capacity Utilization 61.3%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 1: Lake St. & Nichols Rd.

 Ø1	 Ø2	 Ø4
35.6 s	42.2 s	42.2 s
 Ø5	 Ø6	 Ø8
35.6 s	42.2 s	42.2 s

HCM 6th Signalized Intersection Summary
1: Lake St. & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

05/21/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	4	0	185	5	40	0	701	361	18	283	4
Future Volume (veh/h)	16	4	0	185	5	40	0	701	361	18	283	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	17	4	0	199	5	31	0	754	0	19	304	4
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	342	71	0	342	6	38	3	991		39	1141	15
Arrive On Green	0.20	0.20	0.00	0.20	0.20	0.20	0.00	0.53	0.00	0.02	0.62	0.62
Sat Flow, veh/h	1245	358	0	1234	31	192	1781	1870	1585	1781	1842	24
Grp Volume(v), veh/h	21	0	0	235	0	0	0	754	0	19	0	308
Grp Sat Flow(s),veh/h/ln	1604	0	0	1457	0	0	1781	1870	1585	1781	0	1866
Q Serve(g_s), s	0.0	0.0	0.0	9.8	0.0	0.0	0.0	21.6	0.0	0.7	0.0	5.1
Cycle Q Clear(g_c), s	0.6	0.0	0.0	10.4	0.0	0.0	0.0	21.6	0.0	0.7	0.0	5.1
Prop In Lane	0.81		0.00	0.85		0.13	1.00		1.00	1.00		0.01
Lane Grp Cap(c), veh/h	413	0	0	386	0	0	3	991		39	0	1156
V/C Ratio(X)	0.05	0.00	0.00	0.61	0.00	0.00	0.00	0.76		0.48	0.00	0.27
Avail Cap(c_a), veh/h	927	0	0	864	0	0	812	991		812	0	1156
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.1	0.0	0.0	26.0	0.0	0.0	0.0	12.6	0.0	32.8	0.0	5.9
Incr Delay (d2), s/veh	0.1	0.0	0.0	1.5	0.0	0.0	0.0	5.5	0.0	3.3	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.0	3.3	0.0	0.0	0.0	7.9	0.0	0.3	0.0	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.2	0.0	0.0	27.5	0.0	0.0	0.0	18.1	0.0	36.2	0.0	6.5
LnGrp LOS	C	A	A	C	A	A	A	B		D	A	A
Approach Vol, veh/h		21			235			754	A		327	
Approach Delay, s/veh		22.2			27.5			18.1			8.2	
Approach LOS		C			C			B			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.1	42.2		19.7	0.0	48.3		19.7				
Change Period (Y+Rc), s	4.6	6.2		* 6.2	4.6	6.2		6.2				
Max Green Setting (Gmax), s	31.0	36.0		* 38	31.0	36.0		36.0				
Max Q Clear Time (g_c+I1), s	2.7	23.6		2.6	0.0	7.1		12.4				
Green Ext Time (p_c), s	0.0	5.1		0.1	0.0	2.4		1.1				
Intersection Summary												
HCM 6th Ctrl Delay				17.4								
HCM 6th LOS				B								
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.												

Timings
2: Lake St. & Alberhill Ranch Rd.

S. Nichols Mixed-Use Development (JN 10878)

05/21/2018

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	59	49	1054	50	19	432
Future Volume (vph)	59	49	1054	50	19	432
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2		
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	15.1	15.1	16.2	16.2	11.2	16.2
Total Split (s)	15.1	15.1	93.7	93.7	11.2	104.9
Total Split (%)	12.6%	12.6%	78.1%	78.1%	9.3%	87.4%
Yellow Time (s)	4.1	4.1	5.2	5.2	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	6.2	6.2	6.2	6.2
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	Max	Max	None	Max
Act Effect Green (s)	10.0	10.0	98.5	98.5	5.0	103.0
Actuated g/C Ratio	0.08	0.08	0.82	0.82	0.04	0.86
v/c Ratio	0.43	0.29	0.73	0.04	0.27	0.29
Control Delay	61.9	18.4	11.5	1.5	65.3	2.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.9	18.4	11.5	1.5	65.3	2.7
LOS	E	B	B	A	E	A
Approach Delay	42.2		11.1			5.3
Approach LOS	D		B			A

Intersection Summary

Cycle Length: 120	
Actuated Cycle Length: 120	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.73	
Intersection Signal Delay: 11.5	Intersection LOS: B
Intersection Capacity Utilization 73.2%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 2: Lake St. & Alberhill Ranch Rd.



HCM 6th Signalized Intersection Summary
2: Lake St. & Alberhill Ranch Rd.

S. Nichols Mixed-Use Development (JN 10878)

05/21/2018

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	59	49	1054	50	19	432
Future Volume (veh/h)	59	49	1054	50	19	432
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	63	28	1121	44	20	460
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	142	126	1410	1192	36	1545
Arrive On Green	0.08	0.08	0.75	0.75	0.02	0.83
Sat Flow, veh/h	1781	1585	1870	1582	1781	1870
Grp Volume(v), veh/h	63	28	1121	44	20	460
Grp Sat Flow(s),veh/h/ln	1781	1585	1870	1582	1781	1870
Q Serve(g_s), s	4.0	2.0	44.0	0.8	1.3	6.8
Cycle Q Clear(g_c), s	4.0	2.0	44.0	0.8	1.3	6.8
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	142	126	1410	1192	36	1545
V/C Ratio(X)	0.44	0.22	0.80	0.04	0.55	0.30
Avail Cap(c_a), veh/h	149	133	1410	1192	75	1545
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.5	51.5	9.0	3.7	58.0	2.4
Incr Delay (d2), s/veh	0.8	0.3	4.7	0.1	4.8	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.8	14.1	0.2	0.6	1.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	53.3	51.9	13.8	3.8	62.8	2.9
LnGrp LOS	D	D	B	A	E	A
Approach Vol, veh/h	91		1165			480
Approach Delay, s/veh	52.8		13.4			5.4
Approach LOS	D		B			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	8.6	96.3			104.9	14.6
Change Period (Y+Rc), s	6.2	6.2			6.2	5.1
Max Green Setting (Gmax), s	5.0	87.5			98.7	10.0
Max Q Clear Time (g_c+I1), s	3.3	46.0			8.8	6.0
Green Ext Time (p_c), s	0.0	11.6			2.7	0.0
Intersection Summary						
HCM 6th Ctrl Delay			13.2			
HCM 6th LOS			B			

Intersection

Intersection Delay, s/veh 11.8

Intersection LOS B

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	374	17	36	189	40	72
Future Vol, veh/h	374	17	36	189	40	72
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	425	19	41	215	45	82
Number of Lanes	1	0	0	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	1
HCM Control Delay	13.3	10.4	9.3
HCM LOS	B	B	A

Lane	NBLn1	NBLn2	EBLn1	WBLn1
Vol Left, %	100%	0%	0%	16%
Vol Thru, %	0%	0%	96%	84%
Vol Right, %	0%	100%	4%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	40	72	391	225
LT Vol	40	0	0	36
Through Vol	0	0	374	189
RT Vol	0	72	17	0
Lane Flow Rate	45	82	444	256
Geometry Grp	7	7	2	2
Degree of Util (X)	0.083	0.122	0.562	0.342
Departure Headway (Hd)	6.603	5.387	4.557	4.81
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	539	659	791	744
Service Time	4.384	3.167	2.602	2.864
HCM Lane V/C Ratio	0.083	0.124	0.561	0.344
HCM Control Delay	10	8.9	13.3	10.4
HCM Lane LOS	A	A	B	B
HCM 95th-tile Q	0.3	0.4	3.6	1.5

Timings
4: Lakeshore Dr. & Riverside Dr. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

05/21/2018

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	20	461	147	135	551	351	277	305	207	178	9
Future Volume (vph)	20	461	147	135	551	351	277	305	207	178	9
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2	1	6	
Permitted Phases			4			8					6
Detector Phase	7	4	4	3	8	8	5	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	32.4	32.4	9.6	33.4	33.4	9.6	34.7	9.6	32.7	32.7
Total Split (s)	9.6	35.0	35.0	22.6	48.0	48.0	28.0	38.4	24.0	34.4	34.4
Total Split (%)	8.0%	29.2%	29.2%	18.8%	40.0%	40.0%	23.3%	32.0%	20.0%	28.7%	28.7%
Yellow Time (s)	3.6	4.4	4.4	3.6	4.4	4.4	3.6	3.7	3.6	3.7	3.7
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.4	5.4	4.6	5.4	5.4	4.6	4.7	4.6	4.7	4.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	None	Max	Max
Act Effect Green (s)	5.0	27.7	27.7	13.6	40.5	40.5	22.0	34.6	17.4	30.0	30.0
Actuated g/C Ratio	0.04	0.25	0.25	0.12	0.36	0.36	0.20	0.31	0.15	0.27	0.27
v/c Ratio	0.28	0.60	0.33	0.71	0.93	0.51	0.90	0.44	0.85	0.21	0.02
Control Delay	64.7	41.2	7.3	67.2	56.7	8.4	74.9	31.3	75.3	34.9	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.7	41.2	7.3	67.2	56.7	8.4	74.9	31.3	75.3	34.9	0.1
LOS	E	D	A	E	E	A	E	C	E	C	A
Approach Delay		34.0			41.8			48.7		55.4	
Approach LOS		C			D			D		E	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 112.7

Natural Cycle: 100

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.93

Intersection Signal Delay: 43.7

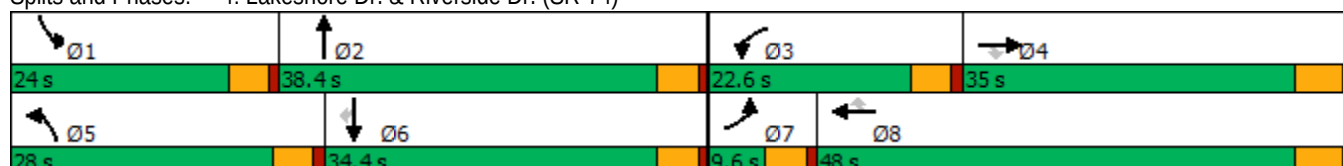
Intersection LOS: D

Intersection Capacity Utilization 85.7%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 4: Lakeshore Dr. & Riverside Dr. (SR-74)



HCM 6th Signalized Intersection Summary
4: Lakeshore Dr. & Riverside Dr. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

05/21/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 						 			 	
Traffic Volume (veh/h)	20	461	147	135	551	351	277	305	113	207	178	9
Future Volume (veh/h)	20	461	147	135	551	351	277	305	113	207	178	9
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	22	518	102	152	619	15	311	343	62	233	200	7
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	39	970	432	181	659	558	339	924	165	262	938	418
Arrive On Green	0.02	0.27	0.27	0.10	0.35	0.35	0.19	0.31	0.31	0.15	0.26	0.26
Sat Flow, veh/h	1781	3554	1582	1781	1870	1584	1781	3010	538	1781	3554	1585
Grp Volume(v), veh/h	22	518	102	152	619	15	311	201	204	233	200	7
Grp Sat Flow(s),veh/h/ln	1781	1777	1582	1781	1870	1584	1781	1777	1772	1781	1777	1585
Q Serve(g_s), s	1.4	14.0	5.6	9.4	36.1	0.7	19.3	9.9	10.2	14.4	4.9	0.4
Cycle Q Clear(g_c), s	1.4	14.0	5.6	9.4	36.1	0.7	19.3	9.9	10.2	14.4	4.9	0.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.30	1.00		1.00
Lane Grp Cap(c), veh/h	39	970	432	181	659	558	339	546	544	262	938	418
V/C Ratio(X)	0.56	0.53	0.24	0.84	0.94	0.03	0.92	0.37	0.38	0.89	0.21	0.02
Avail Cap(c_a), veh/h	79	970	432	285	708	599	370	546	544	307	938	418
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.5	34.8	31.8	49.7	35.3	23.8	44.7	30.5	30.5	47.1	32.3	30.6
Incr Delay (d2), s/veh	4.5	0.6	0.3	6.8	19.7	0.0	25.0	1.9	2.0	21.6	0.5	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	6.0	2.1	4.5	19.2	0.3	10.8	4.5	4.6	7.9	2.2	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.0	35.4	32.1	56.4	55.0	23.8	69.7	32.4	32.5	68.7	32.8	30.7
LnGrp LOS	E	D	C	E	D	C	E	C	C	E	C	C
Approach Vol, veh/h		642			786			716			440	
Approach Delay, s/veh		35.7			54.7			48.6			51.8	
Approach LOS		D			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	21.1	39.3	16.0	36.1	26.0	34.4	7.1	45.1				
Change Period (Y+Rc), s	4.6	* 4.7	4.6	5.4	4.6	* 4.7	4.6	5.4				
Max Green Setting (Gmax), s	19.4	* 34	18.0	29.6	23.4	* 30	5.0	42.6				
Max Q Clear Time (g_c+I1), s	16.4	12.2	11.4	16.0	21.3	6.9	3.4	38.1				
Green Ext Time (p_c), s	0.1	2.4	0.1	3.0	0.1	1.2	0.0	1.6				
Intersection Summary												
HCM 6th Ctrl Delay			47.8									
HCM 6th LOS			D									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Intersection

Int Delay, s/veh 3.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕	↕		↕	↕
Traffic Vol, veh/h	0	861	3	2	647	36	0	2	11	48	3	5
Future Vol, veh/h	0	861	3	2	647	36	0	2	11	48	3	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Stop	-	-	Stop
Storage Length	-	-	-	-	-	-	-	-	75	-	-	75
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	888	3	2	667	37	0	2	11	49	3	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	704	0	0	891	0	0	1581	1598	890	1581	1581	686
Stage 1	-	-	-	-	-	-	890	890	-	690	690	-
Stage 2	-	-	-	-	-	-	691	708	-	891	891	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	894	-	-	761	-	-	88	106	342	88	109	447
Stage 1	-	-	-	-	-	-	337	361	-	435	446	-
Stage 2	-	-	-	-	-	-	435	438	-	337	361	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	894	-	-	761	-	-	85	106	342	84	109	447
Mov Cap-2 Maneuver	-	-	-	-	-	-	85	106	-	84	109	-
Stage 1	-	-	-	-	-	-	337	361	-	435	444	-
Stage 2	-	-	-	-	-	-	425	436	-	324	361	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	19.5	92.2
HCM LOS			C	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	106	342	894	-	-	761	-	-	85	447
HCM Lane V/C Ratio	0.019	0.033	-	-	-	0.003	-	-	0.619	0.012
HCM Control Delay (s)	39.6	15.9	0	-	-	9.7	0	-	99.9	13.1
HCM Lane LOS	E	C	A	-	-	A	A	-	F	B
HCM 95th %tile Q(veh)	0.1	0.1	0	-	-	0	-	-	2.9	0

Intersection												
Int Delay, s/veh	3.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	861	3	2	647	36	0	2	11	48	3	5
Future Vol, veh/h	0	861	3	2	647	36	0	2	11	48	3	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Stop	-	-	Stop
Storage Length	100	-	-	100	-	-	-	-	75	-	-	75
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	888	3	2	667	37	0	2	11	49	3	5
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	704	0	0	891	0	0	1581	1598	890	1581	1581	686
Stage 1	-	-	-	-	-	-	890	890	-	690	690	-
Stage 2	-	-	-	-	-	-	691	708	-	891	891	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	894	-	-	761	-	-	88	106	342	88	109	447
Stage 1	-	-	-	-	-	-	337	361	-	435	446	-
Stage 2	-	-	-	-	-	-	435	438	-	337	361	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	894	-	-	761	-	-	85	106	342	84	109	447
Mov Cap-2 Maneuver	-	-	-	-	-	-	85	106	-	84	109	-
Stage 1	-	-	-	-	-	-	337	361	-	435	445	-
Stage 2	-	-	-	-	-	-	426	437	-	324	361	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0			19.5			92.2		
HCM LOS							C			F		
Minor Lane/Major Mvmt	NBLn1 NBLn2		EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2		
Capacity (veh/h)	106	342	894	-	-	761	-	-	85	447		
HCM Lane V/C Ratio	0.019	0.033	-	-	-	0.003	-	-	0.619	0.012		
HCM Control Delay (s)	39.6	15.9	0	-	-	9.7	-	-	99.9	13.1		
HCM Lane LOS	E	C	A	-	-	A	-	-	F	B		
HCM 95th %tile Q(veh)	0.1	0.1	0	-	-	0	-	-	2.9	0		

Intersection

Int Delay, s/veh 3.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	419	33	100	192	38	96
Future Vol, veh/h	419	33	100	192	38	96
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	120	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	482	38	115	221	44	110

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	520
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.12
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.218
Pot Cap-1 Maneuver	-	-	1046
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1046
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	3	15.4
HCM LOS			C

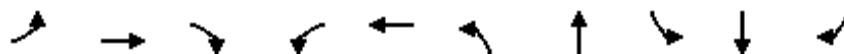
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	256	570	-	-	1046	-
HCM Lane V/C Ratio	0.171	0.194	-	-	0.11	-
HCM Control Delay (s)	21.9	12.8	-	-	8.9	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	0.6	0.7	-	-	0.4	-

Timings

S. Nichols Mixed-Use Development (JN 10878)

7: Collier Av. (SR-74)/Collier Av. & Riverside Dr. (SR-74)/Riverside Dr.

05/21/2018



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations		↰	↰		↰	↰	↰	↰	↰	↰
Traffic Volume (vph)	78	10	832	5	1	636	75	1	56	49
Future Volume (vph)	78	10	832	5	1	636	75	1	56	49
Turn Type	Perm	NA	pm+ov	Perm	NA	Split	NA	Split	NA	Perm
Protected Phases		4	2		8	2	2	6	6	
Permitted Phases	4		4	8						6
Detector Phase	4	4	2	8	8	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	15.4	15.4	15.8	14.6	14.6	15.8	15.8	16.2	16.2	16.2
Total Split (s)	23.0	23.0	79.0	23.0	23.0	79.0	79.0	18.0	18.0	18.0
Total Split (%)	19.2%	19.2%	65.8%	19.2%	19.2%	65.8%	65.8%	15.0%	15.0%	15.0%
Yellow Time (s)	4.4	4.4	4.8	3.6	3.6	4.8	4.8	5.2	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.4	5.8		4.6	5.8	5.8	6.2	6.2	6.2
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	None	None	Max	None	None	Max	Max	Max	Max	Max
Act Effect Green (s)		13.3	91.9		14.1	73.2	73.2	11.8	11.8	11.8
Actuated g/C Ratio		0.11	0.79		0.12	0.63	0.63	0.10	0.10	0.10
v/c Ratio		0.58	0.64		0.04	0.60	0.08	0.01	0.31	0.23
Control Delay		63.7	4.1		39.4	15.8	7.9	49.0	54.0	7.7
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		63.7	4.1		39.4	15.8	7.9	49.0	54.0	7.7
LOS		E	A		D	B	A	D	D	A
Approach Delay		9.8			39.4		14.9		32.4	
Approach LOS		A			D		B		C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 115.7

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.64

Intersection Signal Delay: 13.4

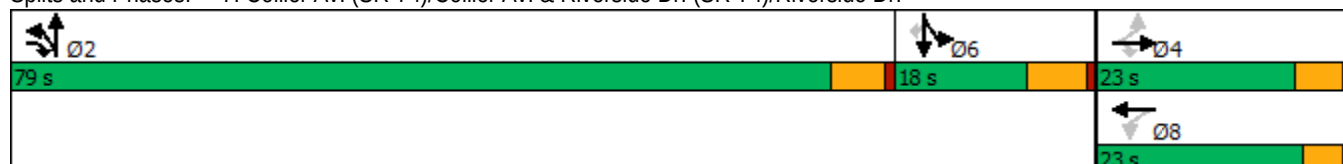
Intersection LOS: B

Intersection Capacity Utilization 82.0%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 7: Collier Av. (SR-74)/Collier Av. & Riverside Dr. (SR-74)/Riverside Dr.



												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	78	10	832	5	1	2	636	75	10	1	56	49
Future Volume (veh/h)	78	10	832	5	1	2	636	75	10	1	56	49
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	82	11	810	5	1	0	669	79	10	1	59	12
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	251	30	1199	115	18	0	1087	993	126	175	184	156
Arrive On Green	0.15	0.15	0.15	0.15	0.15	0.00	0.61	0.61	0.61	0.10	0.10	0.10
Sat Flow, veh/h	1329	207	1585	411	125	0	1781	1627	206	1781	1870	1585
Grp Volume(v), veh/h	93	0	810	6	0	0	669	0	89	1	59	12
Grp Sat Flow(s),veh/h/ln	1536	0	1585	535	0	0	1781	0	1833	1781	1870	1585
Q Serve(g_s), s	0.0	0.0	17.6	0.0	0.0	0.0	28.1	0.0	2.4	0.1	3.5	0.8
Cycle Q Clear(g_c), s	6.0	0.0	17.6	6.0	0.0	0.0	28.1	0.0	2.4	0.1	3.5	0.8
Prop In Lane	0.88		1.00	0.83		0.00	1.00		0.11	1.00		1.00
Lane Grp Cap(c), veh/h	282	0	1199	134	0	0	1087	0	1118	175	184	156
V/C Ratio(X)	0.33	0.00	0.68	0.04	0.00	0.00	0.62	0.00	0.08	0.01	0.32	0.08
Avail Cap(c_a), veh/h	282	0	1199	138	0	0	1087	0	1118	175	184	156
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.2	0.0	5.7	44.0	0.0	0.0	14.6	0.0	9.6	48.8	50.4	49.2
Incr Delay (d2), s/veh	0.7	0.0	1.5	0.1	0.0	0.0	2.6	0.0	0.1	0.1	4.6	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	0.0	24.8	0.2	0.0	0.0	10.9	0.0	0.9	0.0	1.8	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.9	0.0	7.2	44.1	0.0	0.0	17.2	0.0	9.7	48.9	54.9	50.1
LnGrp LOS	D	A	A	D	A	A	B	A	A	D	D	D
Approach Vol, veh/h		903			6			758			72	
Approach Delay, s/veh		11.3			44.1			16.3			54.0	
Approach LOS		B			D			B			D	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		79.0		23.0		18.0		23.0				
Change Period (Y+Rc), s		5.8		5.4		6.2		* 5.4				
Max Green Setting (Gmax), s		73.2		17.6		11.8		* 18				
Max Q Clear Time (g_c+I1), s		30.1		19.6		5.5		8.0				
Green Ext Time (p_c), s		2.8		0.0		0.1		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			15.4									
HCM 6th LOS			B									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Timings

S. Nichols Mixed-Use Development (JN 10878)

8: Collier Av./Collier Av. (SR-74) & Central Av./Central Av. (SR-74)

05/21/2018

											
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 		 		 			 	 		
Traffic Volume (vph)	34	91	519	286	615	30	55	285	788	60	12
Future Volume (vph)	34	91	519	286	615	30	55	285	788	60	12
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	7	4	3	8	1	5	2	3	1	6	
Permitted Phases					8			2			6
Detector Phase	7	4	3	8	1	5	2	3	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	5.0	10.0	5.0	5.0	10.0	10.0
Minimum Split (s)	9.6	14.7	9.6	42.8	9.6	9.6	15.8	9.6	9.6	29.8	29.8
Total Split (s)	10.0	21.0	34.0	45.0	46.0	12.0	19.0	34.0	46.0	53.0	53.0
Total Split (%)	8.3%	17.5%	28.3%	37.5%	38.3%	10.0%	15.8%	28.3%	38.3%	44.2%	44.2%
Yellow Time (s)	3.6	3.7	3.6	4.8	3.6	3.6	4.8	3.6	3.6	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.7	4.6	5.8	4.6	4.6	5.8	4.6	4.6	5.8	5.8
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	None	None	Max	Max
Act Effect Green (s)	5.3	10.8	20.6	29.4	60.2	6.3	20.0	41.8	29.6	47.8	47.8
Actuated g/C Ratio	0.05	0.11	0.20	0.29	0.60	0.06	0.20	0.41	0.29	0.47	0.47
v/c Ratio	0.20	0.33	0.79	0.56	0.34	0.29	0.16	0.41	0.83	0.04	0.02
Control Delay	53.0	36.1	47.5	36.8	1.0	56.4	40.7	11.1	41.7	18.0	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.0	36.1	47.5	36.8	1.0	56.4	40.7	11.1	41.7	18.0	0.0
LOS	D	D	D	D	A	E	D	B	D	B	A
Approach Delay		39.8		25.2			19.2			39.4	
Approach LOS		D		C			B			D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 101

Natural Cycle: 95

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 29.6

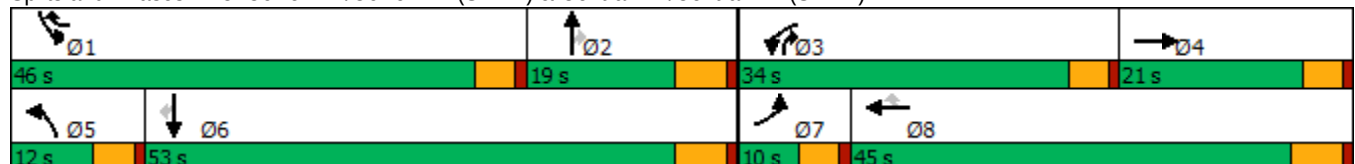
Intersection LOS: C

Intersection Capacity Utilization 64.9%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 8: Collier Av./Collier Av. (SR-74) & Central Av./Central Av. (SR-74)



HCM 6th Signalized Intersection Summary S. Nichols Mixed-Use Development (JN 10878)
 8: Collier Av./Collier Av. (SR-74) & Central Av./Central Av. (SR-74) 05/21/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	34	91	30	519	286	615	30	55	285	788	60	12
Future Volume (veh/h)	34	91	30	519	286	615	30	55	285	788	60	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	36	97	23	552	304	259	32	59	139	838	64	10
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	110	288	66	636	474	1442	53	441	660	931	1691	743
Arrive On Green	0.03	0.10	0.10	0.18	0.25	0.25	0.03	0.24	0.24	0.27	0.48	0.48
Sat Flow, veh/h	3456	2861	656	3456	1870	2724	1781	1870	1563	3456	3554	1562
Grp Volume(v), veh/h	36	59	61	552	304	259	32	59	139	838	64	10
Grp Sat Flow(s),veh/h/ln	1728	1777	1739	1728	1870	1362	1781	1870	1563	1728	1777	1562
Q Serve(g_s), s	1.0	3.1	3.2	15.4	14.4	5.0	1.8	2.5	5.6	23.2	1.0	0.3
Cycle Q Clear(g_c), s	1.0	3.1	3.2	15.4	14.4	5.0	1.8	2.5	5.6	23.2	1.0	0.3
Prop In Lane	1.00		0.38	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	110	179	175	636	474	1442	53	441	660	931	1691	743
V/C Ratio(X)	0.33	0.33	0.35	0.87	0.64	0.18	0.61	0.13	0.21	0.90	0.04	0.01
Avail Cap(c_a), veh/h	188	292	286	1024	739	1829	133	441	660	1442	1691	743
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.0	41.5	41.6	39.3	33.0	12.5	47.6	29.9	18.3	34.9	13.9	13.7
Incr Delay (d2), s/veh	0.6	1.1	1.2	2.7	1.5	0.1	4.2	0.6	0.7	3.7	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	1.4	1.4	6.5	6.4	1.4	0.8	1.1	2.0	9.6	0.4	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.6	42.5	42.7	42.0	34.5	12.5	51.7	30.5	19.0	38.6	13.9	13.7
LnGrp LOS	D	D	D	D	C	B	D	C	B	D	B	B
Approach Vol, veh/h		156			1115			230			912	
Approach Delay, s/veh		43.8			33.1			26.5			36.6	
Approach LOS		D			C			C			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	31.3	29.2	22.9	15.8	7.5	53.0	7.7	30.9				
Change Period (Y+Rc), s	4.6	5.8	4.6	* 5.8	4.6	5.8	4.6	5.8				
Max Green Setting (Gmax), s	41.4	13.2	29.4	* 16	7.4	47.2	5.4	39.2				
Max Q Clear Time (g_c+I1), s	25.2	7.6	17.4	5.2	3.8	3.0	3.0	16.4				
Green Ext Time (p_c), s	1.5	0.3	0.9	0.4	0.0	0.4	0.0	2.6				
Intersection Summary												
HCM 6th Ctrl Delay			34.5									
HCM 6th LOS			C									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Intersection

Intersection Delay, s/veh 16.8

Intersection LOS C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗	↖	↑						↕	
Traffic Vol, veh/h	0	239	278	64	229	0	0	0	0	173	6	65
Future Vol, veh/h	0	239	278	64	229	0	0	0	0	173	6	65
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles, %	0	3	3	25	3	0	0	0	0	8	67	13
Mvmt Flow	0	319	371	85	305	0	0	0	0	231	8	87
Number of Lanes	0	1	1	1	1	0	0	0	0	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	2
HCM Control Delay	16.4	16.4	18
HCM LOS	C	C	C

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	100%	0%	71%
Vol Thru, %	100%	0%	0%	100%	2%
Vol Right, %	0%	100%	0%	0%	27%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	239	278	64	229	244
LT Vol	0	0	64	0	173
Through Vol	239	0	0	229	6
RT Vol	0	278	0	0	65
Lane Flow Rate	319	371	85	305	325
Geometry Grp	7	7	7	7	2
Degree of Util (X)	0.56	0.578	0.178	0.562	0.58
Departure Headway (Hd)	6.323	5.609	7.515	6.622	6.421
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	567	641	475	543	560
Service Time	4.088	3.374	5.288	4.394	4.48
HCM Lane V/C Ratio	0.563	0.579	0.179	0.562	0.58
HCM Control Delay	16.9	15.9	11.9	17.6	18
HCM Lane LOS	C	C	B	C	C
HCM 95th-tile Q	3.4	3.7	0.6	3.4	3.7

Intersection												
Int Delay, s/veh	79.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	77	335	0	0	146	99	146	3	114	0	0	0
Future Vol, veh/h	77	335	0	0	146	99	146	3	114	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	230	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	62	62	62	62	62	62	62	62	62	62	62	62
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	124	540	0	0	235	160	235	5	184	0	0	0
Major/Minor	Major1		Major2				Minor1					
Conflicting Flow All	395	0	-	-	-	0	1103	1183	540			
Stage 1	-	-	-	-	-	-	788	788	-			
Stage 2	-	-	-	-	-	-	315	395	-			
Critical Hdwy	4.15	-	-	-	-	-	6.44	6.5	6.26			
Critical Hdwy Stg 1	-	-	-	-	-	-	5.44	5.5	-			
Critical Hdwy Stg 2	-	-	-	-	-	-	5.44	5.5	-			
Follow-up Hdwy	2.245	-	-	-	-	-	3.536	4	3.354			
Pot Cap-1 Maneuver	1147	-	0	0	-	-	~ 232	191	534			
Stage 1	-	-	0	0	-	-	445	405	-			
Stage 2	-	-	0	0	-	-	735	608	-			
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	1147	-	-	-	-	-	~ 207	0	534			
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 207	0	-			
Stage 1	-	-	-	-	-	-	397	0	-			
Stage 2	-	-	-	-	-	-	735	0	-			
Approach	EB		WB				NB					
HCM Control Delay, s	1.6		0				275.5					
HCM LOS	F											
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR							
Capacity (veh/h)	283	1147	-	-	-							
HCM Lane V/C Ratio	1.499	0.108	-	-	-							
HCM Control Delay (s)	275.5	8.5	-	-	-							
HCM Lane LOS	F	A	-	-	-							
HCM 95th %tile Q(veh)	24.2	0.4	-	-	-							
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s			+: Computation Not Defined				*: All major volume in platoon			

Intersection	
Intersection Delay, s/veh	43.6
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	77	335	0	0	146	99	146	3	114	0	0	0
Future Vol, veh/h	77	335	0	0	146	99	146	3	114	0	0	0
Peak Hour Factor	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	124	540	0	0	235	160	235	5	184	0	0	0
Number of Lanes	1	1	0	0	1	0	0	1	0	0	0	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	63.9	24.9	29.2
HCM LOS	F	C	D

Lane	NBLn1	EBLn1	EBLn2	WBLn1
Vol Left, %	56%	100%	0%	0%
Vol Thru, %	1%	0%	100%	60%
Vol Right, %	43%	0%	0%	40%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	263	77	335	245
LT Vol	146	77	0	0
Through Vol	3	0	335	146
RT Vol	114	0	0	99
Lane Flow Rate	424	124	540	395
Geometry Grp	2	7	7	5
Degree of Util (X)	0.776	0.256	1.038	0.718
Departure Headway (Hd)	6.718	7.431	6.919	6.687
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	543	487	530	545
Service Time	4.718	5.131	4.619	4.687
HCM Lane V/C Ratio	0.781	0.255	1.019	0.725
HCM Control Delay	29.2	12.7	75.7	24.9
HCM Lane LOS	D	B	F	C
HCM 95th-tile Q	7.1	1	15.5	5.8

Intersection						
Int Delay, s/veh	2.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	227	222	0	122	123	0
Future Vol, veh/h	227	222	0	122	123	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	200	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	247	241	0	133	134	0
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	488	0	501	368
Stage 1	-	-	-	-	368	-
Stage 2	-	-	-	-	133	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1075	-	530	677
Stage 1	-	-	-	-	700	-
Stage 2	-	-	-	-	893	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1075	-	530	677
Mov Cap-2 Maneuver	-	-	-	-	530	-
Stage 1	-	-	-	-	700	-
Stage 2	-	-	-	-	893	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		14.1	
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	530	-	-	1075	-	
HCM Lane V/C Ratio	0.252	-	-	-	-	
HCM Control Delay (s)	14.1	-	-	0	-	
HCM Lane LOS	B	-	-	A	-	
HCM 95th %tile O(veh)	1	-	-	0	-	

Intersection

Int Delay, s/veh 0.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	6	216	107	1	3	16
Future Vol, veh/h	6	216	107	1	3	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	235	116	1	3	17

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	117	0	0 366 117
Stage 1	-	-	- 117 -
Stage 2	-	-	- 249 -
Critical Hdwy	4.12	-	- 6.42 6.22
Critical Hdwy Stg 1	-	-	- 5.42 -
Critical Hdwy Stg 2	-	-	- 5.42 -
Follow-up Hdwy	2.218	-	- 3.518 3.318
Pot Cap-1 Maneuver	1471	-	- 634 935
Stage 1	-	-	- 908 -
Stage 2	-	-	- 792 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1471	-	- 631 935
Mov Cap-2 Maneuver	-	-	- 631 -
Stage 1	-	-	- 903 -
Stage 2	-	-	- 792 -

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	9.2
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1471	-	-	-	869
HCM Lane V/C Ratio	0.004	-	-	-	0.024
HCM Control Delay (s)	7.5	0	-	-	9.2
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection						
Int Delay, s/veh	5.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	219	108	107	232	0
Future Vol, veh/h	0	219	108	107	232	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	238	117	116	252	0
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	602	252	252	0	-	0
Stage 1	252	-	-	-	-	-
Stage 2	350	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	463	787	1313	-	-	-
Stage 1	790	-	-	-	-	-
Stage 2	713	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	419	787	1313	-	-	-
Mov Cap-2 Maneuver	419	-	-	-	-	-
Stage 1	715	-	-	-	-	-
Stage 2	713	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	11.5	4		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1313	-	787	-	-	
HCM Lane V/C Ratio	0.089	-	0.302	-	-	
HCM Control Delay (s)	8	0	11.5	-	-	
HCM Lane LOS	A	A	B	-	-	
HCM 95th %tile Q(veh)	0.3	-	1.3	-	-	

Intersection						
Int Delay, s/veh	31.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	173	24	191	68	19	433
Future Vol, veh/h	173	24	191	68	19	433
Conflicting Peds, #/hr	0	1	0	3	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	66	66	66	66	66	66
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	262	36	289	103	29	656
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	1058	345	0	0	395	0
Stage 1	344	-	-	-	-	-
Stage 2	714	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	~ 249	698	-	-	1164	-
Stage 1	718	-	-	-	-	-
Stage 2	485	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 239	695	-	-	1161	-
Mov Cap-2 Maneuver	~ 239	-	-	-	-	-
Stage 1	688	-	-	-	-	-
Stage 2	485	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	143	0		0.3		
HCM LOS	F					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	-	260	1161	-	
HCM Lane V/C Ratio	-	-	1.148	0.025	-	
HCM Control Delay (s)	-	-	143	8.2	0	
HCM Lane LOS	-	-	F	A	A	
HCM 95th %tile Q(veh)	-	-	13.3	0.1	-	
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

Intersection						
Int Delay, s/veh	5.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	173	24	191	68	19	433
Future Vol, veh/h	173	24	191	68	19	433
Conflicting Peds, #/hr	0	1	0	3	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	188	26	208	74	21	471
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	761	249	0	0	285	0
Stage 1	248	-	-	-	-	-
Stage 2	513	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	373	790	-	-	1277	-
Stage 1	793	-	-	-	-	-
Stage 2	601	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	364	787	-	-	1273	-
Mov Cap-2 Maneuver	364	-	-	-	-	-
Stage 1	773	-	-	-	-	-
Stage 2	601	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	24.9	0	0.3			
HCM LOS	C					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	390	1273	-	
HCM Lane V/C Ratio	-	-	0.549	0.016	-	
HCM Control Delay (s)	-	-	24.9	7.9	0	
HCM Lane LOS	-	-	C	A	A	
HCM 95th %tile Q(veh)	-	-	3.2	0	-	

Intersection												
Int Delay, s/veh	358.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	134	0	274	6	0	16	173	109	6	8	360	237
Future Vol, veh/h	134	0	274	6	0	16	173	109	6	8	360	237
Conflicting Peds, #/hr	0	0	0	0	0	21	0	0	14	0	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	69	69	69	69	69	69	69	69	69	69	69	69
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	194	0	397	9	0	23	251	158	9	12	522	343
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1416	1402	695	1595	1569	198	866	0	0	181	0	0
Stage 1	719	719	-	679	679	-	-	-	-	-	-	-
Stage 2	697	683	-	916	890	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	~ 115	140	442	86	111	843	777	-	-	1394	-	-
Stage 1	420	433	-	441	451	-	-	-	-	-	-	-
Stage 2	431	449	-	326	361	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	~ 78	87	442	~ 6	69	815	776	-	-	1375	-	-
Mov Cap-2 Maneuver	~ 78	87	-	~ 6	69	-	-	-	-	-	-	-
Stage 1	270	425	-	280	286	-	-	-	-	-	-	-
Stage 2	264	285	-	33	354	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, \$	1124.5		\$ 611.7		7.1		0.1					
HCM LOS	F		F									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	776	-	-	175	22	1375	-	-				
HCM Lane V/C Ratio	0.323	-	-	3.379	1.449	0.008	-	-				
HCM Control Delay (s)	11.8	0		\$ 1124.5	\$ 611.7	7.6	0	-				
HCM Lane LOS	B	A	-	F	F	A	A	-				
HCM 95th %tile Q(veh)	1.4	-	-	56	4.1	0	-	-				
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon						

Intersection												
Int Delay, s/veh	80											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	134	0	274	6	0	16	173	109	6	8	360	237
Future Vol, veh/h	134	0	274	6	0	16	173	109	6	8	360	237
Conflicting Peds, #/hr	0	0	0	0	0	21	0	0	14	0	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	146	0	298	7	0	17	188	118	7	9	391	258
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1066	1054	521	1199	1180	157	650	0	0	139	0	0
Stage 1	539	539	-	512	512	-	-	-	-	-	-	-
Stage 2	527	515	-	687	668	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	200	226	555	162	190	889	936	-	-	1445	-	-
Stage 1	527	522	-	545	536	-	-	-	-	-	-	-
Stage 2	535	535	-	437	456	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	159	173	554	61	145	860	935	-	-	1426	-	-
Mov Cap-2 Maneuver	159	173	-	61	145	-	-	-	-	-	-	-
Stage 1	413	516	-	422	415	-	-	-	-	-	-	-
Stage 2	403	414	-	200	451	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	253.7		26.9		5.9		0.1					
HCM LOS	F		D									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	935	-	-	305	188	1426	-	-				
HCM Lane V/C Ratio	0.201	-	-	1.454	0.127	0.006	-	-				
HCM Control Delay (s)	9.8	0	-	253.7	26.9	7.5	0	-				
HCM Lane LOS	A	A	-	F	D	A	A	-				
HCM 95th %tile O(veh)	0.7	-	-	24.2	0.4	0	-	-				

Timings
19: Dexter Av. & Central Av. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

05/21/2018

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	236	922	129	126	1428	194	103	261	72	147	387
Future Volume (vph)	236	922	129	126	1428	194	103	261	72	147	387
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2	1	6	7
Permitted Phases			4			8					6
Detector Phase	7	4	4	3	8	8	5	2	1	6	7
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0	5.0
Minimum Split (s)	9.6	26.8	26.8	9.6	26.8	26.8	9.6	42.4	9.6	15.8	9.6
Total Split (s)	26.0	42.4	42.4	21.1	37.5	37.5	19.5	43.5	13.0	37.0	26.0
Total Split (%)	21.7%	35.3%	35.3%	17.6%	31.3%	31.3%	16.3%	36.3%	10.8%	30.8%	21.7%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	4.8	3.6	4.4	3.6	4.8	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	5.8	4.6	5.8	5.8	4.6	5.4	4.6	5.8	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	None	Max	None
Act Effect Green (s)	19.4	38.3	38.3	12.9	31.8	31.8	11.4	39.3	7.8	33.0	58.3
Actuated g/C Ratio	0.17	0.33	0.33	0.11	0.27	0.27	0.10	0.34	0.07	0.28	0.50
v/c Ratio	0.88	0.61	0.23	0.70	0.90	0.37	0.65	0.63	0.67	0.31	0.50
Control Delay	77.0	35.3	5.1	69.7	49.2	6.9	68.9	38.2	81.3	36.0	16.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	77.0	35.3	5.1	69.7	49.2	6.9	68.9	38.2	81.3	36.0	16.7
LOS	E	D	A	E	D	A	E	D	F	D	B
Approach Delay		39.9			46.0			45.1		29.1	
Approach LOS		D			D			D		C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 116.5

Natural Cycle: 100

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 41.5

Intersection LOS: D

Intersection Capacity Utilization 85.8%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 19: Dexter Av. & Central Av. (SR-74)

			
Ø1	Ø2	Ø3	Ø4
13 s	43.5 s	21.1 s	42.4 s
			
Ø5	Ø6	Ø7	Ø8
19.5 s	37 s	26 s	37.5 s

HCM 6th Signalized Intersection Summary
19: Dexter Av. & Central Av. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

05/21/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  							
Traffic Volume (veh/h)	236	922	129	126	1428	194	103	261	91	72	147	387
Future Volume (veh/h)	236	922	129	126	1428	194	103	261	91	72	147	387
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	259	1013	99	138	1569	171	113	287	59	79	162	369
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	287	1732	538	166	1744	424	139	498	102	100	578	745
Arrive On Green	0.16	0.34	0.34	0.09	0.27	0.27	0.08	0.33	0.33	0.06	0.31	0.31
Sat Flow, veh/h	1781	5106	1585	1781	6434	1565	1781	1505	309	1781	1870	1585
Grp Volume(v), veh/h	259	1013	99	138	1569	171	113	0	346	79	162	369
Grp Sat Flow(s),veh/h/ln	1781	1702	1585	1781	1609	1565	1781	0	1814	1781	1870	1585
Q Serve(g_s), s	16.4	18.8	5.1	8.8	27.1	10.3	7.2	0.0	18.2	5.0	7.5	18.5
Cycle Q Clear(g_c), s	16.4	18.8	5.1	8.8	27.1	10.3	7.2	0.0	18.2	5.0	7.5	18.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.17	1.00		1.00
Lane Grp Cap(c), veh/h	287	1732	538	166	1744	424	139	0	600	100	578	745
V/C Ratio(X)	0.90	0.59	0.18	0.83	0.90	0.40	0.81	0.00	0.58	0.79	0.28	0.50
Avail Cap(c_a), veh/h	331	1732	538	255	1771	431	230	0	600	130	578	745
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.4	31.4	26.8	51.3	40.5	34.3	52.2	0.0	31.9	53.6	30.1	21.1
Incr Delay (d2), s/veh	22.9	0.5	0.2	7.6	6.6	0.6	4.3	0.0	4.0	15.9	1.2	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.9	7.5	1.9	4.2	11.0	3.9	3.3	0.0	8.4	2.6	3.5	6.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	70.3	31.9	27.0	58.9	47.1	35.0	56.5	0.0	35.8	69.5	31.3	23.4
LnGrp LOS	E	C	C	E	D	C	E	A	D	E	C	C
Approach Vol, veh/h		1371			1878			459			610	
Approach Delay, s/veh		38.8			46.8			40.9			31.5	
Approach LOS		D			D			D			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.1	43.9	15.3	44.8	13.6	41.4	23.1	37.0				
Change Period (Y+Rc), s	4.6	* 5.8	4.6	5.8	4.6	5.8	4.6	5.8				
Max Green Setting (Gmax), s	8.4	* 38	16.5	36.6	14.9	31.2	21.4	31.7				
Max Q Clear Time (g_c+I1), s	7.0	20.2	10.8	20.8	9.2	20.5	18.4	29.1				
Green Ext Time (p_c), s	0.0	1.8	0.1	6.2	0.1	1.6	0.1	2.1				
Intersection Summary												
HCM 6th Ctrl Delay			41.5									
HCM 6th LOS			D									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Timings

S. Nichols Mixed-Use Development (JN 10878)

20: Cambern Av./Cambern Av & Central Av. (SR-74)

05/21/2018

										
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	128	1065	1	1670	115	3	2	131	4	89
Future Volume (vph)	128	1065	1	1670	115	3	2	131	4	89
Turn Type	Prot	NA	Prot	NA	Perm	Perm	NA	Perm	NA	Perm
Protected Phases	7	4	3	8			2		6	
Permitted Phases					8	2		6		6
Detector Phase	7	4	3	8	8	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	24.8	9.6	25.5	25.5	34.7	34.7	14.7	14.7	14.7
Total Split (s)	12.0	75.4	9.6	73.0	73.0	35.0	35.0	35.0	35.0	35.0
Total Split (%)	10.0%	62.8%	8.0%	60.8%	60.8%	29.2%	29.2%	29.2%	29.2%	29.2%
Yellow Time (s)	3.6	4.8	3.6	5.5	5.5	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.6	5.8	4.6	6.5	6.5	4.7	4.7		4.7	4.7
Lead/Lag	Lead	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	Max	None	None	None	None	Max	Max	Max	Max	Max
Act Effect Green (s)	7.4	77.1	5.0	66.3	66.3	30.3	30.3		30.3	30.3
Actuated g/C Ratio	0.06	0.64	0.04	0.55	0.55	0.25	0.25		0.25	0.25
v/c Ratio	0.67	0.51	0.01	0.94	0.14	0.01	0.01		0.43	0.21
Control Delay	70.9	12.8	56.0	35.4	2.5	34.0	30.0		42.3	10.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay	70.9	12.8	56.0	35.4	2.5	34.0	30.0		42.3	10.4
LOS	E	B	E	D	A	C	C		D	B
Approach Delay		19.1		33.3			32.0		29.6	
Approach LOS		B		C			C		C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 119.8

Natural Cycle: 100

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.94

Intersection Signal Delay: 27.7

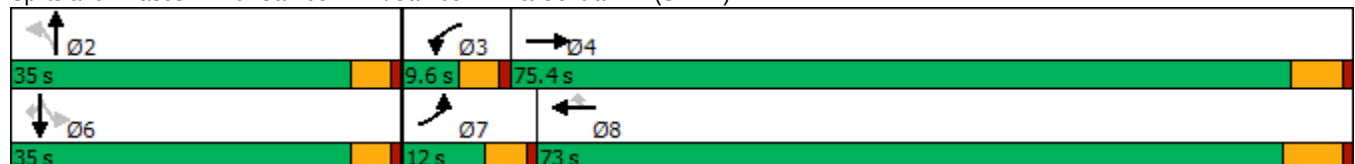
Intersection LOS: C

Intersection Capacity Utilization 92.7%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 20: Cambern Av./Cambern Av & Central Av. (SR-74)



HCM 6th Signalized Intersection Summary S. Nichols Mixed-Use Development (JN 10878)
 20: Cambern Av./Cambern Av & Central Av. (SR-74) 05/21/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	128	1065	1	1	1670	115	3	2	1	131	4	89
Future Volume (veh/h)	128	1065	1	1	1670	115	3	2	1	131	4	89
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	141	1170	1	1	1835	84	3	2	0	144	4	54
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	215	2229	2	2	1958	862	285	476	0	410	10	403
Arrive On Green	0.06	0.61	0.61	0.00	0.55	0.55	0.25	0.25	0.00	0.25	0.25	0.25
Sat Flow, veh/h	3456	3644	3	1781	3554	1564	1344	1870	0	1378	40	1583
Grp Volume(v), veh/h	141	571	600	1	1835	84	3	2	0	148	0	54
Grp Sat Flow(s),veh/h/ln	1728	1777	1870	1781	1777	1564	1344	1870	0	1419	0	1583
Q Serve(g_s), s	4.8	21.9	21.9	0.1	57.1	3.0	0.2	0.1	0.0	10.3	0.0	3.1
Cycle Q Clear(g_c), s	4.8	21.9	21.9	0.1	57.1	3.0	10.6	0.1	0.0	10.4	0.0	3.1
Prop In Lane	1.00		0.00	1.00		1.00	1.00		0.00	0.97		1.00
Lane Grp Cap(c), veh/h	215	1087	1144	2	1958	862	285	476	0	420	0	403
V/C Ratio(X)	0.66	0.52	0.52	0.41	0.94	0.10	0.01	0.00	0.00	0.35	0.00	0.13
Avail Cap(c_a), veh/h	215	1087	1144	75	1983	873	285	476	0	420	0	403
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	54.6	13.2	13.2	59.5	24.8	12.7	41.4	33.2	0.0	37.0	0.0	34.3
Incr Delay (d2), s/veh	14.7	0.6	0.6	36.4	9.2	0.1	0.1	0.0	0.0	2.3	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	8.0	8.4	0.1	23.1	1.0	0.1	0.0	0.0	3.9	0.0	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	69.3	13.9	13.8	95.9	34.1	12.8	41.5	33.2	0.0	39.3	0.0	35.0
LnGrp LOS	E	B	B	F	C	B	D	C	A	D	A	C
Approach Vol, veh/h	1312			1920			5			202		
Approach Delay, s/veh	19.8			33.2			38.2			38.2		
Approach LOS	B			C			D			D		
Timer - Assigned Phs	2		3	4		6	7	8				
Phs Duration (G+Y+Rc), s	35.0		4.8	79.4		35.0	12.0	72.2				
Change Period (Y+Rc), s	* 4.7		4.6	* 6.5		* 4.7	4.6	6.5				
Max Green Setting (Gmax), s	* 30		5.0	* 70		* 30	7.4	66.5				
Max Q Clear Time (g_c+I1), s	12.6		2.1	23.9		12.4	6.8	59.1				
Green Ext Time (p_c), s	0.0		0.0	14.0		0.9	0.0	6.5				
Intersection Summary												
HCM 6th Ctrl Delay			28.4									
HCM 6th LOS			C									
Notes												

Timings
1: Lake St. & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

05/21/2018

									
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	1	6	237	0	1	377	172	30	879
Future Volume (vph)	1	6	237	0	1	377	172	30	879
Turn Type	Perm	NA	Perm	NA	Prot	NA	Perm	Prot	NA
Protected Phases		4		8	5	2		1	6
Permitted Phases	4		8				2		
Detector Phase	4	4	8	8	5	2	2	1	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	14.6	14.6	16.2	16.2	9.6	16.2	16.2	9.6	16.2
Total Split (s)	42.2	42.2	42.2	42.2	35.6	42.2	42.2	35.6	42.2
Total Split (%)	35.2%	35.2%	35.2%	35.2%	29.7%	35.2%	35.2%	29.7%	35.2%
Yellow Time (s)	3.6	3.6	5.2	5.2	3.6	5.2	5.2	3.6	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.6		6.2	4.6	6.2	6.2	4.6	6.2
Lead/Lag					Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	None	Max
Act Effect Green (s)		18.9		17.2	5.1	36.9	36.9	6.2	41.6
Actuated g/C Ratio		0.26		0.24	0.07	0.50	0.50	0.08	0.57
v/c Ratio		0.02		0.75	0.01	0.44	0.22	0.22	0.91
Control Delay		19.9		33.0	38.0	16.4	6.7	38.9	31.4
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		19.9		33.0	38.0	16.4	6.7	38.9	31.4
LOS		B		C	D	B	A	D	C
Approach Delay		19.9		33.0		13.4			31.6
Approach LOS		B		C		B			C

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 73.1

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.91

Intersection Signal Delay: 26.0

Intersection LOS: C

Intersection Capacity Utilization 77.6%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 1: Lake St. & Nichols Rd.



HCM 6th Signalized Intersection Summary
1: Lake St. & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

05/21/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	6	1	237	0	19	1	377	172	30	879	1
Future Volume (veh/h)	1	6	1	237	0	19	1	377	172	30	879	1
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1	7	1	260	0	13	1	414	0	33	966	1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	74	352	46	407	0	15	2	938		60	997	1
Arrive On Green	0.23	0.23	0.23	0.23	0.00	0.23	0.00	0.50	0.00	0.03	0.53	0.53
Sat Flow, veh/h	80	1543	203	1353	0	68	1781	1870	1585	1781	1868	2
Grp Volume(v), veh/h	9	0	0	273	0	0	1	414	0	33	0	967
Grp Sat Flow(s),veh/h/ln	1826	0	0	1421	0	0	1781	1870	1585	1781	0	1870
Q Serve(g_s), s	0.0	0.0	0.0	12.9	0.0	0.0	0.0	10.2	0.0	1.3	0.0	35.9
Cycle Q Clear(g_c), s	0.3	0.0	0.0	13.2	0.0	0.0	0.0	10.2	0.0	1.3	0.0	35.9
Prop In Lane	0.11		0.11	0.95		0.05	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	473	0	0	422	0	0	2	938		60	0	998
V/C Ratio(X)	0.02	0.00	0.00	0.65	0.00	0.00	0.40	0.44		0.55	0.00	0.97
Avail Cap(c_a), veh/h	995	0	0	809	0	0	769	938		769	0	998
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.5	0.0	0.0	26.4	0.0	0.0	35.8	11.5	0.0	34.2	0.0	16.2
Incr Delay (d2), s/veh	0.0	0.0	0.0	1.7	0.0	0.0	34.8	1.5	0.0	2.9	0.0	22.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.0	4.1	0.0	0.0	0.0	3.7	0.0	0.6	0.0	17.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.5	0.0	0.0	28.1	0.0	0.0	70.6	13.0	0.0	37.1	0.0	38.1
LnGrp LOS	C	A	A	C	A	A	E	B		D	A	D
Approach Vol, veh/h		9			273			415	A		1000	
Approach Delay, s/veh		21.5			28.1			13.1			38.1	
Approach LOS		C			C			B			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.0	42.2		22.6	4.7	44.5		22.6				
Change Period (Y+Rc), s	4.6	6.2		* 6.2	4.6	6.2		6.2				
Max Green Setting (Gmax), s	31.0	36.0		* 38	31.0	36.0		36.0				
Max Q Clear Time (g_c+I1), s	3.3	12.2		2.3	2.0	37.9		15.2				
Green Ext Time (p_c), s	0.0	3.2		0.0	0.0	0.0		1.3				
Intersection Summary												
HCM 6th Ctrl Delay				30.3								
HCM 6th LOS				C								
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.												

Timings
2: Lake St. & Alberhill Ranch Rd.

S. Nichols Mixed-Use Development (JN 10878)

05/21/2018

	←	↖	↑	↗	↘	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↖	↖	↑	↗	↘	↑
Traffic Volume (vph)	36	20	501	31	24	1054
Future Volume (vph)	36	20	501	31	24	1054
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2		
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	15.1	15.1	16.2	16.2	11.2	16.2
Total Split (s)	16.0	16.0	91.0	91.0	13.0	104.0
Total Split (%)	13.3%	13.3%	75.8%	75.8%	10.8%	86.7%
Yellow Time (s)	4.1	4.1	5.2	5.2	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	6.2	6.2	6.2	6.2
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	Max	Max	None	Max
Act Effect Green (s)	10.0	10.0	94.4	94.4	5.9	102.1
Actuated g/C Ratio	0.08	0.08	0.79	0.79	0.05	0.86
v/c Ratio	0.25	0.13	0.35	0.03	0.27	0.67
Control Delay	55.7	22.2	6.0	1.7	62.0	6.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.7	22.2	6.0	1.7	62.0	6.6
LOS	E	C	A	A	E	A
Approach Delay	43.9		5.8			7.8
Approach LOS	D		A			A

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 119.1

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.67

Intersection Signal Delay: 8.4

Intersection LOS: A

Intersection Capacity Utilization 73.2%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 2: Lake St. & Alberhill Ranch Rd.



HCM 6th Signalized Intersection Summary
2: Lake St. & Alberhill Ranch Rd.

S. Nichols Mixed-Use Development (JN 10878)

05/21/2018

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	36	20	501	31	24	1054
Future Volume (veh/h)	36	20	501	31	24	1054
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		0.98	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	37	7	511	29	24	1076
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	116	103	1425	1183	41	1567
Arrive On Green	0.07	0.07	0.76	0.76	0.02	0.84
Sat Flow, veh/h	1781	1585	1870	1553	1781	1870
Grp Volume(v), veh/h	37	7	511	29	24	1076
Grp Sat Flow(s),veh/h/ln	1781	1585	1870	1553	1781	1870
Q Serve(g_s), s	2.3	0.5	10.5	0.5	1.6	25.6
Cycle Q Clear(g_c), s	2.3	0.5	10.5	0.5	1.6	25.6
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	116	103	1425	1183	41	1567
V/C Ratio(X)	0.32	0.07	0.36	0.02	0.58	0.69
Avail Cap(c_a), veh/h	166	148	1425	1183	104	1567
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.1	51.2	4.6	3.4	56.4	3.6
Incr Delay (d2), s/veh	0.6	0.1	0.7	0.0	4.7	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.2	3.1	0.1	0.7	4.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	52.7	51.3	5.3	3.4	61.2	6.1
LnGrp LOS	D	D	A	A	E	A
Approach Vol, veh/h	44		540			1100
Approach Delay, s/veh	52.4		5.2			7.3
Approach LOS	D		A			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	8.9	95.1			104.0	12.7
Change Period (Y+Rc), s	6.2	6.2			6.2	5.1
Max Green Setting (Gmax), s	6.8	84.8			97.8	10.9
Max Q Clear Time (g_c+I1), s	3.6	12.5			27.6	4.3
Green Ext Time (p_c), s	0.0	3.2			11.1	0.0
Intersection Summary						
HCM 6th Ctrl Delay			7.8			
HCM 6th LOS			A			

Intersection

Intersection Delay, s/veh 9.9

Intersection LOS A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	192	19	77	248	9	63
Future Vol, veh/h	192	19	77	248	9	63
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	204	20	82	264	10	67
Number of Lanes	1	0	0	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	1
HCM Control Delay	9.2	10.7	8.5
HCM LOS	A	B	A

Lane	NBLn1	NBLn2	EBLn1	WBLn1
Vol Left, %	100%	0%	0%	24%
Vol Thru, %	0%	0%	91%	76%
Vol Right, %	0%	100%	9%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	9	63	211	325
LT Vol	9	0	0	77
Through Vol	0	0	192	248
RT Vol	0	63	19	0
Lane Flow Rate	10	67	224	346
Geometry Grp	7	7	2	2
Degree of Util (X)	0.017	0.095	0.277	0.424
Departure Headway (Hd)	6.297	5.084	4.444	4.418
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	568	704	808	816
Service Time	4.035	2.822	2.469	2.441
HCM Lane V/C Ratio	0.018	0.095	0.277	0.424
HCM Control Delay	9.1	8.4	9.2	10.7
HCM Lane LOS	A	A	A	B
HCM 95th-tile Q	0.1	0.3	1.1	2.1

Timings
4: Lakeshore Dr. & Riverside Dr. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

05/21/2018

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	30	497	274	122	618	310	202	261	276	320	16
Future Volume (vph)	30	497	274	122	618	310	202	261	276	320	16
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2	1	6	
Permitted Phases			4			8					6
Detector Phase	7	4	4	3	8	8	5	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	32.4	32.4	9.6	33.4	33.4	9.6	34.7	9.6	32.7	32.7
Total Split (s)	9.6	38.3	38.3	20.3	49.0	49.0	27.6	35.4	26.0	33.8	33.8
Total Split (%)	8.0%	31.9%	31.9%	16.9%	40.8%	40.8%	23.0%	29.5%	21.7%	28.2%	28.2%
Yellow Time (s)	3.6	4.4	4.4	3.6	4.4	4.4	3.6	3.7	3.6	3.7	3.7
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.4	5.4	4.6	5.4	5.4	4.6	4.7	4.6	4.7	4.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	None	Max	Max
Act Effect Green (s)	5.0	30.4	30.4	12.0	41.6	41.6	17.3	31.0	20.4	34.1	34.1
Actuated g/C Ratio	0.04	0.27	0.27	0.11	0.37	0.37	0.15	0.27	0.18	0.30	0.30
v/c Ratio	0.40	0.54	0.45	0.67	0.93	0.43	0.77	0.44	0.90	0.31	0.03
Control Delay	70.7	38.1	6.3	67.7	56.9	8.1	65.8	28.0	76.9	34.0	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	70.7	38.1	6.3	67.7	56.9	8.1	65.8	28.0	76.9	34.0	0.1
LOS	E	D	A	E	E	A	E	C	E	C	A
Approach Delay		28.4			43.7			40.2		52.5	
Approach LOS		C			D			D		D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 113.2

Natural Cycle: 110

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.93

Intersection Signal Delay: 40.8

Intersection LOS: D

Intersection Capacity Utilization 93.1%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 4: Lakeshore Dr. & Riverside Dr. (SR-74)

			
Ø1	Ø2	Ø3	Ø4
26 s	35.4 s	20.3 s	38.3 s
			
Ø5	Ø6	Ø7	Ø8
27.6 s	33.8 s	9.6 s	49 s

HCM 6th Signalized Intersection Summary 4: Lakeshore Dr. & Riverside Dr. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

05/21/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	497	274	122	618	310	202	261	163	276	320	16
Future Volume (veh/h)	30	497	274	122	618	310	202	261	163	276	320	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	31	512	162	126	637	166	208	269	64	285	330	12
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	49	1076	480	153	676	565	238	765	179	312	1100	484
Arrive On Green	0.03	0.30	0.30	0.09	0.36	0.36	0.13	0.27	0.27	0.18	0.31	0.31
Sat Flow, veh/h	1781	3554	1585	1781	1870	1564	1781	2857	668	1781	3554	1565
Grp Volume(v), veh/h	31	512	162	126	637	166	208	165	168	285	330	12
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1870	1564	1781	1777	1748	1781	1777	1565
Q Serve(g_s), s	2.0	13.5	9.1	8.0	37.8	8.7	13.1	8.6	8.9	18.0	8.1	0.6
Cycle Q Clear(g_c), s	2.0	13.5	9.1	8.0	37.8	8.7	13.1	8.6	8.9	18.0	8.1	0.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.38	1.00		1.00
Lane Grp Cap(c), veh/h	49	1076	480	153	676	565	238	476	468	312	1100	484
V/C Ratio(X)	0.64	0.48	0.34	0.82	0.94	0.29	0.88	0.35	0.36	0.91	0.30	0.02
Avail Cap(c_a), veh/h	78	1076	480	244	711	595	357	476	468	332	1100	484
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.2	32.6	31.0	51.5	35.5	26.2	48.8	33.9	34.0	46.4	30.1	27.6
Incr Delay (d2), s/veh	5.0	0.3	0.4	5.6	20.4	0.3	10.4	2.0	2.1	26.6	0.7	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	5.7	3.5	3.7	20.3	3.2	6.5	4.0	4.1	10.2	3.6	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.2	32.9	31.5	57.2	55.8	26.4	59.1	35.9	36.1	73.1	30.8	27.6
LnGrp LOS	E	C	C	E	E	C	E	D	D	E	C	C
Approach Vol, veh/h		705			929			541			627	
Approach Delay, s/veh		33.8			50.8			44.9			50.0	
Approach LOS		C			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	24.7	35.4	14.5	40.1	19.9	40.2	7.7	46.9				
Change Period (Y+Rc), s	4.6	* 4.7	4.6	5.4	4.6	* 4.7	4.6	5.4				
Max Green Setting (Gmax), s	21.4	* 31	15.7	32.9	23.0	* 29	5.0	43.6				
Max Q Clear Time (g_c+I1), s	20.0	10.9	10.0	15.5	15.1	10.1	4.0	39.8				
Green Ext Time (p_c), s	0.1	1.9	0.1	3.5	0.2	2.0	0.0	1.6				
Intersection Summary												
HCM 6th Ctrl Delay			45.2									
HCM 6th LOS			D									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Intersection												
Int Delay, s/veh	2.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕	↕		↕	↕
Traffic Vol, veh/h	2	869	4	6	891	120	0	0	6	29	1	2
Future Vol, veh/h	2	869	4	6	891	120	0	0	6	29	1	2
Conflicting Peds, #/hr	0	0	0	0	0	1	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Stop	-	-	Stop
Storage Length	-	-	-	-	-	-	-	-	75	-	-	75
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	896	4	6	919	124	0	0	6	30	1	2
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1044	0	0	900	0	0	1896	1958	898	1896	1898	982
Stage 1	-	-	-	-	-	-	902	902	-	994	994	-
Stage 2	-	-	-	-	-	-	994	1056	-	902	904	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	666	-	-	755	-	-	53	64	338	53	69	302
Stage 1	-	-	-	-	-	-	332	356	-	295	323	-
Stage 2	-	-	-	-	-	-	295	302	-	332	356	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	665	-	-	755	-	-	51	62	338	51	67	302
Mov Cap-2 Maneuver	-	-	-	-	-	-	51	62	-	51	67	-
Stage 1	-	-	-	-	-	-	330	354	-	293	316	-
Stage 2	-	-	-	-	-	-	286	296	-	324	354	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.1			15.8			143.3		
HCM LOS							C			F		
Minor Lane/Major Mvmt	NBLn1		NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2	
Capacity (veh/h)	-		338	665	-	-	755	-	-	51	302	
HCM Lane V/C Ratio	-		0.018	0.003	-	-	0.008	-	-	0.606	0.007	
HCM Control Delay (s)	0		15.8	10.4	0	-	9.8	0	-	151.7	17	
HCM Lane LOS	A		C	B	A	-	A	A	-	F	C	
HCM 95th %tile Q(veh)	-		0.1	0	-	-	0	-	-	2.4	0	

Intersection												
Int Delay, s/veh	2.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	869	4	6	891	120	0	0	6	29	1	2
Future Vol, veh/h	2	869	4	6	891	120	0	0	6	29	1	2
Conflicting Peds, #/hr	0	0	0	0	0	1	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Stop	-	-	Stop
Storage Length	100	-	-	100	-	-	-	-	75	-	-	75
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	896	4	6	919	124	0	0	6	30	1	2
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1044	0	0	900	0	0	1896	1958	898	1896	1898	982
Stage 1	-	-	-	-	-	-	902	902	-	994	994	-
Stage 2	-	-	-	-	-	-	994	1056	-	902	904	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	666	-	-	755	-	-	53	64	338	53	69	302
Stage 1	-	-	-	-	-	-	332	356	-	295	323	-
Stage 2	-	-	-	-	-	-	295	302	-	332	356	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	665	-	-	755	-	-	52	63	338	52	68	302
Mov Cap-2 Maneuver	-	-	-	-	-	-	52	63	-	52	68	-
Stage 1	-	-	-	-	-	-	331	355	-	294	320	-
Stage 2	-	-	-	-	-	-	290	299	-	325	355	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.1			15.8			138.8		
HCM LOS							C			F		
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2		
Capacity (veh/h)	-	338	665	-	-	755	-	-	52	302		
HCM Lane V/C Ratio	-	0.018	0.003	-	-	0.008	-	-	0.595	0.007		
HCM Control Delay (s)	0	15.8	10.4	-	-	9.8	-	-	146.9	17		
HCM Lane LOS	A	C	B	-	-	A	-	-	F	C		
HCM 95th %tile Q(veh)	-	0.1	0	-	-	0	-	-	2.3	0		

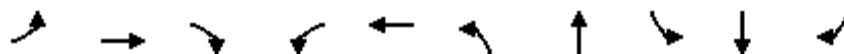
Intersection						
Int Delay, s/veh	7.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	197	56	233	260	81	268
Future Vol, veh/h	197	56	233	260	81	268
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	120	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	210	60	248	277	86	285
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	270	0	1013	240
Stage 1	-	-	-	-	240	-
Stage 2	-	-	-	-	773	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1293	-	265	799
Stage 1	-	-	-	-	800	-
Stage 2	-	-	-	-	455	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1293	-	214	799
Mov Cap-2 Maneuver	-	-	-	-	214	-
Stage 1	-	-	-	-	646	-
Stage 2	-	-	-	-	455	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		4		16.8	
HCM LOS	C					
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	214	799	-	-	1293	-
HCM Lane V/C Ratio	0.403	0.357	-	-	0.192	-
HCM Control Delay (s)	32.7	12	-	-	8.4	-
HCM Lane LOS	D	B	-	-	A	-
HCM 95th %tile O(veh)	1.8	1.6	-	-	0.7	-

Timings

S. Nichols Mixed-Use Development (JN 10878)

7: Collier Av. (SR-74)/Collier Av. & Riverside Dr. (SR-74)/Riverside Dr.

05/21/2018



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations		↔	↔		↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	105	11	788	21	18	902	233	3	186	97
Future Volume (vph)	105	11	788	21	18	902	233	3	186	97
Turn Type	Perm	NA	pm+ov	Perm	NA	Split	NA	Split	NA	Perm
Protected Phases		4	2		8	2	2	6	6	
Permitted Phases	4		4	8						6
Detector Phase	4	4	2	8	8	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	15.4	15.4	15.8	14.6	14.6	15.8	15.8	16.2	16.2	16.2
Total Split (s)	19.0	19.0	79.0	19.0	19.0	79.0	79.0	22.0	22.0	22.0
Total Split (%)	15.8%	15.8%	65.8%	15.8%	15.8%	65.8%	65.8%	18.3%	18.3%	18.3%
Yellow Time (s)	4.4	4.4	4.8	3.6	3.6	4.8	4.8	5.2	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.4	5.8		4.6	5.8	5.8	6.2	6.2	6.2
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	None	None	Max	None	None	Max	Max	Max	Max	Max
Act Effect Green (s)		12.8	85.7		13.6	73.2	73.2	15.8	15.8	15.8
Actuated g/C Ratio		0.11	0.72		0.11	0.61	0.61	0.13	0.13	0.13
v/c Ratio		0.78	0.70		0.27	0.87	0.23	0.01	0.79	0.34
Control Delay		84.0	10.2		47.6	29.5	10.9	45.7	73.0	12.4
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		84.0	10.2		47.6	29.5	10.9	45.7	73.0	12.4
LOS		F	B		D	C	B	D	E	B
Approach Delay		19.6			47.6		25.4		52.2	
Approach LOS		B			D		C		D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 119.3

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 26.8

Intersection LOS: C

Intersection Capacity Utilization 85.8%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 7: Collier Av. (SR-74)/Collier Av. & Riverside Dr. (SR-74)/Riverside Dr.

↖ ↗ Ø2	↖ ↗ Ø6	↖ ↗ Ø4
79 s	22 s	19 s
		↖ ↗ Ø8
		19 s

HCM 6th Signalized Intersection Summary S. Nichols Mixed-Use Development (JN 10878)
 7: Collier Av. (SR-74)/Collier Av. & Riverside Dr. (SR-74)/Riverside Dr. 05/21/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	105	11	788	21	18	7	902	233	20	3	186	97
Future Volume (veh/h)	105	11	788	21	18	7	902	233	20	3	186	97
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	109	11	773	22	19	1	940	243	20	3	194	28
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	173	12	1145	50	31	1	1079	1031	85	233	245	207
Arrive On Green	0.12	0.12	0.12	0.12	0.12	0.12	0.61	0.61	0.61	0.13	0.13	0.13
Sat Flow, veh/h	978	99	1548	38	261	7	1781	1702	140	1781	1870	1585
Grp Volume(v), veh/h	120	0	773	42	0	0	940	0	263	3	194	28
Grp Sat Flow(s),veh/h/ln	1077	0	1548	306	0	0	1781	0	1842	1781	1870	1585
Q Serve(g_s), s	0.0	0.0	14.4	1.1	0.0	0.0	53.2	0.0	7.9	0.2	12.2	1.9
Cycle Q Clear(g_c), s	13.3	0.0	14.4	14.4	0.0	0.0	53.2	0.0	7.9	0.2	12.2	1.9
Prop In Lane	0.91		1.00	0.52		0.02	1.00		0.08	1.00		1.00
Lane Grp Cap(c), veh/h	185	0	1145	82	0	0	1079	0	1116	233	245	207
V/C Ratio(X)	0.65	0.00	0.68	0.51	0.00	0.00	0.87	0.00	0.24	0.01	0.79	0.14
Avail Cap(c_a), veh/h	185	0	1145	82	0	0	1079	0	1116	233	245	207
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.7	0.0	6.5	51.3	0.0	0.0	19.9	0.0	10.9	45.7	50.9	46.5
Incr Delay (d2), s/veh	7.6	0.0	1.6	5.3	0.0	0.0	9.6	0.0	0.5	0.1	22.7	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.9	0.0	23.8	1.4	0.0	0.0	22.2	0.0	3.1	0.1	7.0	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.4	0.0	8.1	56.7	0.0	0.0	29.5	0.0	11.4	45.8	73.6	47.8
LnGrp LOS	E	A	A	E	A	A	C	A	B	D	E	D
Approach Vol, veh/h		893			42			1203			225	
Approach Delay, s/veh		15.1			56.7			25.6			70.0	
Approach LOS		B			E			C			E	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		79.0		19.8		22.0		19.8				
Change Period (Y+Rc), s		5.8		5.4		6.2		* 5.4				
Max Green Setting (Gmax), s		73.2		13.6		15.8		* 14				
Max Q Clear Time (g_c+I1), s		55.2		16.4		14.2		16.4				
Green Ext Time (p_c), s		5.0		0.0		0.2		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			26.4									
HCM 6th LOS			C									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Timings

S. Nichols Mixed-Use Development (JN 10878)

8: Collier Av./Collier Av. (SR-74) & Central Av./Central Av. (SR-74)

05/21/2018

											
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 	 		 			 	 	 	
Traffic Volume (vph)	196	328	211	199	741	51	123	350	938	138	33
Future Volume (vph)	196	328	211	199	741	51	123	350	938	138	33
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	7	4	3	8	1	5	2	3	1	6	
Permitted Phases					8			2			6
Detector Phase	7	4	3	8	1	5	2	3	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	5.0	10.0	5.0	5.0	10.0	10.0
Minimum Split (s)	9.6	14.7	9.6	42.8	9.6	9.6	15.8	9.6	9.6	29.8	29.8
Total Split (s)	14.0	28.8	28.0	42.8	43.0	13.6	20.2	28.0	43.0	49.6	49.6
Total Split (%)	11.7%	24.0%	23.3%	35.7%	35.8%	11.3%	16.8%	23.3%	35.8%	41.3%	41.3%
Yellow Time (s)	3.6	3.7	3.6	4.8	3.6	3.6	4.8	3.6	3.6	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.7	4.6	5.8	4.6	4.6	5.8	4.6	4.6	5.8	5.8
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	None	None	Max	Max
Act Effect Green (s)	9.0	17.0	11.6	18.5	51.6	7.2	17.6	30.4	31.8	44.7	44.7
Actuated g/C Ratio	0.09	0.17	0.12	0.19	0.53	0.07	0.18	0.31	0.32	0.46	0.46
v/c Ratio	0.65	0.64	0.54	0.58	0.48	0.41	0.38	0.64	0.87	0.09	0.04
Control Delay	55.9	42.3	47.2	43.3	7.1	57.4	44.3	25.7	41.3	18.8	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.9	42.3	47.2	43.3	7.1	57.4	44.3	25.7	41.3	18.8	0.1
LOS	E	D	D	D	A	E	D	C	D	B	A
Approach Delay		47.0		20.7			33.2			37.3	
Approach LOS		D		C			C			D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 98.2

Natural Cycle: 105

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 32.6

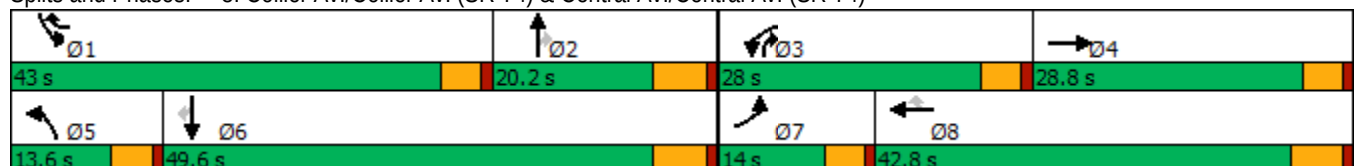
Intersection LOS: C

Intersection Capacity Utilization 71.6%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 8: Collier Av./Collier Av. (SR-74) & Central Av./Central Av. (SR-74)



HCM 6th Signalized Intersection Summary S. Nichols Mixed-Use Development (JN 10878)
 8: Collier Av./Collier Av. (SR-74) & Central Av./Central Av. (SR-74) 05/21/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	196	328	52	211	199	741	51	123	350	938	138	33
Future Volume (veh/h)	196	328	52	211	199	741	51	123	350	938	138	33
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	202	338	50	218	205	241	53	127	133	967	142	21
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	276	487	71	300	306	1313	73	405	476	1070	1725	759
Arrive On Green	0.08	0.16	0.16	0.09	0.16	0.16	0.04	0.22	0.22	0.31	0.49	0.49
Sat Flow, veh/h	3456	3109	456	3456	1870	2747	1781	1870	1561	3456	3554	1563
Grp Volume(v), veh/h	202	192	196	218	205	241	53	127	133	967	142	21
Grp Sat Flow(s),veh/h/ln	1728	1777	1788	1728	1870	1374	1781	1870	1561	1728	1777	1563
Q Serve(g_s), s	5.2	9.2	9.4	5.5	9.3	4.6	2.7	5.1	5.9	24.2	1.9	0.6
Cycle Q Clear(g_c), s	5.2	9.2	9.4	5.5	9.3	4.6	2.7	5.1	5.9	24.2	1.9	0.6
Prop In Lane	1.00		0.25	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	276	278	280	300	306	1313	73	405	476	1070	1725	759
V/C Ratio(X)	0.73	0.69	0.70	0.73	0.67	0.18	0.73	0.31	0.28	0.90	0.08	0.03
Avail Cap(c_a), veh/h	360	475	478	896	767	1990	178	405	476	1471	1725	759
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.6	36.0	36.1	40.2	35.4	13.7	42.8	29.7	23.9	29.9	12.4	12.1
Incr Delay (d2), s/veh	3.4	3.0	3.2	1.3	2.5	0.1	5.2	2.0	1.5	5.2	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	4.2	4.3	2.3	4.2	1.3	1.2	2.4	2.2	10.0	0.7	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.9	39.0	39.2	41.4	38.0	13.8	48.0	31.7	25.4	35.1	12.5	12.2
LnGrp LOS	D	D	D	D	D	B	D	C	C	D	B	B
Approach Vol, veh/h		590			664			313			1130	
Approach Delay, s/veh		40.8			30.3			31.8			31.8	
Approach LOS		D			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	32.5	25.3	12.4	19.9	8.3	49.6	11.8	20.6				
Change Period (Y+Rc), s	4.6	5.8	4.6	* 5.8	4.6	5.8	4.6	5.8				
Max Green Setting (Gmax), s	38.4	14.4	23.4	* 24	9.0	43.8	9.4	37.0				
Max Q Clear Time (g_c+I1), s	26.2	7.9	7.5	11.4	4.7	3.9	7.2	11.3				
Green Ext Time (p_c), s	1.7	0.5	0.3	1.8	0.0	0.9	0.1	2.0				
Intersection Summary												
HCM 6th Ctrl Delay			33.4									
HCM 6th LOS			C									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Intersection

Intersection Delay, s/veh 14.4

Intersection LOS B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗	↖	↑						↕	
Traffic Vol, veh/h	0	255	279	30	356	0	0	0	0	88	2	137
Future Vol, veh/h	0	255	279	30	356	0	0	0	0	88	2	137
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	0	3	3	25	3	0	0	0	0	8	67	13
Mvmt Flow	0	271	297	32	379	0	0	0	0	94	2	146
Number of Lanes	0	1	1	1	1	0	0	0	0	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	2
HCM Control Delay	12.5	18	13
HCM LOS	B	C	B

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	100%	0%	39%
Vol Thru, %	100%	0%	0%	100%	1%
Vol Right, %	0%	100%	0%	0%	60%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	255	279	30	356	227
LT Vol	0	0	30	0	88
Through Vol	255	0	0	356	2
RT Vol	0	279	0	0	137
Lane Flow Rate	271	297	32	379	241
Geometry Grp	7	7	7	7	2
Degree of Util (X)	0.444	0.427	0.061	0.634	0.401
Departure Headway (Hd)	5.886	5.175	6.911	6.023	5.983
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	610	695	518	598	601
Service Time	3.626	2.915	4.655	3.767	4.031
HCM Lane V/C Ratio	0.444	0.427	0.062	0.634	0.401
HCM Control Delay	13.3	11.7	10.1	18.7	13
HCM Lane LOS	B	B	B	C	B
HCM 95th-tile Q	2.3	2.1	0.2	4.5	1.9

Intersection												
Int Delay, s/veh	15.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	146	196	0	0	124	45	262	1	38	0	0	0
Future Vol, veh/h	146	196	0	0	124	45	262	1	38	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	230	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	152	204	0	0	129	47	273	1	40	0	0	0

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	176	0	- - - 0 661 684 204
Stage 1	-	-	- - - 508 508 -
Stage 2	-	-	- - - 153 176 -
Critical Hdwy	4.15	-	- - - 6.44 6.5 6.26
Critical Hdwy Stg 1	-	-	- - - 5.44 5.5 -
Critical Hdwy Stg 2	-	-	- - - 5.44 5.5 -
Follow-up Hdwy	2.245	-	- - - 3.536 4 3.354
Pot Cap-1 Maneuver	1382	- 0 0	- - - 424 374 827
Stage 1	-	- 0 0	- - - 600 542 -
Stage 2	-	- 0 0	- - - 870 757 -
Platoon blocked, %	-	-	- -
Mov Cap-1 Maneuver	1382	- - -	- - - 377 0 827
Mov Cap-2 Maneuver	-	- - -	- - - 377 0 -
Stage 1	-	- - -	- - - 534 0 -
Stage 2	-	- - -	- - - 870 0 -

Approach	EB	WB	NB
HCM Control Delay, s	3.4	0	38.4
HCM LOS	E		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR
Capacity (veh/h)	405	1382	-	-	-
HCM Lane V/C Ratio	0.774	0.11	-	-	-
HCM Control Delay (s)	38.4	7.9	-	-	-
HCM Lane LOS	E	A	-	-	-
HCM 95th %tile Q(veh)	6.5	0.4	-	-	-

Intersection	
Intersection Delay, s/veh	11.8
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	146	196	0	0	124	45	262	1	38	0	0	0
Future Vol, veh/h	146	196	0	0	124	45	262	1	38	0	0	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	152	204	0	0	129	47	273	1	40	0	0	0
Number of Lanes	1	1	0	0	1	0	0	1	0	0	0	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	11.2	10.5	13.3
HCM LOS	B	B	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1
Vol Left, %	87%	100%	0%	0%
Vol Thru, %	0%	0%	100%	73%
Vol Right, %	13%	0%	0%	27%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	301	146	196	169
LT Vol	262	146	0	0
Through Vol	1	0	196	124
RT Vol	38	0	0	45
Lane Flow Rate	314	152	204	176
Geometry Grp	2	7	7	5
Degree of Util (X)	0.476	0.264	0.326	0.267
Departure Headway (Hd)	5.47	6.248	5.742	5.467
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	662	576	627	658
Service Time	3.47	3.973	3.466	3.495
HCM Lane V/C Ratio	0.474	0.264	0.325	0.267
HCM Control Delay	13.3	11.2	11.2	10.5
HCM Lane LOS	B	B	B	B
HCM 95th-tile Q	2.6	1.1	1.4	1.1

Intersection						
Int Delay, s/veh	2.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	121	114	0	83	85	0
Future Vol, veh/h	121	114	0	83	85	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	200	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	132	124	0	90	92	0
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	256	0	284	194
Stage 1	-	-	-	-	194	-
Stage 2	-	-	-	-	90	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1309	-	706	847
Stage 1	-	-	-	-	839	-
Stage 2	-	-	-	-	934	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1309	-	706	847
Mov Cap-2 Maneuver	-	-	-	-	706	-
Stage 1	-	-	-	-	839	-
Stage 2	-	-	-	-	934	-
Approach	EB	WB		NB		
HCM Control Delay, s	0	0		10.9		
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	706	-	-	1309	-	
HCM Lane V/C Ratio	0.131	-	-	-	-	
HCM Control Delay (s)	10.9	-	-	0	-	
HCM Lane LOS	B	-	-	A	-	
HCM 95th %tile O(veh)	0.4	-	-	0	-	

Intersection						
Int Delay, s/veh	1.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	19	95	74	3	2	11
Future Vol, veh/h	19	95	74	3	2	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	21	103	80	3	2	12
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	83	0	-	0	227	82
Stage 1	-	-	-	-	82	-
Stage 2	-	-	-	-	145	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1514	-	-	-	761	978
Stage 1	-	-	-	-	941	-
Stage 2	-	-	-	-	882	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1514	-	-	-	750	978
Mov Cap-2 Maneuver	-	-	-	-	750	-
Stage 1	-	-	-	-	927	-
Stage 2	-	-	-	-	882	-
Approach	EB	WB		SB		
HCM Control Delay, s	1.2	0		8.9		
HCM LOS				A		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1514	-	-	-	934	
HCM Lane V/C Ratio	0.014	-	-	-	0.015	
HCM Control Delay (s)	7.4	0	-	-	8.9	
HCM Lane LOS	A	A	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	0	

Intersection						
Int Delay, s/veh	4.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	97	77	74	111	0
Future Vol, veh/h	0	97	77	74	111	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	105	84	80	121	0
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	369	121	121	0	-	0
Stage 1	121	-	-	-	-	-
Stage 2	248	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	631	930	1467	-	-	-
Stage 1	904	-	-	-	-	-
Stage 2	793	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	593	930	1467	-	-	-
Mov Cap-2 Maneuver	593	-	-	-	-	-
Stage 1	850	-	-	-	-	-
Stage 2	793	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	9.4	3.9		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1467	-	930	-	-	
HCM Lane V/C Ratio	0.057	-	0.113	-	-	
HCM Control Delay (s)	7.6	0	9.4	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0.2	-	0.4	-	-	

Intersection						
Int Delay, s/veh	1.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	12	18	134	25	50	158
Future Vol, veh/h	12	18	134	25	50	158
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	13	20	146	27	54	172
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	440	160	0	0	173	0
Stage 1	160	-	-	-	-	-
Stage 2	280	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	574	885	-	-	1404	-
Stage 1	869	-	-	-	-	-
Stage 2	767	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	549	885	-	-	1404	-
Mov Cap-2 Maneuver	549	-	-	-	-	-
Stage 1	832	-	-	-	-	-
Stage 2	767	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	10.3	0		1.8		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	711	1404	-	
HCM Lane V/C Ratio	-	-	0.046	0.039	-	
HCM Control Delay (s)	-	-	10.3	7.7	0	
HCM Lane LOS	-	-	B	A	A	
HCM 95th %tile Q(veh)	-	-	0.1	0.1	-	

Intersection												
Int Delay, s/veh	1.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	15	0	30	5	0	1	14	143	4	6	154	10
Future Vol, veh/h	15	0	30	5	0	1	14	143	4	6	154	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	3
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	18	0	36	6	0	1	17	170	5	7	183	12
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	413	415	192	428	419	173	198	0	0	175	0	0
Stage 1	206	206	-	207	207	-	-	-	-	-	-	-
Stage 2	207	209	-	221	212	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	549	528	850	537	525	871	1375	-	-	1401	-	-
Stage 1	796	731	-	795	731	-	-	-	-	-	-	-
Stage 2	795	729	-	781	727	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	539	516	848	506	513	871	1371	-	-	1401	-	-
Mov Cap-2 Maneuver	539	516	-	506	513	-	-	-	-	-	-	-
Stage 1	782	724	-	784	721	-	-	-	-	-	-	-
Stage 2	783	719	-	744	720	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	10.5		11.7		0.7		0.3					
HCM LOS	B		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1371	-	-	712	544	1401	-	-				
HCM Lane V/C Ratio	0.012	-	-	0.075	0.013	0.005	-	-				
HCM Control Delay (s)	7.7	0	-	10.5	11.7	7.6	0	-				
HCM Lane LOS	A	A	-	B	B	A	A	-				
HCM 95th %tile O(veh)	0	-	-	0.2	0	0	-	-				

Timings
19: Dexter Av. & Central Av. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

05/21/2018

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	352	1682	168	162	1157	71	124	135	70	95	328
Future Volume (vph)	352	1682	168	162	1157	71	124	135	70	95	328
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2	1	6	7
Permitted Phases			4			8					6
Detector Phase	7	4	4	3	8	8	5	2	1	6	7
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0	5.0
Minimum Split (s)	9.6	26.8	26.8	9.6	26.8	26.8	9.6	42.4	9.6	15.8	9.6
Total Split (s)	33.3	47.0	47.0	18.0	31.7	31.7	20.3	44.0	11.0	34.7	33.3
Total Split (%)	27.8%	39.2%	39.2%	15.0%	26.4%	26.4%	16.9%	36.7%	9.2%	28.9%	27.8%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	4.8	3.6	4.4	3.6	4.8	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	5.8	4.6	5.8	5.8	4.6	5.4	4.6	5.8	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	None	Max	None
Act Effect Green (s)	26.5	41.2	41.2	12.9	27.5	27.5	12.4	38.6	6.3	32.1	59.9
Actuated g/C Ratio	0.22	0.35	0.35	0.11	0.23	0.23	0.10	0.32	0.05	0.27	0.50
v/c Ratio	0.91	0.98	0.27	0.87	0.80	0.14	0.69	0.54	0.76	0.19	0.40
Control Delay	73.4	55.9	7.2	90.8	48.6	0.6	70.8	31.1	99.8	36.3	12.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	73.4	55.9	7.2	90.8	48.6	0.6	70.8	31.1	99.8	36.3	12.0
LOS	E	E	A	F	D	A	E	C	F	D	B
Approach Delay		55.0			51.1			42.4		29.1	
Approach LOS		E			D			D		C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 119.4

Natural Cycle: 110

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.98

Intersection Signal Delay: 49.8

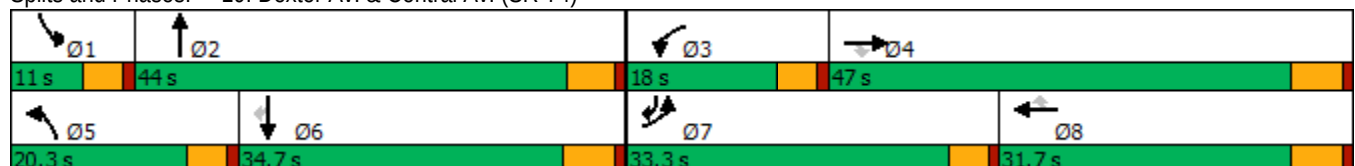
Intersection LOS: D

Intersection Capacity Utilization 93.5%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 19: Dexter Av. & Central Av. (SR-74)



HCM 6th Signalized Intersection Summary
19: Dexter Av. & Central Av. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

05/21/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  							
Traffic Volume (veh/h)	352	1682	168	162	1157	71	124	135	175	70	95	328
Future Volume (veh/h)	352	1682	168	162	1157	71	124	135	175	70	95	328
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	359	1716	129	165	1181	48	127	138	119	71	97	272
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	385	1760	533	191	1519	368	153	297	256	91	538	793
Arrive On Green	0.22	0.34	0.34	0.11	0.24	0.24	0.09	0.32	0.32	0.05	0.29	0.29
Sat Flow, veh/h	1781	5106	1545	1781	6434	1560	1781	919	793	1781	1870	1565
Grp Volume(v), veh/h	359	1716	129	165	1181	48	127	0	257	71	97	272
Grp Sat Flow(s),veh/h/ln	1781	1702	1545	1781	1609	1560	1781	0	1712	1781	1870	1565
Q Serve(g_s), s	23.6	39.6	7.1	10.9	20.5	2.9	8.4	0.0	14.3	4.7	4.7	12.5
Cycle Q Clear(g_c), s	23.6	39.6	7.1	10.9	20.5	2.9	8.4	0.0	14.3	4.7	4.7	12.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.46	1.00		1.00
Lane Grp Cap(c), veh/h	385	1760	533	191	1519	368	153	0	553	91	538	793
V/C Ratio(X)	0.93	0.97	0.24	0.86	0.78	0.13	0.83	0.00	0.46	0.78	0.18	0.34
Avail Cap(c_a), veh/h	428	1760	533	200	1519	368	234	0	553	95	538	793
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.0	38.7	28.0	52.5	42.7	36.0	53.7	0.0	32.2	56.1	32.0	17.8
Incr Delay (d2), s/veh	25.0	15.9	0.2	27.6	2.6	0.2	8.1	0.0	2.8	29.4	0.7	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.8	18.3	2.6	6.2	8.2	1.1	4.0	0.0	6.2	2.8	2.2	4.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	70.9	54.5	28.2	80.1	45.4	36.1	61.8	0.0	35.0	85.5	32.7	19.0
LnGrp LOS	E	D	C	F	D	D	E	A	D	F	C	B
Approach Vol, veh/h		2204			1394			384			440	
Approach Delay, s/veh		55.7			49.1			43.9			32.7	
Approach LOS		E			D			D			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.7	44.4	17.4	47.0	14.9	40.2	30.4	34.0				
Change Period (Y+Rc), s	4.6	* 5.8	4.6	5.8	4.6	5.8	4.6	5.8				
Max Green Setting (Gmax), s	6.4	* 39	13.4	41.2	15.7	28.9	28.7	25.9				
Max Q Clear Time (g_c+l1), s	6.7	16.3	12.9	41.6	10.4	14.5	25.6	22.5				
Green Ext Time (p_c), s	0.0	1.4	0.0	0.0	0.1	1.2	0.2	2.2				
Intersection Summary												
HCM 6th Ctrl Delay			50.3									
HCM 6th LOS			D									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Timings

S. Nichols Mixed-Use Development (JN 10878)

20: Cambern Av./Cambern Av & Central Av. (SR-74)

05/21/2018



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT	SBR	Ø3
Lane Configurations	←←	→→	←←	→	←	→		←	→	
Traffic Volume (vph)	262	1806	1165	149	1	3	239	3	86	
Future Volume (vph)	262	1806	1165	149	1	3	239	3	86	
Turn Type	Prot	NA	NA	Perm	Perm	NA	Perm	NA	Perm	
Protected Phases	7	4	8			2		6		3
Permitted Phases				8	2		6		6	
Detector Phase	7	4	8	8	2	2	6	6	6	
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	5.0
Minimum Split (s)	9.6	24.8	25.5	25.5	34.7	34.7	14.7	14.7	14.7	9.6
Total Split (s)	19.8	74.0	63.8	63.8	36.4	36.4	36.4	36.4	36.4	9.6
Total Split (%)	16.5%	61.7%	53.2%	53.2%	30.3%	30.3%	30.3%	30.3%	30.3%	8%
Yellow Time (s)	3.6	4.8	5.5	5.5	3.7	3.7	3.7	3.7	3.7	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.6	5.8	6.5	6.5	4.7	4.7		4.7	4.7	
Lead/Lag	Lead	Lag	Lag	Lag						Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes						Yes
Recall Mode	Max	None	None	None	Max	Max	Max	Max	Max	None
Act Effect Green (s)	15.2	70.6	50.0	50.0	31.8	31.8		31.8	31.8	
Actuated g/C Ratio	0.13	0.63	0.44	0.44	0.28	0.28		0.28	0.28	
v/c Ratio	0.59	0.85	0.77	0.20	0.00	0.01		0.66	0.17	
Control Delay	52.7	21.5	30.5	3.4	32.0	29.2		46.8	4.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	52.7	21.5	30.5	3.4	32.0	29.2		46.8	4.0	
LOS	D	C	C	A	C	C		D	A	
Approach Delay		25.5	27.4			29.8		35.6		
Approach LOS		C	C			C		D		

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 112.9

Natural Cycle: 100

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.85

Intersection Signal Delay: 27.0

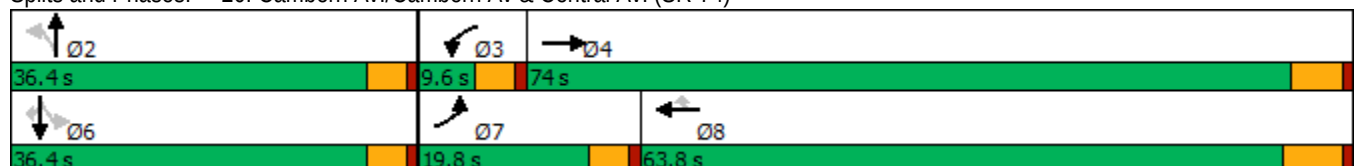
Intersection LOS: C

Intersection Capacity Utilization 86.8%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 20: Cambern Av./Cambern Av & Central Av. (SR-74)



HCM 6th Signalized Intersection Summary S. Nichols Mixed-Use Development (JN 10878)
 20: Cambern Av./Cambern Av & Central Av. (SR-74) 05/21/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	262	1806	1	0	1165	149	1	3	1	239	3	86
Future Volume (veh/h)	262	1806	1	0	1165	149	1	3	1	239	3	86
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	273	1881	1	0	1214	103	1	3	1	249	3	37
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	481	2212	1	2	1511	664	251	390	130	470	5	455
Arrive On Green	0.14	0.61	0.61	0.00	0.43	0.43	0.29	0.29	0.29	0.29	0.29	0.29
Sat Flow, veh/h	3456	3645	2	1781	3554	1561	1367	1342	447	1392	17	1565
Grp Volume(v), veh/h	273	917	965	0	1214	103	1	0	4	252	0	37
Grp Sat Flow(s),veh/h/ln	1728	1777	1870	1781	1777	1561	1367	0	1790	1409	0	1565
Q Serve(g_s), s	8.1	45.7	45.8	0.0	32.5	4.4	0.1	0.0	0.2	16.8	0.0	1.9
Cycle Q Clear(g_c), s	8.1	45.7	45.8	0.0	32.5	4.4	17.0	0.0	0.2	17.0	0.0	1.9
Prop In Lane	1.00		0.00	1.00		1.00	1.00		0.25	0.99		1.00
Lane Grp Cap(c), veh/h	481	1078	1135	2	1511	664	251	0	520	475	0	455
V/C Ratio(X)	0.57	0.85	0.85	0.00	0.80	0.16	0.00	0.00	0.01	0.53	0.00	0.08
Avail Cap(c_a), veh/h	481	1111	1169	82	1867	820	251	0	520	475	0	455
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	43.9	17.4	17.4	0.0	27.4	19.3	40.8	0.0	27.5	33.5	0.0	28.1
Incr Delay (d2), s/veh	4.8	6.6	6.3	0.0	2.4	0.2	0.0	0.0	0.0	4.2	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.7	17.8	18.6	0.0	12.9	1.5	0.0	0.0	0.1	6.3	0.0	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.6	24.0	23.7	0.0	29.8	19.4	40.9	0.0	27.5	37.7	0.0	28.5
LnGrp LOS	D	C	C	A	C	B	D	A	C	D	A	C
Approach Vol, veh/h		2155			1317			5			289	
Approach Delay, s/veh		27.0			29.0			30.2			36.6	
Approach LOS		C			C			C			D	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		36.4	0.0	72.7		36.4	19.8	52.9				
Change Period (Y+Rc), s		* 4.7	4.6	* 6.5		* 4.7	4.6	6.5				
Max Green Setting (Gmax), s		* 32	5.0	* 68		* 32	15.2	57.3				
Max Q Clear Time (g_c+I1), s		19.0	0.0	47.8		19.0	10.1	34.5				
Green Ext Time (p_c), s		0.0	0.0	16.5		1.2	0.2	11.9				
Intersection Summary												
HCM 6th Ctrl Delay			28.4									
HCM 6th LOS			C									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

APPENDIX 6.3:

EA (2020) CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

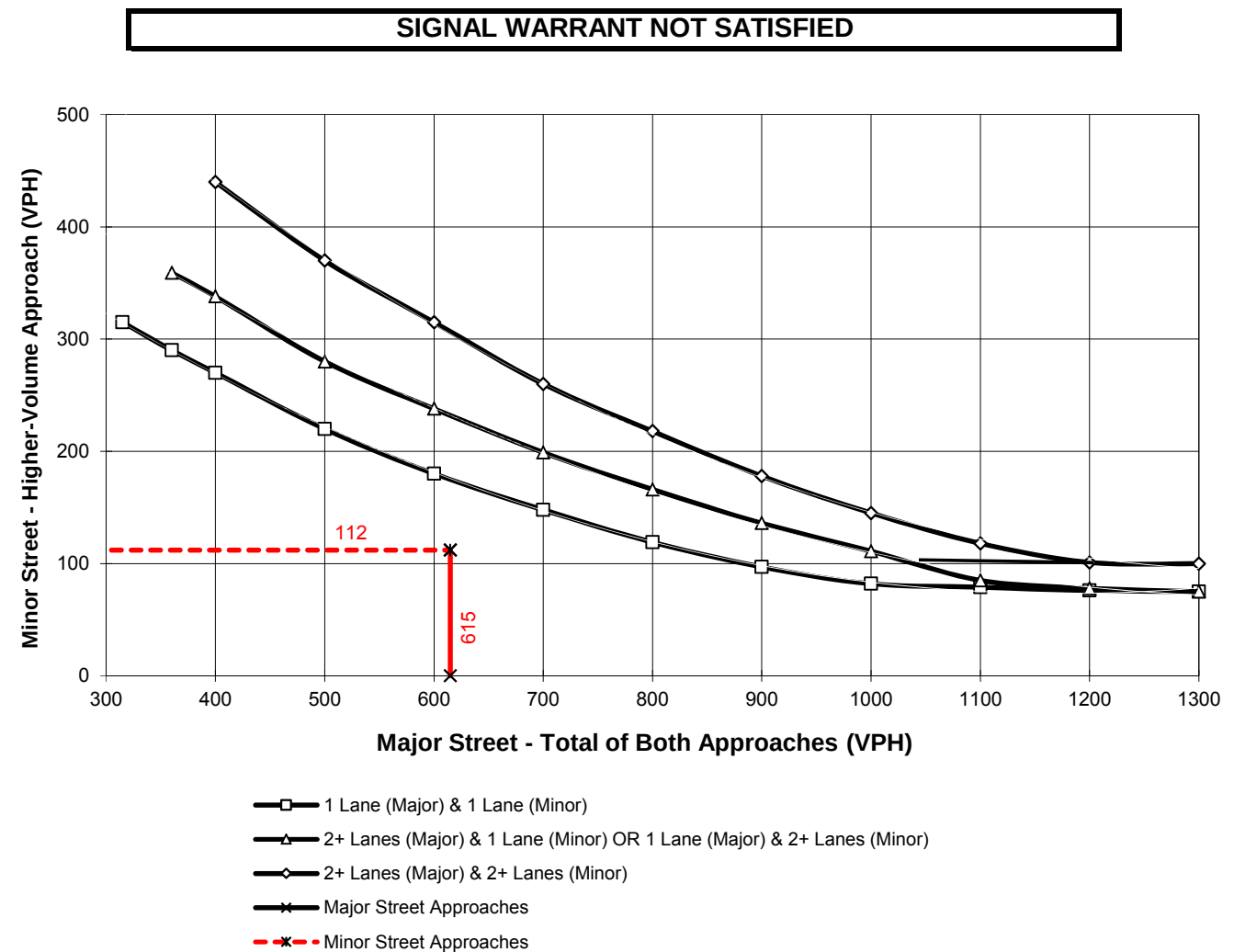
Traffic Conditions = **EA (2020) Conditions - Weekday AM Peak Hour**

Major Street Name = **Nichols Rd.**

Total of Both Approaches (VPH) = **615**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Alberhill Ranch Rd.**

High Volume Approach (VPH) = **112**
Number of Approach Lanes Minor Street = **1**



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes
and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-3. Warrant 3, Peak Hour

Traffic Conditions = **EA (2020) Conditions - Weekday AM Peak Hour**

Major Street Name = **Gunnerson St.**

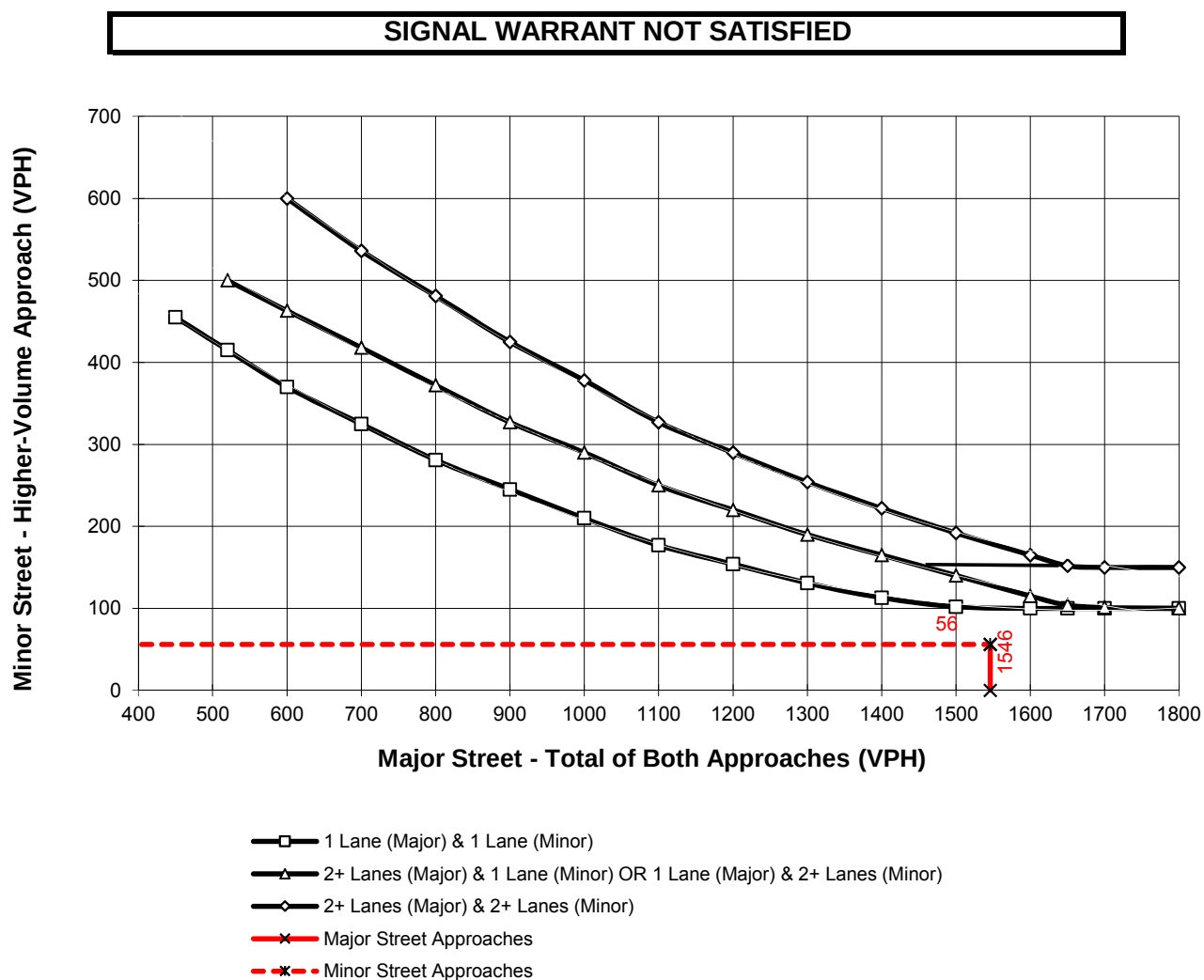
Total of Both Approaches (VPH) = **1546**

Number of Approach Lanes on Major Street = **1**

Minor Street Name = **Strickland Av./Riverside Dr.**

High Volume Approach (VPH) = **56**

Number of Approach Lanes On Minor Street = **1**



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes
and 100 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-3. Warrant 3, Peak Hour

Traffic Conditions = **EA (2020) Conditions - Weekday AM Peak Hour**

Major Street Name = **El Toro Rd.**

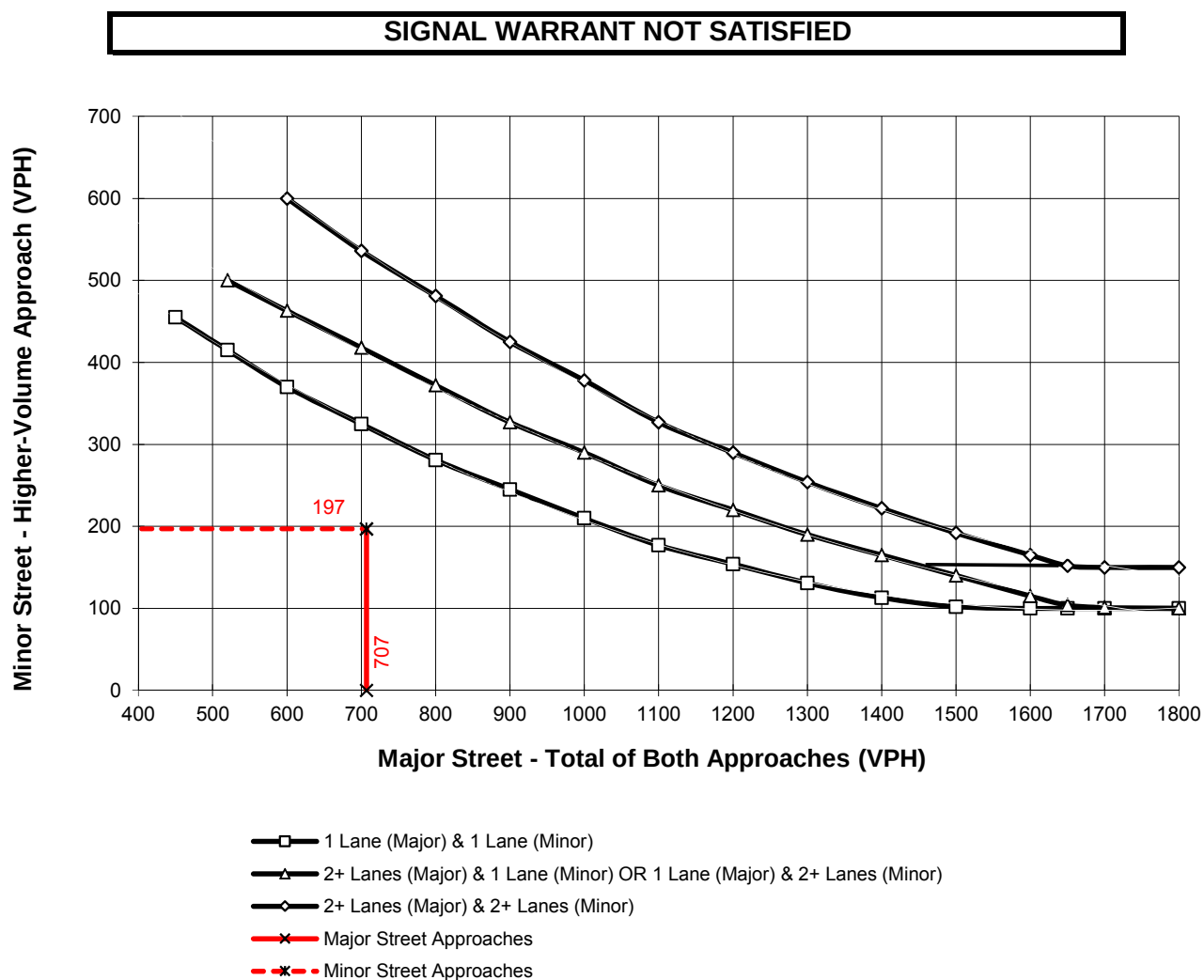
Total of Both Approaches (VPH) = **707**

Number of Approach Lanes on Major Street = **1**

Minor Street Name = **Tereticornis Av.**

High Volume Approach (VPH) = **197**

Number of Approach Lanes On Minor Street = **1**



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes
and 100 vph applies as the lower threshold for a minor-street approach with one lane

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APPENDIX 6.4:

EAP (2020) CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

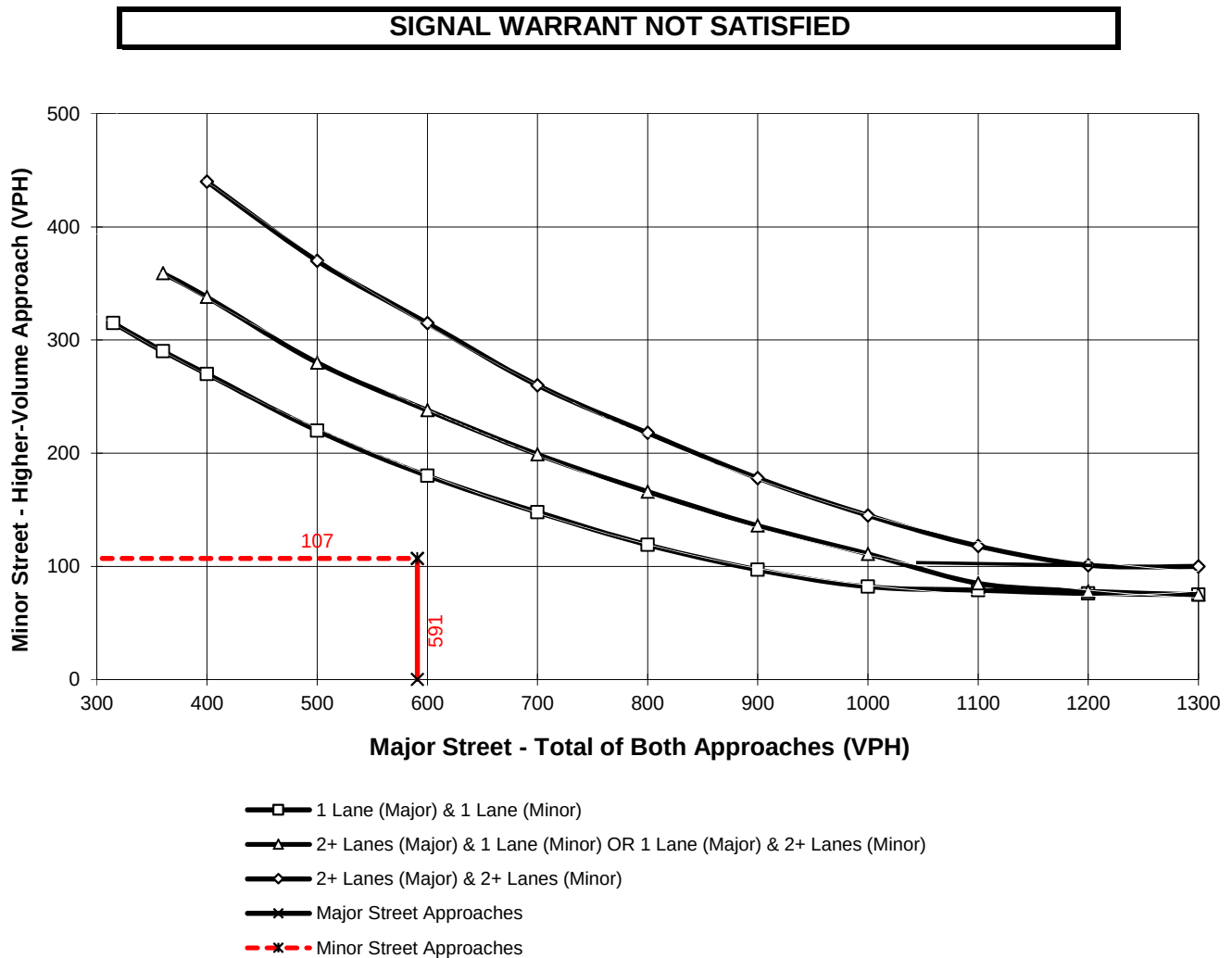
Traffic Conditions = **EAP (2020) Conditions - Weekday AM Peak Hour**

Major Street Name = **Nichols Rd.**

Total of Both Approaches (VPH) = **591**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Alberhill Ranch Rd.**

High Volume Approach (VPH) = **107**
Number of Approach Lanes Minor Street = **1**



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes
and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-3. Warrant 3, Peak Hour

Traffic Conditions = **EAP (2020) Conditions - Weekday AM Peak Hour**

Major Street Name = **Gunnerson St.**

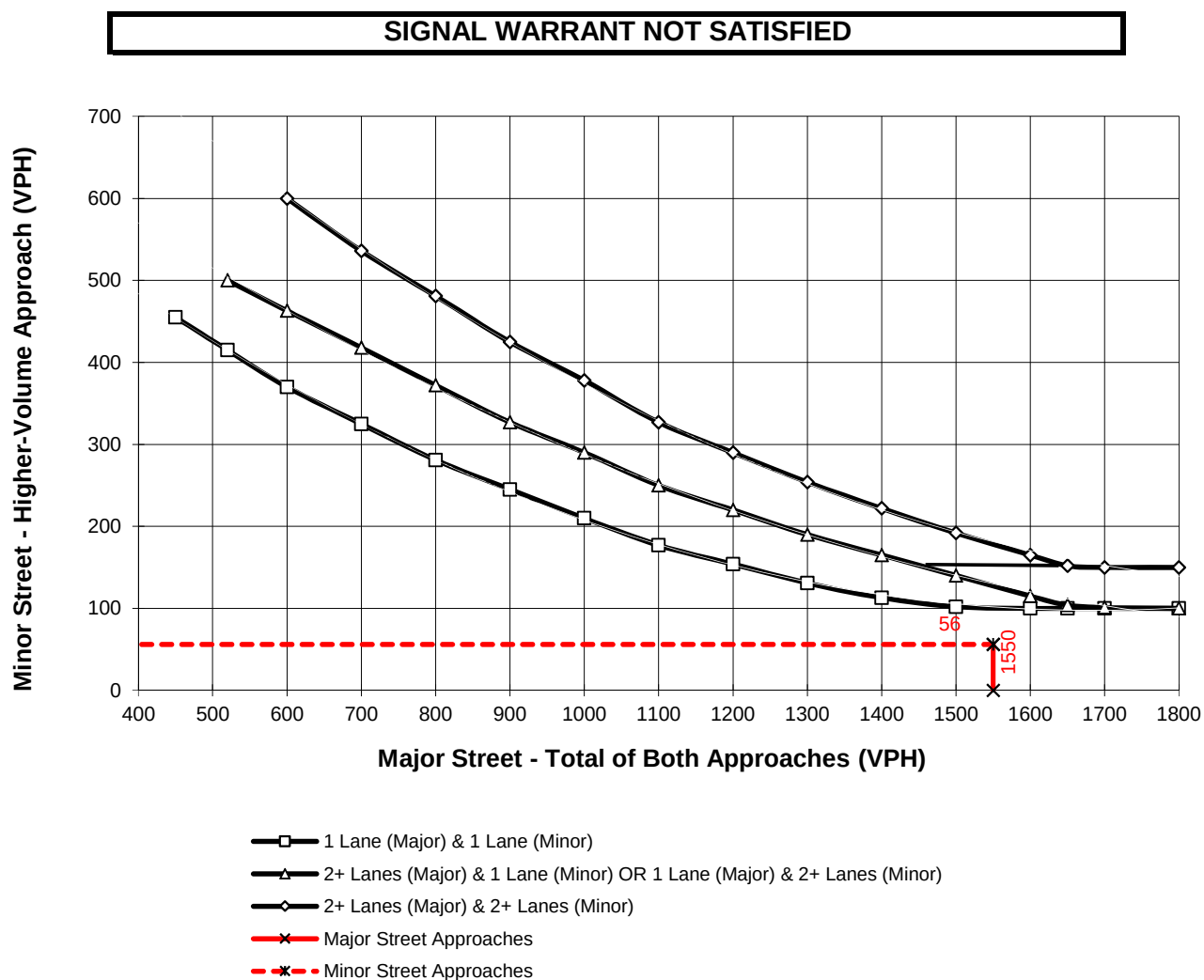
Total of Both Approaches (VPH) = **1550**

Number of Approach Lanes on Major Street = **1**

Minor Street Name = **Strickland Av./Riverside Dr.**

High Volume Approach (VPH) = **56**

Number of Approach Lanes On Minor Street = **1**



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes
and 100 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet (Average Traffic Estimate Form)

DIST	CO	RTE	PM	CALC	TRAFFIC CONDITIONS	EAP 2020
Jurisdiction: <u>City of Lake Elsinore</u>				CHK <u>CH</u>	DATE <u>05/01/18</u>	
Major Street: <u>Nichols Rd.</u>					Critical Approach Speed (Major) <u>50</u> mph	
Minor Street: <u>B St.</u>					Critical Approach Speed (Minor) <u>25</u> mph	
Major Street Approach Lanes = <u>1</u> lane				Minor Street Approach Lanes: <u>1</u> lane		
Major Street Future ADT = <u>4,143</u> vpd				Minor Street Future ADT = <u>1,114</u> vpd		
Speed limit or critical speed on major street traffic > 64 km/h (40 mph);					☒	
					or	RURAL (R)
In built up area of isolated community of < 10,000 population					☐	

(Based on Estimated Average Daily Traffic - See Note)

<u>URBAN</u>		<u>RURAL</u>		Minimum Requirements			
CONDITION A - Minimum Vehicular Volume		XX		EADT			
<u>Satisfied</u>		<u>Not Satisfied</u>		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
<u>Major Street</u>		<u>Minor Street</u>		<u>Urban</u>	<u>Rural</u>	<u>Urban</u>	<u>Rural</u>
1 4,143		1 1,114		8,000	5,600	2,400	1,680
2 +		1		9,600	6,720	2,400	1,680
2 +		2 +		9,600	6,720	3,200	2,240
1		2 +		8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic		XX		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
<u>Satisfied</u>		<u>Not Satisfied</u>		<u>Urban</u>	<u>Rural</u>	<u>Urban</u>	<u>Rural</u>
Number of lanes for moving traffic on each approach				12,000	8,400	1,200	850 *
<u>Major Street</u>		<u>Minor Street</u>		14,400	10,080	1,200	850
1 4,143		1 1,114		14,400	10,080	1,600	1,120
2 +		1		12,000	8,400	1,600	1,120
2 +		2 +					
1		2 +					
Combination of CONDITIONS A + B		XX		2 CONDITIONS 80%		2 CONDITIONS 80%	
<u>Satisfied</u>		<u>Not Satisfied</u>					
No one condition satisfied, but following conditions fulfilled 80% of more							
		A					
		66%					
		B					
		49%					

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

**Figure 4C-103 (CA). Traffic Signal Warrants Worksheet
(Average Traffic Estimate Form)**

				TRAFFIC CONDITIONS		EAP 2020
DIST	CO	RTE	PM	CALC	CH	DATE 05/01/18
Jurisdiction: <u>City of Lake Elsinore</u>				CHK	CH	DATE 05/01/18
Major Street: <u>G St.</u>				Critical Approach Speed (Major) <u>25</u> mph		
Minor Street: <u>B St.</u>				Critical Approach Speed (Minor) <u>25</u> mph		
Major Street Approach Lanes = <u>1</u> lane				Minor Street Approach Lanes: <u>1</u> lane		
Major Street Future ADT = <u>6,869</u> vpd				Minor Street Future ADT = <u>161</u> vpd		
Speed limit or critical speed on major street traffic > 64 km/h (40 mph);				or URBAN (U)		
In built up area of isolated community of < 10,000 population						

(Based on Estimated Average Daily Traffic - See Note)

URBAN XX RURAL XX CONDITION A - Minimum Vehicular Volume		Minimum Requirements			
Satisfied Not Satisfied		EADT			
Major Street Minor Street		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Urban Rural		Urban Rural		Urban Rural	
1 6,869 1 161		8,000 5,600		2,400 1,680	
2 + 1		9,600 6,720		2,400 1,680	
2 + 2 +		9,600 6,720		3,200 2,240	
1 2 +		8,000 5,600		3,200 2,240	
Satisfied Not Satisfied		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Major Street Minor Street		Urban Rural		Urban Rural	
1 6,869 1 161		12,000 8,400		1,200 850	
2 + 1		14,400 10,080		1,200 850	
2 + 2 +		14,400 10,080		1,600 1,120	
1 2 +		12,000 8,400		1,600 1,120	
Combination of CONDITIONS A + B Satisfied Not Satisfied		2 CONDITIONS 80%		2 CONDITIONS 80%	
No one condition satisfied, but following conditions fulfilled 80% of more A B					
7% 13%					

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet (Average Traffic Estimate Form)

DIST	CO	RTE	PM	CALC	TRAFFIC CONDITIONS	EAP 2020
Jurisdiction: <u>City of Lake Elsinore</u>				CHK <u>CH</u>		DATE <u>05/01/18</u>
Major Street: <u>El Toro Rd.</u>					Critical Approach Speed (Major)	<u>25</u> mph
Minor Street: <u>B St.</u>					Critical Approach Speed (Minor)	<u>25</u> mph
Major Street Approach Lanes = <u>1</u> lane				Minor Street Approach Lanes: <u>1</u> lane		
Major Street Future ADT = <u>2,497</u> vpd				Minor Street Future ADT = <u>1,001</u> vpd		
Speed limit or critical speed on major street traffic > 64 km/h (40 mph);						
						or
In built up area of isolated community of < 10,000 population						
URBAN (U)						

(Based on Estimated Average Daily Traffic - See Note)

<u>URBAN</u> XX		<u>RURAL</u>		Minimum Requirements EADT			
CONDITION A - Minimum Vehicular Volume				Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
<u>Satisfied</u>	<u>Not Satisfied</u> XX						
Number of lanes for moving traffic on each approach				<u>Urban</u>	<u>Rural</u>	<u>Urban</u>	<u>Rural</u>
<u>Major Street</u>		<u>Minor Street</u>		8,000	5,600	2,400	1,680
1	2,497	1	1,001	9,600	6,720	2,400	1,680
2 +		1		9,600	6,720	3,200	2,240
2 +		2 +		8,000	5,600	3,200	2,240
1		2 +					
CONDITION B - Interruption of Continuous Traffic				Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
<u>Satisfied</u>	<u>Not Satisfied</u> XX						
Number of lanes for moving traffic on each approach				<u>Urban</u>	<u>Rural</u>	<u>Urban</u>	<u>Rural</u>
<u>Major Street</u>		<u>Minor Street</u>		12,000	8,400	1,200	850
1	2,497	1	1,001	14,400	10,080	1,200	850
2 +		1		14,400	10,080	1,600	1,120
2 +		2 +		12,000	8,400	1,600	1,120
1		2 +					
Combination of CONDITIONS A + B				2 CONDITIONS 80%		2 CONDITIONS 80%	
<u>Satisfied</u>	<u>Not Satisfied</u> XX						
No one condition satisfied, but following conditions fulfilled 80% of more							
		<u>A</u>	<u>B</u>				
		31%	21%				

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-3. Warrant 3, Peak Hour

Traffic Conditions = **EAP (2020) Conditions - Weekday AM Peak Hour**

Major Street Name = **El Toro Rd.**

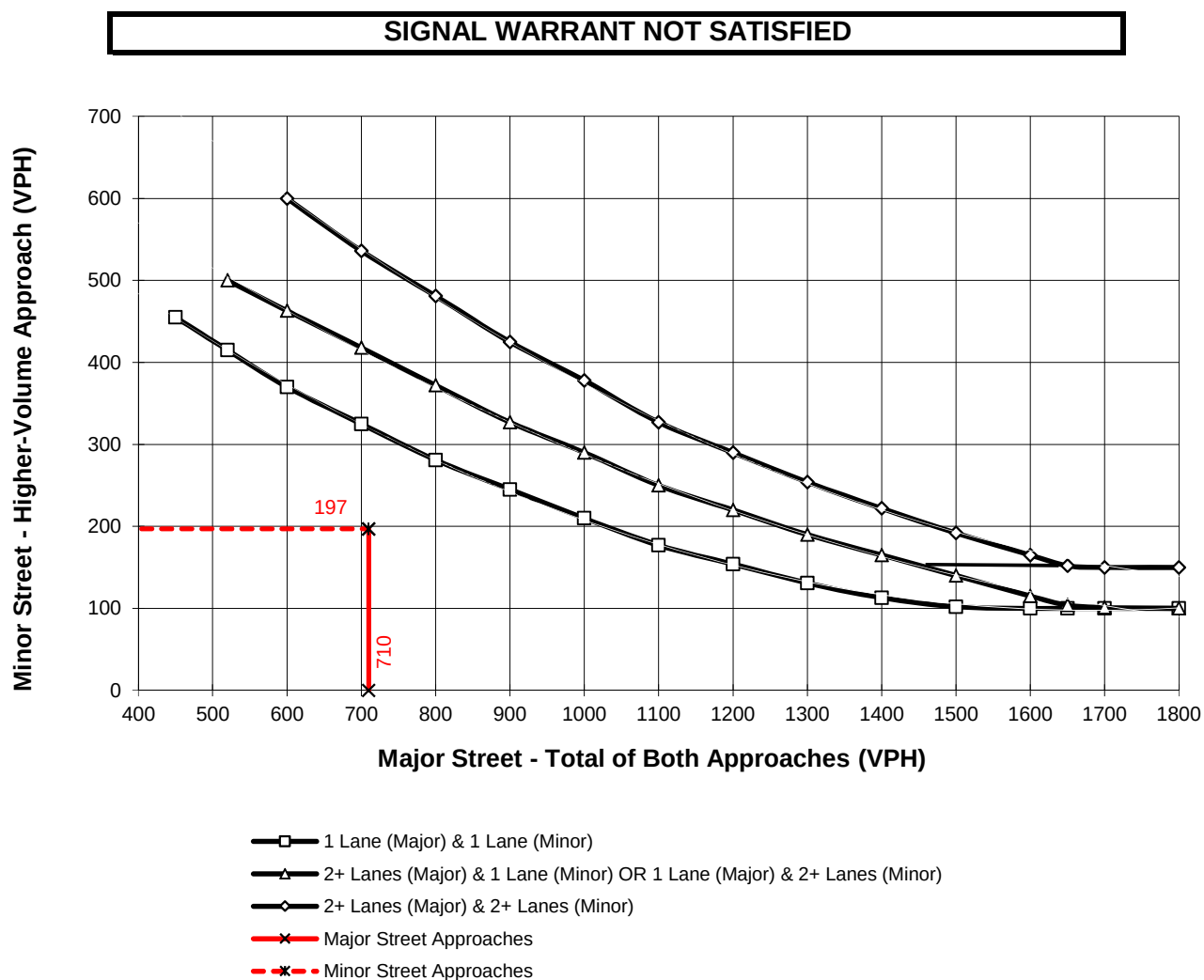
Total of Both Approaches (VPH) = **710**

Number of Approach Lanes on Major Street = **1**

Minor Street Name = **Tereticornis Av.**

High Volume Approach (VPH) = **197**

Number of Approach Lanes On Minor Street = **1**



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes
and 100 vph applies as the lower threshold for a minor-street approach with one lane

APPENDIX 6.5:

EA (2020) CONDITIONS OFF-RAMP QUEUEING ANALYSIS WORKSHEETS

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Intersection

Intersection Delay, s/veh16.4

Intersection LOS C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗	↖	↑						↕	
Traffic Vol, veh/h	0	237	278	58	224	0	0	0	0	171	6	65
Future Vol, veh/h	0	237	278	58	224	0	0	0	0	171	6	65
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles, %	0	3	3	25	3	0	0	0	0	8	67	13
Mvmt Flow	0	316	371	77	299	0	0	0	0	228	8	87
Number of Lanes	0	1	1	1	1	0	0	0	0	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	2
HCM Control Delay	16	16	17.7
HCM LOS	C	C	C

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	100%	0%	71%
Vol Thru, %	100%	0%	0%	100%	2%
Vol Right, %	0%	100%	0%	0%	27%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	237	278	58	224	242
LT Vol	0	0	58	0	171
Through Vol	237	0	0	224	6
RT Vol	0	278	0	0	65
Lane Flow Rate	316	371	77	299	323
Geometry Grp	7	7	7	7	2
Degree of Util (X)	0.551	0.573	0.161	0.547	0.572
Departure Headway (Hd)	6.28	5.567	7.487	6.595	6.386
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	572	645	477	544	565
Service Time	4.042	3.328	5.258	4.365	4.441
HCM Lane V/C Ratio	0.552	0.575	0.161	0.55	0.572
HCM Control Delay	16.5	15.6	11.7	17.1	17.7
HCM Lane LOS	C	C	B	C	C
HCM 95th-tile Q	3.3	3.6	0.6	3.3	3.6

Intersection												
Int Delay, s/veh	74.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	77	331	0	0	136	93	146	3	112	0	0	0
Future Vol, veh/h	77	331	0	0	136	93	146	3	112	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	230	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	62	62	62	62	62	62	62	62	62	62	62	62
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	124	534	0	0	219	150	235	5	181	0	0	0

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	369	0	- - - 0 1076 1151 534
Stage 1	-	-	- - - 782 782 -
Stage 2	-	-	- - - 294 369 -
Critical Hdwy	4.15	-	- - - 6.44 6.5 6.26
Critical Hdwy Stg 1	-	-	- - - 5.44 5.5 -
Critical Hdwy Stg 2	-	-	- - - 5.44 5.5 -
Follow-up Hdwy	2.245	-	- - - 3.536 4 3.354
Pot Cap-1 Maneuver	1173	-	0 0 - - 241 200 538
Stage 1	-	-	0 0 - - 447 408 -
Stage 2	-	-	0 0 - - 752 624 -
Platoon blocked, %	-	-	- -
Mov Cap-1 Maneuver	1173	-	- - - ~ 215 0 538
Mov Cap-2 Maneuver	-	-	- - - ~ 215 0 -
Stage 1	-	-	- - - 400 0 -
Stage 2	-	-	- - - 752 0 -

Approach	EB	WB	NB
HCM Control Delay, s	1.6	0	252.6
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR
Capacity (veh/h)	291	1173	-	-	-
HCM Lane V/C Ratio	1.447	0.106	-	-	-
HCM Control Delay (s)	252.6	8.4	-	-	-
HCM Lane LOS	F	A	-	-	-
HCM 95th %tile Q(veh)	23.1	0.4	-	-	-

Notes			
~: Volume exceeds capacity	\$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Intersection Delay, s/veh	40.3
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	77	331	0	0	136	93	146	3	112	0	0	0
Future Vol, veh/h	77	331	0	0	136	93	146	3	112	0	0	0
Peak Hour Factor	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	124	534	0	0	219	150	235	5	181	0	0	0
Number of Lanes	1	1	0	0	1	0	0	1	0	0	0	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	57.7	22.5	28.6
HCM LOS	F	C	D

Lane	NBLn1	EBLn1	EBLn2	WBLn1
Vol Left, %	56%	100%	0%	0%
Vol Thru, %	1%	0%	100%	59%
Vol Right, %	43%	0%	0%	41%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	261	77	331	229
LT Vol	146	77	0	0
Through Vol	3	0	331	136
RT Vol	112	0	0	93
Lane Flow Rate	421	124	534	369
Geometry Grp	2	7	7	5
Degree of Util (X)	0.772	0.253	1.012	0.678
Departure Headway (Hd)	6.604	7.332	6.821	6.608
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	547	489	534	547
Service Time	4.641	5.076	4.565	4.653
HCM Lane V/C Ratio	0.77	0.254	1	0.675
HCM Control Delay	28.6	12.6	68.2	22.5
HCM Lane LOS	D	B	F	C
HCM 95th-tile Q	7	1	14.5	5.1

Intersection

Intersection Delay, s/veh14.1

Intersection LOS B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗	↖	↑						↕	
Traffic Vol, veh/h	0	249	279	26	353	0	0	0	0	81	2	137
Future Vol, veh/h	0	249	279	26	353	0	0	0	0	81	2	137
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	0	3	3	25	3	0	0	0	0	8	67	13
Mvmt Flow	0	265	297	28	376	0	0	0	0	86	2	146
Number of Lanes	0	1	1	1	1	0	0	0	0	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	2
HCM Control Delay	12.2	17.5	12.7
HCM LOS	B	C	B

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	100%	0%	37%
Vol Thru, %	100%	0%	0%	100%	1%
Vol Right, %	0%	100%	0%	0%	62%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	249	279	26	353	220
LT Vol	0	0	26	0	81
Through Vol	249	0	0	353	2
RT Vol	0	279	0	0	137
Lane Flow Rate	265	297	28	376	234
Geometry Grp	7	7	7	7	2
Degree of Util (X)	0.429	0.423	0.053	0.623	0.386
Departure Headway (Hd)	5.835	5.125	6.862	5.975	5.936
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	617	700	522	605	606
Service Time	3.573	2.863	4.604	3.717	3.979
HCM Lane V/C Ratio	0.429	0.424	0.054	0.621	0.386
HCM Control Delay	12.9	11.6	10	18.1	12.7
HCM Lane LOS	B	B	A	C	B
HCM 95th-tile Q	2.1	2.1	0.2	4.3	1.8

Intersection												
Int Delay, s/veh	14.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	146	184	0	0	117	41	262	1	31	0	0	0
Future Vol, veh/h	146	184	0	0	117	41	262	1	31	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	230	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	152	192	0	0	122	43	273	1	32	0	0	0

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	165	0	- - - 0 640 661 192
Stage 1	-	-	- - - 496 496 -
Stage 2	-	-	- - - 144 165 -
Critical Hdwy	4.15	-	- - - 6.44 6.5 6.26
Critical Hdwy Stg 1	-	-	- - - 5.44 5.5 -
Critical Hdwy Stg 2	-	-	- - - 5.44 5.5 -
Follow-up Hdwy	2.245	-	- - - 3.536 4 3.354
Pot Cap-1 Maneuver	1395	-	0 0 - - 436 385 839
Stage 1	-	-	0 0 - - 608 549 -
Stage 2	-	-	0 0 - - 878 766 -
Platoon blocked, %	-	-	- -
Mov Cap-1 Maneuver	1395	-	- - - 388 0 839
Mov Cap-2 Maneuver	-	-	- - - 388 0 -
Stage 1	-	-	- - - 542 0 -
Stage 2	-	-	- - - 878 0 -

Approach	EB	WB	NB
HCM Control Delay, s	3.5	0	35.3
HCM LOS	E		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR
Capacity (veh/h)	411	1395	-	-	-
HCM Lane V/C Ratio	0.745	0.109	-	-	-
HCM Control Delay (s)	35.3	7.9	-	-	-
HCM Lane LOS	E	A	-	-	-
HCM 95th %tile Q(veh)	6	0.4	-	-	-

Intersection	
Intersection Delay, s/veh	11.6
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	146	184	0	0	117	41	262	1	31	0	0	0
Future Vol, veh/h	146	184	0	0	117	41	262	1	31	0	0	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	152	192	0	0	122	43	273	1	32	0	0	0
Number of Lanes	1	1	0	0	1	0	0	1	0	0	0	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	11	10.2	13
HCM LOS	B	B	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1
Vol Left, %	89%	100%	0%	0%
Vol Thru, %	0%	0%	100%	74%
Vol Right, %	11%	0%	0%	26%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	294	146	184	158
LT Vol	262	146	0	0
Through Vol	1	0	184	117
RT Vol	31	0	0	41
Lane Flow Rate	306	152	192	165
Geometry Grp	2	7	7	5
Degree of Util (X)	0.461	0.262	0.303	0.248
Departure Headway (Hd)	5.423	6.201	5.695	5.422
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	668	581	632	663
Service Time	3.423	3.923	3.417	3.447
HCM Lane V/C Ratio	0.458	0.262	0.304	0.249
HCM Control Delay	13	11.1	10.9	10.2
HCM Lane LOS	B	B	B	B
HCM 95th-tile Q	2.4	1	1.3	1

APPENDIX 6.6:

EAP (2020) CONDITIONS OFF-RAMP QUEUEING ANALYSIS WORKSHEETS

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Intersection

Intersection Delay, s/veh 16.8

Intersection LOS C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗	↖	↑						↕	
Traffic Vol, veh/h	0	239	278	64	229	0	0	0	0	173	6	65
Future Vol, veh/h	0	239	278	64	229	0	0	0	0	173	6	65
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles, %	0	3	3	25	3	0	0	0	0	8	67	13
Mvmt Flow	0	319	371	85	305	0	0	0	0	231	8	87
Number of Lanes	0	1	1	1	1	0	0	0	0	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	2
HCM Control Delay	16.4	16.4	18
HCM LOS	C	C	C

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	100%	0%	71%
Vol Thru, %	100%	0%	0%	100%	2%
Vol Right, %	0%	100%	0%	0%	27%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	239	278	64	229	244
LT Vol	0	0	64	0	173
Through Vol	239	0	0	229	6
RT Vol	0	278	0	0	65
Lane Flow Rate	319	371	85	305	325
Geometry Grp	7	7	7	7	2
Degree of Util (X)	0.56	0.578	0.178	0.562	0.58
Departure Headway (Hd)	6.323	5.609	7.515	6.622	6.421
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	567	641	475	543	560
Service Time	4.088	3.374	5.288	4.394	4.48
HCM Lane V/C Ratio	0.563	0.579	0.179	0.562	0.58
HCM Control Delay	16.9	15.9	11.9	17.6	18
HCM Lane LOS	C	C	B	C	C
HCM 95th-tile Q	3.4	3.7	0.6	3.4	3.7

Intersection												
Int Delay, s/veh	79.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	77	335	0	0	146	99	146	3	114	0	0	0
Future Vol, veh/h	77	335	0	0	146	99	146	3	114	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	230	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	62	62	62	62	62	62	62	62	62	62	62	62
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	124	540	0	0	235	160	235	5	184	0	0	0
Major/Minor	Major1		Major2		Minor1							
Conflicting Flow All	395	0	-	-	-	0	1103	1183	540			
Stage 1	-	-	-	-	-	-	788	788	-			
Stage 2	-	-	-	-	-	-	315	395	-			
Critical Hdwy	4.15	-	-	-	-	-	6.44	6.5	6.26			
Critical Hdwy Stg 1	-	-	-	-	-	-	5.44	5.5	-			
Critical Hdwy Stg 2	-	-	-	-	-	-	5.44	5.5	-			
Follow-up Hdwy	2.245	-	-	-	-	-	3.536	4	3.354			
Pot Cap-1 Maneuver	1147	-	0	0	-	-	~ 232	191	534			
Stage 1	-	-	0	0	-	-	445	405	-			
Stage 2	-	-	0	0	-	-	735	608	-			
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	1147	-	-	-	-	-	~ 207	0	534			
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 207	0	-			
Stage 1	-	-	-	-	-	-	397	0	-			
Stage 2	-	-	-	-	-	-	735	0	-			
Approach	EB		WB		NB							
HCM Control Delay, s	1.6		0		275.5							
HCM LOS					F							
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR							
Capacity (veh/h)	283	1147	-	-	-							
HCM Lane V/C Ratio	1.499	0.108	-	-	-							
HCM Control Delay (s)	275.5	8.5	-	-	-							
HCM Lane LOS	F	A	-	-	-							
HCM 95th %tile Q(veh)	24.2	0.4	-	-	-							
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s			+: Computation Not Defined				*: All major volume in platoon			

Intersection	
Intersection Delay, s/veh	43.6
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	77	335	0	0	146	99	146	3	114	0	0	0
Future Vol, veh/h	77	335	0	0	146	99	146	3	114	0	0	0
Peak Hour Factor	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	124	540	0	0	235	160	235	5	184	0	0	0
Number of Lanes	1	1	0	0	1	0	0	1	0	0	0	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	63.9	24.9	29.2
HCM LOS	F	C	D

Lane	NBLn1	EBLn1	EBLn2	WBLn1
Vol Left, %	56%	100%	0%	0%
Vol Thru, %	1%	0%	100%	60%
Vol Right, %	43%	0%	0%	40%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	263	77	335	245
LT Vol	146	77	0	0
Through Vol	3	0	335	146
RT Vol	114	0	0	99
Lane Flow Rate	424	124	540	395
Geometry Grp	2	7	7	5
Degree of Util (X)	0.776	0.256	1.038	0.718
Departure Headway (Hd)	6.718	7.431	6.919	6.687
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	543	487	530	545
Service Time	4.718	5.131	4.619	4.687
HCM Lane V/C Ratio	0.781	0.255	1.019	0.725
HCM Control Delay	29.2	12.7	75.7	24.9
HCM Lane LOS	D	B	F	C
HCM 95th-tile Q	7.1	1	15.5	5.8

Intersection

Intersection Delay, s/veh14.4

Intersection LOS B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗	↖	↑						↕	
Traffic Vol, veh/h	0	255	279	30	356	0	0	0	0	88	2	137
Future Vol, veh/h	0	255	279	30	356	0	0	0	0	88	2	137
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	0	3	3	25	3	0	0	0	0	8	67	13
Mvmt Flow	0	271	297	32	379	0	0	0	0	94	2	146
Number of Lanes	0	1	1	1	1	0	0	0	0	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	2
HCM Control Delay	12.5	18	13
HCM LOS	B	C	B

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	100%	0%	39%
Vol Thru, %	100%	0%	0%	100%	1%
Vol Right, %	0%	100%	0%	0%	60%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	255	279	30	356	227
LT Vol	0	0	30	0	88
Through Vol	255	0	0	356	2
RT Vol	0	279	0	0	137
Lane Flow Rate	271	297	32	379	241
Geometry Grp	7	7	7	7	2
Degree of Util (X)	0.444	0.427	0.061	0.634	0.401
Departure Headway (Hd)	5.886	5.175	6.911	6.023	5.983
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	610	695	518	598	601
Service Time	3.626	2.915	4.655	3.767	4.031
HCM Lane V/C Ratio	0.444	0.427	0.062	0.634	0.401
HCM Control Delay	13.3	11.7	10.1	18.7	13
HCM Lane LOS	B	B	B	C	B
HCM 95th-tile Q	2.3	2.1	0.2	4.5	1.9

Intersection												
Int Delay, s/veh	15.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	146	196	0	0	124	45	262	1	38	0	0	0
Future Vol, veh/h	146	196	0	0	124	45	262	1	38	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	230	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	152	204	0	0	129	47	273	1	40	0	0	0

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	176	0	- - - 0 661 684 204
Stage 1	-	-	- - - 508 508 -
Stage 2	-	-	- - - 153 176 -
Critical Hdwy	4.15	-	- - - 6.44 6.5 6.26
Critical Hdwy Stg 1	-	-	- - - 5.44 5.5 -
Critical Hdwy Stg 2	-	-	- - - 5.44 5.5 -
Follow-up Hdwy	2.245	-	- - - 3.536 4 3.354
Pot Cap-1 Maneuver	1382	- 0 0	- - - 424 374 827
Stage 1	-	- 0 0	- - - 600 542 -
Stage 2	-	- 0 0	- - - 870 757 -
Platoon blocked, %	-	-	- -
Mov Cap-1 Maneuver	1382	- - -	- - - 377 0 827
Mov Cap-2 Maneuver	-	- - -	- - - 377 0 -
Stage 1	-	- - -	- - - 534 0 -
Stage 2	-	- - -	- - - 870 0 -

Approach	EB	WB	NB
HCM Control Delay, s	3.4	0	38.4
HCM LOS	E		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR
Capacity (veh/h)	405	1382	-	-	-
HCM Lane V/C Ratio	0.774	0.11	-	-	-
HCM Control Delay (s)	38.4	7.9	-	-	-
HCM Lane LOS	E	A	-	-	-
HCM 95th %tile Q(veh)	6.5	0.4	-	-	-

Intersection	
Intersection Delay, s/veh	11.8
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	146	196	0	0	124	45	262	1	38	0	0	0
Future Vol, veh/h	146	196	0	0	124	45	262	1	38	0	0	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	152	204	0	0	129	47	273	1	40	0	0	0
Number of Lanes	1	1	0	0	1	0	0	1	0	0	0	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	11.2	10.5	13.3
HCM LOS	B	B	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1
Vol Left, %	87%	100%	0%	0%
Vol Thru, %	0%	0%	100%	73%
Vol Right, %	13%	0%	0%	27%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	301	146	196	169
LT Vol	262	146	0	0
Through Vol	1	0	196	124
RT Vol	38	0	0	45
Lane Flow Rate	314	152	204	176
Geometry Grp	2	7	7	5
Degree of Util (X)	0.476	0.264	0.326	0.267
Departure Headway (Hd)	5.47	6.248	5.742	5.467
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	662	576	627	658
Service Time	3.47	3.973	3.466	3.495
HCM Lane V/C Ratio	0.474	0.264	0.325	0.267
HCM Control Delay	13.3	11.2	11.2	10.5
HCM Lane LOS	B	B	B	B
HCM 95th-tile Q	2.6	1.1	1.4	1.1

APPENDIX 6.7:

EA (2020) CONDITIONS BASIC FREEWAY SEGMENT ANALYSIS WORKSHEETS

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HCS7 Basic Freeway Report

Project Information

Analyst	CHS	Date	8/9/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EA 2020
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - N of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	4883	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1839
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.77
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	65.3
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	28.2
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CHS	Date	8/9/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EA 2020
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - S of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	4984	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1877
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.78
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	64.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	29.0
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CHS	Date	8/9/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EA 2020
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - N of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	4246	Heavy Vehicle Adjustment Factor (f_{HV})	0.980
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1570
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.65
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	68.4
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	23.0
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CHS	Date	8/9/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EA 2020
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - S of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	4335	Heavy Vehicle Adjustment Factor (f _{HV})	0.980
Peak Hour Factor (PHF)	0.92	Flow Rate (v _P), pc/h/ln	1603
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c _{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.67
Passenger Car Equivalent (E _T)	2.000		

Speed and Density

Lane Width Adjustment (f _{LW})	0.0	Average Speed (S), mi/h	68.1
Right-Side Lateral Clearance Adj. (f _{RLC})	0.0	Density (D), pc/mi/ln	23.5
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS _{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CHS	Date	8/9/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EA 2020
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - N of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	5570	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	2098
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.87
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	60.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	34.6
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CHS	Date	8/9/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EA 2020
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - S of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	5657	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	2131
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.89
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	60.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	35.5
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CHS	Date	8/9/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EA 2020
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - N of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	3294	Heavy Vehicle Adjustment Factor (f_{HV})	0.980
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1218
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.51
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	70.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	17.4
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CHS	Date	8/9/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EA 2020
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - S of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	3401	Heavy Vehicle Adjustment Factor (f_{HV})	0.990
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1245
Total Trucks, %	1.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.52
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	70.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	17.8
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

APPENDIX 6.8:

EAP (2020) CONDITIONS BASIC FREEWAY SEGMENT ANALYSIS WORKSHEETS

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HCS7 Basic Freeway Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAP 2020
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - N of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	4885	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1840
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.77
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	65.3
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	28.2
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAP 2020
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - S of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	4990	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1879
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.78
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	64.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	29.0
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAP 2020
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - N of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	4252	Heavy Vehicle Adjustment Factor (f_{HV})	0.980
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1572
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.66
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	68.4
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	23.0
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAP 2020
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - S of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	4337	Heavy Vehicle Adjustment Factor (f_{HV})	0.980
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1603
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.67
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	68.1
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	23.5
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAP 2020
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - N of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	5577	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	2100
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.88
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	60.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	34.7
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAP 2020
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - S of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	5661	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	2132
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.89
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	59.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	35.6
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAP 2020
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - N of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	3298	Heavy Vehicle Adjustment Factor (f_{HV})	0.980
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1219
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.51
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	70.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	17.4
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAP 2020
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - S of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	3408	Heavy Vehicle Adjustment Factor (f_{HV})	0.990
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1247
Total Trucks, %	1.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.52
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	70.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	17.8
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

APPENDIX 6.9:

EA (2020) CONDITIONS FREEWAY MERGE/DIVERGE ANALYSIS WORKSHEETS

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HCS7 Freeway Diverge Report

Project Information

Analyst	CHS	Date	8/9/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EA 2020
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - Off-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Deceleration Length (L _D), ft	1500	230
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V _i), veh/h	4883	241
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	4.00	11.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.962	0.901
Flow Rate (v _i), pc/h	5517	291
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.77	0.14

Speed and Density

Upstream Equilibrium Distance (L _{EQ}), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	32.1
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (D _s)	0.324
Downstream Equilibrium Distance (L _{EQ}), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	2043
Distance to Downstream Ramp (L _{DOWN}), ft	-	Off-Ramp Influence Area Speed (S _R), mi/h	60.9
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FD})	0.609	Outer Lanes Freeway Speed (S _O), mi/h	72.7
Flow in Lanes 1 and 2 (v ₁₂), pc/h	3474	Ramp Junction Speed (S), mi/h	64.8
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	-	Average Density (D), pc/mi/ln	28.4
Level of Service (LOS)	D	6.9-1	

HCS7 Freeway Merge Report

Project Information

Analyst	CHS	Date	8/9/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EA 2020
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - On-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Acceleration Length (LA), ft	1500	690
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi), veh/h	4641	342
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	4.00	8.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.962	0.926
Flow Rate (vi), pc/h	5244	401
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.78	0.19

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	28.6
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (M _s)	0.392
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	2113
Distance to Downstream Ramp (L _{DOWN}), ft	-	On-Ramp Influence Area Speed (S _R), mi/h	59.0
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FM})	0.597	Outer Lanes Freeway Speed (S _O), mi/h	64.2
Flow in Lanes 1 and 2 (v ₁₂), pc/h	3131	Ramp Junction Speed (S), mi/h	60.8
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	3532	Average Density (D), pc/mi/ln	30.9
Level of Service (LOS)	D	6.9-2	

HCS7 Freeway Merge Report

Project Information

Analyst	CHS	Date	8/9/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EA 2020
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - On-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Acceleration Length (LA), ft	1500	760
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi), veh/h	4074	173
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	6.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.980	0.943
Flow Rate (vi), pc/h	4519	199
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.66	0.09

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	23.4
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (M _s)	0.324
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	1812
Distance to Downstream Ramp (L _{DOWN}), ft	-	On-Ramp Influence Area Speed (S _R), mi/h	60.9
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FM})	0.599	Outer Lanes Freeway Speed (S _O), mi/h	65.3
Flow in Lanes 1 and 2 (v ₁₂), pc/h	2707	Ramp Junction Speed (S), mi/h	62.5
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	2906	Average Density (D), pc/mi/ln	25.2
Level of Service (LOS)	C	6.9-3	

HCS7 Freeway Diverge Report

Project Information

Analyst	CHS	Date	8/9/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EA 2020
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - Off-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Deceleration Length (L _D), ft	1500	260
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V _i), veh/h	4335	261
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	5.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.980	0.952
Flow Rate (v _i), pc/h	4808	298
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.67	0.14

Speed and Density

Upstream Equilibrium Distance (L _{EQ}), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	28.8
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (D _s)	0.325
Downstream Equilibrium Distance (L _{EQ}), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	1687
Distance to Downstream Ramp (L _{DOWN}), ft	-	Off-Ramp Influence Area Speed (S _R), mi/h	60.9
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FD})	0.626	Outer Lanes Freeway Speed (S _O), mi/h	74.1
Flow in Lanes 1 and 2 (v ₁₂), pc/h	3121	Ramp Junction Speed (S), mi/h	65.0
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	-	Average Density (D), pc/mi/ln	24.7
Level of Service (LOS)	D	6.9-4	

HCS7 Freeway Diverge Report

Project Information

Analyst	CHS	Date	8/9/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EA 2020
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - Off-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Deceleration Length (L _D), ft	1500	230
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V _i), veh/h	5570	221
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	4.00	4.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.962	0.962
Flow Rate (v _i), pc/h	6294	250
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.87	0.12

Speed and Density

Upstream Equilibrium Distance (L _{EQ}), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	35.1
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (D _s)	0.320
Downstream Equilibrium Distance (L _{EQ}), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	2472
Distance to Downstream Ramp (L _{DOWN}), ft	-	Off-Ramp Influence Area Speed (S _R), mi/h	61.0
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FD})	0.591	Outer Lanes Freeway Speed (S _O), mi/h	71.0
Flow in Lanes 1 and 2 (v ₁₂), pc/h	3822	Ramp Junction Speed (S), mi/h	64.6
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	-	Average Density (D), pc/mi/ln	32.5
Level of Service (LOS)	E	6.9-5	

HCS7 Freeway Merge Report

Project Information

Analyst	CHS	Date	8/9/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EA 2020
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - On-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Acceleration Length (LA), ft	1500	690
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi), veh/h	5350	307
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	4.00	5.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.962	0.952
Flow Rate (vi), pc/h	6045	351
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.89	0.17

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (DR), pc/mi/ln	31.9
Distance to Upstream Ramp (LUP), ft	-	Speed Index (Ms)	0.463
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	2436
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	57.0
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.597	Outer Lanes Freeway Speed (So), mi/h	62.7
Flow in Lanes 1 and 2 (v12), pc/h	3609	Ramp Junction Speed (S), mi/h	59.0
Flow Entering Ramp-Infl. Area (VR12), pc/h	3960	Average Density (D), pc/mi/ln	36.1
Level of Service (LOS)	D	6.9-6	

HCS7 Freeway Merge Report

Project Information

Analyst	CHS	Date	8/9/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EA 2020
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - On-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Acceleration Length (LA), ft	1500	760
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi), veh/h	3106	187
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	15.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.980	0.870
Flow Rate (vi), pc/h	3445	234
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.51	0.11

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	18.6
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (M _s)	0.291
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	1381
Distance to Downstream Ramp (L _{DOWN}), ft	-	On-Ramp Influence Area Speed (S _R), mi/h	61.9
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FM})	0.599	Outer Lanes Freeway Speed (S _O), mi/h	66.8
Flow in Lanes 1 and 2 (v ₁₂), pc/h	2064	Ramp Junction Speed (S), mi/h	63.7
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	2298	Average Density (D), pc/mi/ln	19.3
Level of Service (LOS)	B	6.9-7	

HCS7 Freeway Diverge Report

Project Information

Analyst	CHS	Date	8/9/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EA 2020
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - Off-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Deceleration Length (L _D), ft	1500	260
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V _i), veh/h	3401	294
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	1.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.990	0.990
Flow Rate (v _i), pc/h	3734	323
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.52	0.15

Speed and Density

Upstream Equilibrium Distance (L _{EQ}), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	23.8
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (D _s)	0.327
Downstream Equilibrium Distance (L _{EQ}), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	1187
Distance to Downstream Ramp (L _{DOWN}), ft	-	Off-Ramp Influence Area Speed (S _R), mi/h	60.8
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FD})	0.652	Outer Lanes Freeway Speed (S _O), mi/h	76.1
Flow in Lanes 1 and 2 (v ₁₂), pc/h	2547	Ramp Junction Speed (S), mi/h	65.0
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	-	Average Density (D), pc/mi/ln	19.1
Level of Service (LOS)	C	6.9-8	

APPENDIX 6.10:

EAP (2020) CONDITIONS FREEWAY MERGE/DIVERGE ANALYSIS WORKSHEETS

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HCS7 Freeway Diverge Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAP 2020
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - Off-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Deceleration Length (L _D), ft	1500	230
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V _i), veh/h	4885	243
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	4.00	11.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.962	0.901
Flow Rate (v _i), pc/h	5520	293
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.77	0.14

Speed and Density

Upstream Equilibrium Distance (L _{EQ}), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	32.1
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (D _s)	0.324
Downstream Equilibrium Distance (L _{EQ}), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	2044
Distance to Downstream Ramp (L _{DOWN}), ft	-	Off-Ramp Influence Area Speed (S _R), mi/h	60.9
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FD})	0.609	Outer Lanes Freeway Speed (S _O), mi/h	72.7
Flow in Lanes 1 and 2 (v ₁₂), pc/h	3476	Ramp Junction Speed (S), mi/h	64.8
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	-	Average Density (D), pc/mi/ln	28.4
Level of Service (LOS)	D	6.13-1	

HCS7 Freeway Merge Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAP 2020
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - On-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Acceleration Length (LA), ft	1500	690
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V _i), veh/h	4641	348
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	4.00	8.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.962	0.926
Flow Rate (v _i), pc/h	5244	408
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.79	0.19

Speed and Density

Upstream Equilibrium Distance (L _{EQ}), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	28.6
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (M _s)	0.393
Downstream Equilibrium Distance (L _{EQ}), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	2113
Distance to Downstream Ramp (L _{DOWN}), ft	-	On-Ramp Influence Area Speed (S _R), mi/h	59.0
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FM})	0.597	Outer Lanes Freeway Speed (S _O), mi/h	64.2
Flow in Lanes 1 and 2 (v ₁₂), pc/h	3131	Ramp Junction Speed (S), mi/h	60.8
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	3539	Average Density (D), pc/mi/ln	31.0
Level of Service (LOS)	D	6.13-2	

HCS7 Freeway Merge Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAP 2020
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - On-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Acceleration Length (LA), ft	1500	760
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V_i), veh/h	4074	179
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	6.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.980	0.943
Flow Rate (v_i), pc/h	4519	206
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.66	0.10

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	23.4
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_s)	0.324
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	1812
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	60.9
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	0.599	Outer Lanes Freeway Speed (S_o), mi/h	65.3
Flow in Lanes 1 and 2 (v_{12}), pc/h	2707	Ramp Junction Speed (S), mi/h	62.5
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	2913	Average Density (D), pc/mi/ln	25.2
Level of Service (LOS)	C	6.13-3	

HCS7 Freeway Diverge Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAP 2020
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - Off-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Deceleration Length (L _D), ft	1500	260
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V _i), veh/h	4337	263
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	5.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.980	0.952
Flow Rate (v _i), pc/h	4810	300
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.67	0.14

Speed and Density

Upstream Equilibrium Distance (L _{EQ}), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	28.8
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (D _s)	0.325
Downstream Equilibrium Distance (L _{EQ}), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	1687
Distance to Downstream Ramp (L _{DOWN}), ft	-	Off-Ramp Influence Area Speed (S _R), mi/h	60.9
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FD})	0.626	Outer Lanes Freeway Speed (S _O), mi/h	74.1
Flow in Lanes 1 and 2 (v ₁₂), pc/h	3123	Ramp Junction Speed (S), mi/h	65.0
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	-	Average Density (D), pc/mi/ln	24.7
Level of Service (LOS)	D	6.13-4	

HCS7 Freeway Diverge Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAP 2020
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - Off-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Deceleration Length (L _D), ft	1500	230
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V _i), veh/h	5577	228
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	4.00	4.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.962	0.962
Flow Rate (v _i), pc/h	6301	258
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.88	0.12

Speed and Density

Upstream Equilibrium Distance (L _{EQ}), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	35.1
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (D _s)	0.321
Downstream Equilibrium Distance (L _{EQ}), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	2472
Distance to Downstream Ramp (L _{DOWN}), ft	-	Off-Ramp Influence Area Speed (S _R), mi/h	61.0
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FD})	0.591	Outer Lanes Freeway Speed (S _O), mi/h	71.0
Flow in Lanes 1 and 2 (v ₁₂), pc/h	3829	Ramp Junction Speed (S), mi/h	64.6
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	-	Average Density (D), pc/mi/ln	32.5
Level of Service (LOS)	E	6.13-5	

HCS7 Freeway Merge Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAP 2020
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - On-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Acceleration Length (LA), ft	1500	690
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi), veh/h	5350	311
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	4.00	5.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.962	0.952
Flow Rate (vi), pc/h	6045	355
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.89	0.17

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	32.0
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (M _s)	0.464
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	2436
Distance to Downstream Ramp (L _{DOWN}), ft	-	On-Ramp Influence Area Speed (S _R), mi/h	57.0
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FM})	0.597	Outer Lanes Freeway Speed (S _O), mi/h	62.7
Flow in Lanes 1 and 2 (v ₁₂), pc/h	3609	Ramp Junction Speed (S), mi/h	59.0
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	3964	Average Density (D), pc/mi/ln	36.2
Level of Service (LOS)	D	6.13-6	

HCS7 Freeway Merge Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAP 2020
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - On-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Acceleration Length (LA), ft	1500	760
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi), veh/h	3106	191
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	15.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.980	0.870
Flow Rate (vi), pc/h	3445	239
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.51	0.11

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	18.6
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (M _s)	0.292
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	1381
Distance to Downstream Ramp (L _{DOWN}), ft	-	On-Ramp Influence Area Speed (S _R), mi/h	61.8
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FM})	0.599	Outer Lanes Freeway Speed (S _O), mi/h	66.8
Flow in Lanes 1 and 2 (v ₁₂), pc/h	2064	Ramp Junction Speed (S), mi/h	63.6
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	2303	Average Density (D), pc/mi/ln	19.3
Level of Service (LOS)	B	6.13-7	

HCS7 Freeway Diverge Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAP 2020
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - Off-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Deceleration Length (L _D), ft	1500	260
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V _i), veh/h	3408	301
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	1.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.990	0.990
Flow Rate (v _i), pc/h	3742	330
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.52	0.16

Speed and Density

Upstream Equilibrium Distance (L _{EQ}), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	23.9
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (D _s)	0.328
Downstream Equilibrium Distance (L _{EQ}), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	1191
Distance to Downstream Ramp (L _{DOWN}), ft	-	Off-Ramp Influence Area Speed (S _R), mi/h	60.8
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FD})	0.651	Outer Lanes Freeway Speed (S _O), mi/h	76.0
Flow in Lanes 1 and 2 (v ₁₂), pc/h	2551	Ramp Junction Speed (S), mi/h	64.9
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	-	Average Density (D), pc/mi/ln	19.2
Level of Service (LOS)	C	6.13-8	

APPENDIX 6.11:

**EA (2020) CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS WITH
IMPROVEMENTS**

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Timings

S. Nichols Mixed-Use Development (JN 10878)

5: Strickland Av./Gunnerson St. & Riverside Dr. (SR-74)

08/09/2018



Lane Group	EBT	WBL	WBT	NBT	NBR	SBL	SBT	SBR
Lane Configurations	EBT	WBL	WBT	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	860	2	645	2	11	48	3	5
Future Volume (vph)	860	2	645	2	11	48	3	5
Turn Type	NA	Perm	NA	NA	Perm	Perm	NA	Perm
Protected Phases	4		8	2			6	
Permitted Phases		8			2	6		6
Detector Phase	4	8	8	2	2	6	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	93.0	93.0	93.0	27.0	27.0	27.0	27.0	27.0
Total Split (%)	77.5%	77.5%	77.5%	22.5%	22.5%	22.5%	22.5%	22.5%
Yellow Time (s)	4.4	4.4	4.4	3.6	3.6	4.4	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.4	5.4	5.4	4.6	4.6		5.4	5.4
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	Min	Min	Min	Min	Min
Act Effect Green (s)	32.0	32.0	32.0	12.4	12.4		11.5	11.5
Actuated g/C Ratio	0.58	0.58	0.58	0.23	0.23		0.21	0.21
v/c Ratio	0.82	0.01	0.65	0.00	0.03		0.18	0.01
Control Delay	16.3	4.5	10.6	22.0	6.5		23.6	1.2
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay	16.3	4.5	10.6	22.0	6.5		23.6	1.2
LOS	B	A	B	C	A		C	A
Approach Delay	16.3		10.5	8.9			21.6	
Approach LOS	B		B	A			C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 54.9

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.82

Intersection Signal Delay: 14.0

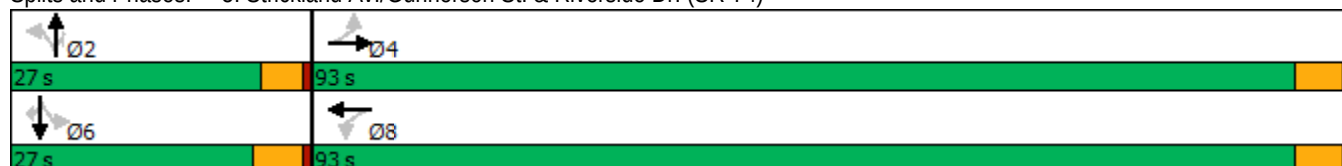
Intersection LOS: B

Intersection Capacity Utilization 74.9%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 5: Strickland Av./Gunnerson St. & Riverside Dr. (SR-74)



HCM 6th Signalized Intersection Summary S. Nichols Mixed-Use Development (JN 10878)
 5: Strickland Av./Gunnerson St. & Riverside Dr. (SR-74) 08/09/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	860	3	2	645	36	0	2	11	48	3	5
Future Volume (veh/h)	0	860	3	2	645	36	0	2	11	48	3	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	887	3	2	665	37	0	2	0	49	3	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	144	1086	4	272	1023	57	0	375		408	21	
Arrive On Green	0.00	0.58	0.58	0.58	0.58	0.58	0.00	0.20	0.00	0.20	0.20	0.00
Sat Flow, veh/h	745	1863	6	625	1755	98	0	1870	1585	1336	105	1585
Grp Volume(v), veh/h	0	0	890	2	0	702	0	2	0	52	0	0
Grp Sat Flow(s),veh/h/ln	745	0	1869	625	0	1853	0	1870	1585	1440	0	1585
Q Serve(g_s), s	0.0	0.0	18.9	0.1	0.0	12.7	0.0	0.0	0.0	1.3	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	18.9	19.0	0.0	12.7	0.0	0.0	0.0	1.5	0.0	0.0
Prop In Lane	1.00		0.00	1.00		0.05	0.00		1.00	0.94		1.00
Lane Grp Cap(c), veh/h	144	0	1089	272	0	1080	0	375		429	0	
V/C Ratio(X)	0.00	0.00	0.82	0.01	0.00	0.65	0.00	0.01		0.12	0.00	
Avail Cap(c_a), veh/h	1019	0	3284	1005	0	3256	0	840		763	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	8.3	15.9	0.0	7.0	0.0	15.9	0.0	16.5	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	1.6	0.0	0.0	0.7	0.0	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	4.6	0.0	0.0	3.0	0.0	0.0	0.0	0.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	9.8	15.9	0.0	7.7	0.0	16.0	0.0	16.6	0.0	0.0
LnGrp LOS	A	A	A	B	A	A	A	B		B	A	
Approach Vol, veh/h	890			704			2			52		
Approach Delay, s/veh	9.8			7.7			16.0			16.6		
Approach LOS	A			A			B			B		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	15.4			34.5			15.4			34.5		
Change Period (Y+Rc), s	* 5.4			5.4			5.4			5.4		
Max Green Setting (Gmax), s	* 22			87.6			21.6			87.6		
Max Q Clear Time (g_c+I1), s	2.0			20.9			3.5			21.0		
Green Ext Time (p_c), s	0.0			8.1			0.1			5.5		

Intersection Summary

HCM 6th Ctrl Delay	9.1
HCM 6th LOS	A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Timings
10: I-15 NB Ramps & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

08/09/2018

					
Lane Group	EBL	EBT	WBT	NBT	NBR
Lane Configurations					
Traffic Volume (vph)	77	331	136	3	112
Future Volume (vph)	77	331	136	3	112
Turn Type	Prot	NA	NA	NA	Perm
Protected Phases	7	4	8	2	
Permitted Phases					2
Detector Phase	7	4	8	2	2
Switch Phase					
Minimum Initial (s)	5.0	10.0	10.0	10.0	10.0
Minimum Split (s)	10.8	22.5	23.8	23.8	23.8
Total Split (s)	22.7	69.9	47.2	50.1	50.1
Total Split (%)	18.9%	58.3%	39.3%	41.8%	41.8%
Yellow Time (s)	4.8	3.5	4.8	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	4.5	5.8	5.8	5.8
Lead/Lag	Lead		Lag		
Lead-Lag Optimize?	Yes		Yes		
Recall Mode	None	None	None	Min	Min
Act Effect Green (s)	11.1	34.1	19.8	15.5	15.5
Actuated g/C Ratio	0.18	0.56	0.32	0.25	0.25
v/c Ratio	0.40	0.53	0.67	0.54	0.35
Control Delay	31.0	10.2	25.2	28.4	6.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	31.0	10.2	25.2	28.4	6.5
LOS	C	B	C	C	A
Approach Delay		14.1	25.2	19.0	
Approach LOS		B	C	B	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 61.1

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.67

Intersection Signal Delay: 18.4

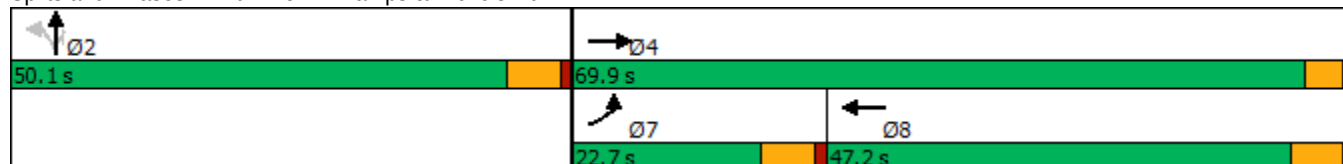
Intersection LOS: B

Intersection Capacity Utilization 44.3%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 10: I-15 NB Ramps & Nichols Rd.



HCM 6th Signalized Intersection Summary 10: I-15 NB Ramps & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

08/09/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	77	331	0	0	136	93	146	3	112	0	0	0
Future Volume (veh/h)	77	331	0	0	136	93	146	3	112	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1826	1826	0	0	1737	1737	1811	1900	1811			
Adj Flow Rate, veh/h	124	534	0	0	219	150	235	5	181			
Peak Hour Factor	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62			
Percent Heavy Veh, %	5	5	0	0	11	11	6	0	6			
Cap, veh/h	163	953	0	0	288	198	392	8	332			
Arrive On Green	0.09	0.52	0.00	0.00	0.30	0.30	0.22	0.22	0.22			
Sat Flow, veh/h	1739	1826	0	0	961	658	1774	38	1502			
Grp Volume(v), veh/h	124	534	0	0	0	369	240	0	181			
Grp Sat Flow(s),veh/h/ln	1739	1826	0	0	0	1619	1811	0	1502			
Q Serve(g_s), s	3.1	8.9	0.0	0.0	0.0	9.3	5.4	0.0	4.8			
Cycle Q Clear(g_c), s	3.1	8.9	0.0	0.0	0.0	9.3	5.4	0.0	4.8			
Prop In Lane	1.00		0.00	0.00		0.41	0.98		1.00			
Lane Grp Cap(c), veh/h	163	953	0	0	0	486	401	0	332			
V/C Ratio(X)	0.76	0.56	0.00	0.00	0.00	0.76	0.60	0.00	0.54			
Avail Cap(c_a), veh/h	650	2642	0	0	0	1483	1775	0	1472			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	0.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	20.0	7.3	0.0	0.0	0.0	14.3	15.8	0.0	15.6			
Incr Delay (d2), s/veh	7.2	0.5	0.0	0.0	0.0	2.5	0.5	0.0	0.5			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.4	2.0	0.0	0.0	0.0	2.8	1.8	0.0	1.3			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.2	7.8	0.0	0.0	0.0	16.8	16.3	0.0	16.1			
LnGrp LOS	C	A	A	A	A	B	B	A	B			
Approach Vol, veh/h	658			369			421					
Approach Delay, s/veh	11.5			16.8			16.2					
Approach LOS	B			B			B					
Timer - Assigned Phs	2			4			7			8		
Phs Duration (G+Y+Rc), s	15.8			29.4			10.0			19.4		
Change Period (Y+Rc), s	5.8			* 5.8			5.8			5.8		
Max Green Setting (Gmax), s	44.3			* 65			16.9			41.4		
Max Q Clear Time (g_c+I1), s	7.4			10.9			5.1			11.3		
Green Ext Time (p_c), s	1.1			3.5			0.2			2.2		
Intersection Summary												
HCM 6th Ctrl Delay			14.2									
HCM 6th LOS			B									
Notes												

Intersection

Intersection Delay, s/veh71.4

Intersection LOS F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	↕
Traffic Vol, veh/h	134	0	274	6	0	16	173	108	6	8	357	237
Future Vol, veh/h	134	0	274	6	0	16	173	108	6	8	357	237
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	194	0	397	9	0	23	251	157	9	12	517	343
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	1
Conflicting Approach Left SB		NB	EB	WB
Conflicting Lanes Left	2	1	1	1
Conflicting Approach RightNB		SB	WB	EB
Conflicting Lanes Right	1	2	1	1
HCM Control Delay	93	13.2	42.7	72.5
HCM LOS	F	B	E	F

Lane	NBLn1	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	60%	33%	27%	2%	0%
Vol Thru, %	38%	0%	0%	98%	0%
Vol Right, %	2%	67%	73%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	287	408	22	365	237
LT Vol	173	134	6	8	0
Through Vol	108	0	0	357	0
RT Vol	6	274	16	0	237
Lane Flow Rate	416	591	32	529	343
Geometry Grp	5	2	2	7	7
Degree of Util (X)	0.858	1.094	0.078	1.114	0.656
Departure Headway (Hd)	7.893	6.882	9.4	8.014	7.279
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	462	532	384	455	498
Service Time	5.893	4.882	7.4	5.714	4.979
HCM Lane V/C Ratio	0.9	1.111	0.083	1.163	0.689
HCM Control Delay	42.7	93	13.2	104.7	22.8
HCM Lane LOS	E	F	B	F	C
HCM 95th-tile Q	8.7	18	0.3	17.3	4.7

Intersection

Intersection Delay, s/veh 21.9

Intersection LOS C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	↕
Traffic Vol, veh/h	134	0	274	6	0	16	173	108	6	8	357	237
Future Vol, veh/h	134	0	274	6	0	16	173	108	6	8	357	237
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	146	0	298	7	0	17	188	117	7	9	388	258
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	1	1
HCM Control Delay	25.7	10.9	18.7	21.2
HCM LOS	D	B	C	C

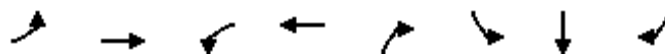
Lane	NBLn1	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	60%	33%	27%	2%	0%
Vol Thru, %	38%	0%	0%	98%	0%
Vol Right, %	2%	67%	73%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	287	408	22	365	237
LT Vol	173	134	6	8	0
Through Vol	108	0	0	357	0
RT Vol	6	274	16	0	237
Lane Flow Rate	312	443	24	397	258
Geometry Grp	5	2	2	7	7
Degree of Util (X)	0.581	0.756	0.049	0.741	0.429
Departure Headway (Hd)	6.705	6.14	7.402	6.723	5.997
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	537	594	482	540	600
Service Time	4.75	4.14	5.468	4.469	3.742
HCM Lane V/C Ratio	0.581	0.746	0.05	0.735	0.43
HCM Control Delay	18.7	25.7	10.9	26.4	13.2
HCM Lane LOS	C	D	B	D	B
HCM 95th-tile Q	3.7	6.7	0.2	6.3	2.1

Timings

S. Nichols Mixed-Use Development (JN 10878)

5: Strickland Av./Gunnerson St. & Riverside Dr. (SR-74)

08/09/2018



Lane Group	EBL	EBT	WBL	WBT	NBR	SBL	SBT	SBR
Lane Configurations								
Traffic Volume (vph)	2	867	6	890	6	29	1	2
Future Volume (vph)	2	867	6	890	6	29	1	2
Turn Type	Perm	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		8			6	
Permitted Phases	4		8		2	6		6
Detector Phase	4	4	8	8	2	6	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	93.0	93.0	93.0	93.0	27.0	27.0	27.0	27.0
Total Split (%)	77.5%	77.5%	77.5%	77.5%	22.5%	22.5%	22.5%	22.5%
Yellow Time (s)	4.4	4.4	4.4	4.4	3.6	4.4	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.4	5.4	5.4	5.4	4.6		5.4	5.4
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	Min	Min	Min	Min
Act Effect Green (s)	44.1	44.1	44.1	44.1	12.6		11.7	11.7
Actuated g/C Ratio	0.65	0.65	0.65	0.65	0.19		0.17	0.17
v/c Ratio	0.01	0.74	0.02	0.87	0.01		0.13	0.01
Control Delay	4.0	11.5	3.8	17.6	0.0		32.1	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay	4.0	11.5	3.8	17.6	0.0		32.1	0.0
LOS	A	B	A	B	A		C	A
Approach Delay		11.4		17.5			30.2	
Approach LOS		B		B			C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 67.5

Natural Cycle: 75

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 14.9

Intersection LOS: B

Intersection Capacity Utilization 75.4%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 5: Strickland Av./Gunnerson St. & Riverside Dr. (SR-74)



HCM 6th Signalized Intersection Summary S. Nichols Mixed-Use Development (JN 10878)
 5: Strickland Av./Gunnerson St. & Riverside Dr. (SR-74) 08/09/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	867	4	6	890	120	0	0	6	29	1	2
Future Volume (veh/h)	2	867	4	6	890	120	0	0	6	29	1	2
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	2	894	4	6	918	124	0	0	0	30	1	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	236	1235	6	335	1071	145	0	302		336	9	
Arrive On Green	0.66	0.66	0.66	0.66	0.66	0.66	0.00	0.00	0.00	0.16	0.16	0.00
Sat Flow, veh/h	541	1861	8	620	1613	218	0	1870	1585	1373	58	1585
Grp Volume(v), veh/h	2	0	898	6	0	1042	0	0	0	31	0	0
Grp Sat Flow(s),veh/h/ln	541	0	1869	620	0	1831	0	1870	1585	1432	0	1585
Q Serve(g_s), s	0.2	0.0	19.2	0.4	0.0	27.5	0.0	0.0	0.0	1.1	0.0	0.0
Cycle Q Clear(g_c), s	27.6	0.0	19.2	19.6	0.0	27.5	0.0	0.0	0.0	1.1	0.0	0.0
Prop In Lane	1.00		0.00	1.00		0.12	0.00		1.00	0.97		1.00
Lane Grp Cap(c), veh/h	236	0	1241	335	0	1216	0	302		346	0	
V/C Ratio(X)	0.01	0.00	0.72	0.02	0.00	0.86	0.00	0.00		0.09	0.00	
Avail Cap(c_a), veh/h	642	0	2644	801	0	2591	0	677		613	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	18.9	0.0	6.7	13.1	0.0	8.1	0.0	0.0	0.0	22.2	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.8	0.0	0.0	1.9	0.0	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	4.5	0.0	0.0	6.6	0.0	0.0	0.0	0.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.9	0.0	7.5	13.1	0.0	10.0	0.0	0.0	0.0	22.3	0.0	0.0
LnGrp LOS	B	A	A	B	A	A	A	A		C	A	
Approach Vol, veh/h	900			1048			0			A	31	A
Approach Delay, s/veh	7.6			10.0			0.0				22.3	
Approach LOS	A			A							C	
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	15.4			46.5			15.4			46.5		
Change Period (Y+Rc), s	* 5.4			5.4			5.4			5.4		
Max Green Setting (Gmax), s	* 22			87.6			21.6			87.6		
Max Q Clear Time (g_c+I1), s	0.0			29.6			3.1			29.5		
Green Ext Time (p_c), s	0.0			8.3			0.1			11.6		

Intersection Summary

HCM 6th Ctrl Delay	9.1
HCM 6th LOS	A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Timings
10: I-15 NB Ramps & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

08/09/2018

					
Lane Group	EBL	EBT	WBT	NBT	NBR
Lane Configurations					
Traffic Volume (vph)	146	184	117	1	31
Future Volume (vph)	146	184	117	1	31
Turn Type	Prot	NA	NA	NA	Perm
Protected Phases	7	4	8	2	
Permitted Phases					2
Detector Phase	7	4	8	2	2
Switch Phase					
Minimum Initial (s)	5.0	10.0	10.0	10.0	10.0
Minimum Split (s)	10.8	22.5	23.8	23.8	23.8
Total Split (s)	22.7	69.9	47.2	50.1	50.1
Total Split (%)	18.9%	58.3%	39.3%	41.8%	41.8%
Yellow Time (s)	4.8	3.5	4.8	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	4.5	5.8	5.8	5.8
Lead/Lag	Lead		Lag		
Lead-Lag Optimize?	Yes		Yes		
Recall Mode	None	None	None	Min	Min
Act Effect Green (s)	17.1	41.5	17.1	23.0	23.0
Actuated g/C Ratio	0.23	0.55	0.23	0.31	0.31
v/c Ratio	0.60	0.30	0.65	0.80	0.10
Control Delay	37.6	11.1	34.1	36.6	2.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	37.6	11.1	34.1	36.6	2.5
LOS	D	B	C	D	A
Approach Delay		22.8	34.1	33.0	
Approach LOS		C	C	C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 75.1

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.80

Intersection Signal Delay: 28.9

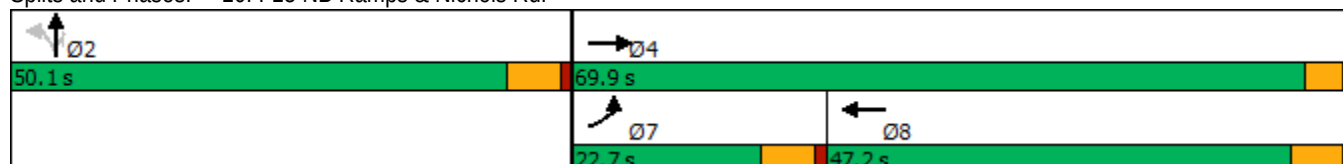
Intersection LOS: C

Intersection Capacity Utilization 45.8%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 10: I-15 NB Ramps & Nichols Rd.



HCM 6th Signalized Intersection Summary 10: I-15 NB Ramps & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

08/09/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	146	184	0	0	117	41	262	1	31	0	0	0
Future Volume (veh/h)	146	184	0	0	117	41	262	1	31	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1826	1826	0	0	1737	1737	1811	1900	1811			
Adj Flow Rate, veh/h	235	297	0	0	189	66	423	2	50			
Peak Hour Factor	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62			
Percent Heavy Veh, %	5	5	0	0	11	11	6	0	6			
Cap, veh/h	295	895	0	0	257	90	518	2	432			
Arrive On Green	0.17	0.49	0.00	0.00	0.21	0.21	0.29	0.29	0.29			
Sat Flow, veh/h	1739	1826	0	0	1230	430	1801	9	1502			
Grp Volume(v), veh/h	235	297	0	0	0	255	425	0	50			
Grp Sat Flow(s),veh/h/ln	1739	1826	0	0	0	1660	1810	0	1502			
Q Serve(g_s), s	6.8	5.2	0.0	0.0	0.0	7.5	11.4	0.0	1.3			
Cycle Q Clear(g_c), s	6.8	5.2	0.0	0.0	0.0	7.5	11.4	0.0	1.3			
Prop In Lane	1.00		0.00	0.00		0.26	1.00		1.00			
Lane Grp Cap(c), veh/h	295	895	0	0	0	347	521	0	432			
V/C Ratio(X)	0.80	0.33	0.00	0.00	0.00	0.73	0.82	0.00	0.12			
Avail Cap(c_a), veh/h	563	2287	0	0	0	1316	1536	0	1275			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	0.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	20.8	8.1	0.0	0.0	0.0	19.3	17.3	0.0	13.7			
Incr Delay (d2), s/veh	4.9	0.2	0.0	0.0	0.0	3.0	1.2	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	2.7	1.4	0.0	0.0	0.0	2.7	3.9	0.0	0.4			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.7	8.3	0.0	0.0	0.0	22.3	18.5	0.0	13.7			
LnGrp LOS	C	A	A	A	A	C	B	A	B			
Approach Vol, veh/h	532			255			475					
Approach Delay, s/veh	16.0			22.3			18.0					
Approach LOS	B			C			B					
Timer - Assigned Phs	2			4			7			8		
Phs Duration (G+Y+Rc), s	20.8			31.4			14.7			16.7		
Change Period (Y+Rc), s	5.8			* 5.8			5.8			5.8		
Max Green Setting (Gmax), s	44.3			* 65			16.9			41.4		
Max Q Clear Time (g_c+l1), s	13.4			7.2			8.8			9.5		
Green Ext Time (p_c), s	1.6			1.7			0.4			1.4		
Intersection Summary												
HCM 6th Ctrl Delay			18.0									
HCM 6th LOS			B									
Notes												

Intersection

Intersection Delay, s/veh 9.3

Intersection LOS A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	↔
Traffic Vol, veh/h	15	0	30	5	0	1	14	140	4	6	152	10
Future Vol, veh/h	15	0	30	5	0	1	14	140	4	6	152	10
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	22	0	43	7	0	1	20	203	6	9	220	14
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	1
Conflicting Approach Left SB		NB	EB	WB
Conflicting Lanes Left	2	1	1	1
Conflicting Approach Right NB		SB	WB	EB
Conflicting Lanes Right	1	2	1	1
HCM Control Delay	8.2	8.3	9.3	9.6
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	9%	33%	83%	4%	0%
Vol Thru, %	89%	0%	0%	96%	0%
Vol Right, %	3%	67%	17%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	158	45	6	158	10
LT Vol	14	15	5	6	0
Through Vol	140	0	0	152	0
RT Vol	4	30	1	0	10
Lane Flow Rate	229	65	9	229	14
Geometry Grp	5	2	2	7	7
Degree of Util (X)	0.286	0.085	0.013	0.313	0.017
Departure Headway (Hd)	4.491	4.705	5.19	4.92	4.198
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	801	761	689	735	858
Service Time	2.51	2.736	3.226	2.62	1.898
HCM Lane V/C Ratio	0.286	0.085	0.013	0.312	0.016
HCM Control Delay	9.3	8.2	8.3	9.8	7
HCM Lane LOS	A	A	A	A	A
HCM 95th-tile Q	1.2	0.3	0	1.3	0.1

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APPENDIX 6.12:

**EAP (2020) CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS WITH
IMPROVEMENTS**

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Timings

S. Nichols Mixed-Use Development (JN 10878)

5: Strickland Av./Gunnerson St. & Riverside Dr. (SR-74)

05/24/2018



Lane Group	EBT	WBL	WBT	NBT	NBR	SBL	SBT	SBR
Lane Configurations	EBT	WBL	WBT	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	861	2	647	2	11	48	3	5
Future Volume (vph)	861	2	647	2	11	48	3	5
Turn Type	NA	Perm	NA	NA	Perm	Perm	NA	Perm
Protected Phases	4		8	2			6	
Permitted Phases		8			2	6		6
Detector Phase	4	8	8	2	2	6	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	93.0	93.0	93.0	27.0	27.0	27.0	27.0	27.0
Total Split (%)	77.5%	77.5%	77.5%	22.5%	22.5%	22.5%	22.5%	22.5%
Yellow Time (s)	4.4	4.4	4.4	3.6	3.6	4.4	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.4	5.4	5.4	4.6	4.6		5.4	5.4
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	Min	Min	Min	Min	Min
Act Effect Green (s)	32.0	32.0	32.0	12.4	12.4		11.5	11.5
Actuated g/C Ratio	0.58	0.58	0.58	0.23	0.23		0.21	0.21
v/c Ratio	0.82	0.01	0.65	0.00	0.03		0.18	0.01
Control Delay	16.3	4.5	10.6	22.0	6.5		23.6	1.2
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay	16.3	4.5	10.6	22.0	6.5		23.6	1.2
LOS	B	A	B	C	A		C	A
Approach Delay	16.3		10.6	8.9			21.7	
Approach LOS	B		B	A			C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 54.9

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.82

Intersection Signal Delay: 14.0

Intersection LOS: B

Intersection Capacity Utilization 75.0%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 5: Strickland Av./Gunnerson St. & Riverside Dr. (SR-74)



												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	861	3	2	647	36	0	2	11	48	3	5
Future Volume (veh/h)	0	861	3	2	647	36	0	2	11	48	3	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	888	3	2	667	37	0	2	0	49	3	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	144	1087	4	271	1024	57	0	375		408	21	
Arrive On Green	0.00	0.58	0.58	0.58	0.58	0.58	0.00	0.20	0.00	0.20	0.20	0.00
Sat Flow, veh/h	743	1863	6	624	1755	97	0	1870	1585	1336	105	1585
Grp Volume(v), veh/h	0	0	891	2	0	704	0	2	0	52	0	0
Grp Sat Flow(s),veh/h/ln	743	0	1869	624	0	1853	0	1870	1585	1440	0	1585
Q Serve(g_s), s	0.0	0.0	18.9	0.1	0.0	12.7	0.0	0.0	0.0	1.3	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	18.9	19.1	0.0	12.7	0.0	0.0	0.0	1.5	0.0	0.0
Prop In Lane	1.00		0.00	1.00		0.05	0.00		1.00	0.94		1.00
Lane Grp Cap(c), veh/h	144	0	1090	271	0	1081	0	375		429	0	
V/C Ratio(X)	0.00	0.00	0.82	0.01	0.00	0.65	0.00	0.01		0.12	0.00	
Avail Cap(c_a), veh/h	1015	0	3281	1003	0	3252	0	839		762	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	8.3	15.9	0.0	7.0	0.0	16.0	0.0	16.5	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	1.6	0.0	0.0	0.7	0.0	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	4.7	0.0	0.0	3.0	0.0	0.0	0.0	0.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	9.8	15.9	0.0	7.7	0.0	16.0	0.0	16.7	0.0	0.0
LnGrp LOS	A	A	A	B	A	A	A	B		B	A	
Approach Vol, veh/h	891			706			2			52		
Approach Delay, s/veh	9.8			7.7			16.0			16.7		
Approach LOS	A			A			B			B		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	15.4			34.5			15.4			34.5		
Change Period (Y+Rc), s	* 5.4			5.4			5.4			5.4		
Max Green Setting (Gmax), s	* 22			87.6			21.6			87.6		
Max Q Clear Time (g_c+I1), s	2.0			20.9			3.5			21.1		
Green Ext Time (p_c), s	0.0			8.2			0.1			5.5		

Intersection Summary

HCM 6th Ctrl Delay	9.1
HCM 6th LOS	A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

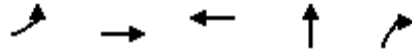
Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Timings

S. Nichols Mixed-Use Development (JN 10878)

10: I-15 NB Ramps & Nichols Rd.

06/28/2018



Lane Group	EBL	EBT	WBT	NBT	NBR
Lane Configurations					
Traffic Volume (vph)	77	335	146	3	114
Future Volume (vph)	77	335	146	3	114
Turn Type	Prot	NA	NA	NA	Perm
Protected Phases	7	4	8	2	
Permitted Phases					2
Detector Phase	7	4	8	2	2
Switch Phase					
Minimum Initial (s)	5.0	10.0	10.0	10.0	10.0
Minimum Split (s)	10.8	22.5	23.8	23.8	23.8
Total Split (s)	22.7	69.9	47.2	50.1	50.1
Total Split (%)	18.9%	58.3%	39.3%	41.8%	41.8%
Yellow Time (s)	4.8	3.5	4.8	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	4.5	5.8	5.8	5.8
Lead/Lag	Lead		Lag		
Lead-Lag Optimize?	Yes		Yes		
Recall Mode	None	None	None	Min	Min
Act Effect Green (s)	11.3	35.6	21.1	15.8	15.8
Actuated g/C Ratio	0.18	0.57	0.34	0.25	0.25
v/c Ratio	0.40	0.53	0.69	0.55	0.36
Control Delay	32.2	10.1	25.9	29.5	6.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	32.2	10.1	25.9	29.5	6.7
LOS	C	B	C	C	A
Approach Delay		14.3	25.9	19.6	
Approach LOS		B	C	B	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 62.9

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.69

Intersection Signal Delay: 18.9

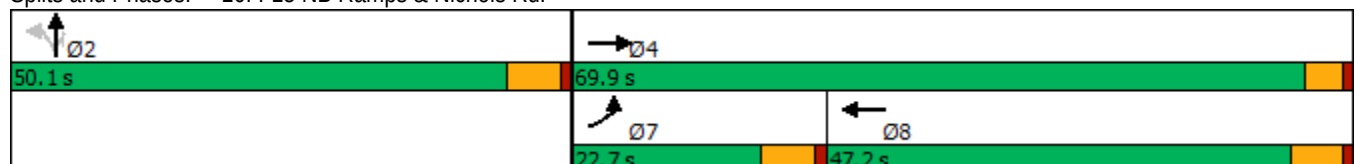
Intersection LOS: B

Intersection Capacity Utilization 44.6%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 10: I-15 NB Ramps & Nichols Rd.



HCM 6th Signalized Intersection Summary
10: I-15 NB Ramps & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

06/28/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	77	335	0	0	146	99	146	3	114	0	0	0
Future Volume (veh/h)	77	335	0	0	146	99	146	3	114	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1826	1826	0	0	1737	1737	1811	1900	1811			
Adj Flow Rate, veh/h	124	540	0	0	235	160	235	5	184			
Peak Hour Factor	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62			
Percent Heavy Veh, %	5	5	0	0	11	11	6	0	6			
Cap, veh/h	163	976	0	0	304	207	382	8	324			
Arrive On Green	0.09	0.53	0.00	0.00	0.32	0.32	0.22	0.22	0.22			
Sat Flow, veh/h	1739	1826	0	0	963	656	1774	38	1501			
Grp Volume(v), veh/h	124	540	0	0	0	395	240	0	184			
Grp Sat Flow(s),veh/h/ln	1739	1826	0	0	0	1619	1811	0	1501			
Q Serve(g_s), s	3.2	9.1	0.0	0.0	0.0	10.2	5.6	0.0	5.1			
Cycle Q Clear(g_c), s	3.2	9.1	0.0	0.0	0.0	10.2	5.6	0.0	5.1			
Prop In Lane	1.00		0.00	0.00		0.41	0.98		1.00			
Lane Grp Cap(c), veh/h	163	976	0	0	0	511	390	0	324			
V/C Ratio(X)	0.76	0.55	0.00	0.00	0.00	0.77	0.61	0.00	0.57			
Avail Cap(c_a), veh/h	634	2574	0	0	0	1445	1730	0	1434			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	0.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	20.5	7.1	0.0	0.0	0.0	14.4	16.5	0.0	16.3			
Incr Delay (d2), s/veh	7.2	0.5	0.0	0.0	0.0	2.5	0.6	0.0	0.6			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.4	2.0	0.0	0.0	0.0	3.1	1.9	0.0	1.4			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.7	7.6	0.0	0.0	0.0	16.9	17.0	0.0	16.9			
LnGrp LOS	C	A	A	A	A	B	B	A	B			
Approach Vol, veh/h	664			395			424					
Approach Delay, s/veh	11.4			16.9			17.0					
Approach LOS	B			B			B					
Timer - Assigned Phs	2			4			7			8		
Phs Duration (G+Y+Rc), s	15.8			30.6			10.1			20.5		
Change Period (Y+Rc), s	5.8			* 5.8			5.8			5.8		
Max Green Setting (Gmax), s	44.3			* 65			16.9			41.4		
Max Q Clear Time (g_c+l1), s	7.6			11.1			5.2			12.2		
Green Ext Time (p_c), s	1.1			3.5			0.2			2.4		
Intersection Summary												
HCM 6th Ctrl Delay			14.4									
HCM 6th LOS			B									
Notes												

Intersection

Intersection Delay, s/veh 72.6

Intersection LOS F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	↕
Traffic Vol, veh/h	134	0	274	6	0	16	173	109	6	8	360	237
Future Vol, veh/h	134	0	274	6	0	16	173	109	6	8	360	237
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	194	0	397	9	0	23	251	158	9	12	522	343
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	1	1
HCM Control Delay	93.3	13.2	43.2	74.7
HCM LOS	F	B	E	F

Lane	NBLn1	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	60%	33%	27%	2%	0%
Vol Thru, %	38%	0%	0%	98%	0%
Vol Right, %	2%	67%	73%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	288	408	22	368	237
LT Vol	173	134	6	8	0
Through Vol	109	0	0	360	0
RT Vol	6	274	16	0	237
Lane Flow Rate	417	591	32	533	343
Geometry Grp	5	2	2	7	7
Degree of Util (X)	0.861	1.095	0.078	1.124	0.656
Departure Headway (Hd)	7.9	6.891	9.421	8.021	7.286
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	463	532	383	459	498
Service Time	5.9	4.891	7.421	5.721	4.986
HCM Lane V/C Ratio	0.901	1.111	0.084	1.161	0.689
HCM Control Delay	43.2	93.3	13.2	108.2	22.8
HCM Lane LOS	E	F	B	F	C
HCM 95th-tile Q	8.8	18.1	0.3	17.7	4.7

Intersection

Intersection Delay, s/veh 22.1

Intersection LOS C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	↕
Traffic Vol, veh/h	134	0	274	6	0	16	173	109	6	8	360	237
Future Vol, veh/h	134	0	274	6	0	16	173	109	6	8	360	237
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	146	0	298	7	0	17	188	118	7	9	391	258
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	1	1
HCM Control Delay	25.9	10.9	18.8	21.5
HCM LOS	D	B	C	C

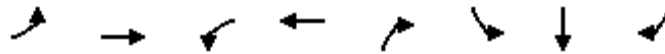
Lane	NBLn1	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	60%	33%	27%	2%	0%
Vol Thru, %	38%	0%	0%	98%	0%
Vol Right, %	2%	67%	73%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	288	408	22	368	237
LT Vol	173	134	6	8	0
Through Vol	109	0	0	360	0
RT Vol	6	274	16	0	237
Lane Flow Rate	313	443	24	400	258
Geometry Grp	5	2	2	7	7
Degree of Util (X)	0.584	0.758	0.049	0.748	0.429
Departure Headway (Hd)	6.711	6.151	7.416	6.728	6.002
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	538	590	481	536	598
Service Time	4.76	4.151	5.488	4.477	3.75
HCM Lane V/C Ratio	0.582	0.751	0.05	0.746	0.431
HCM Control Delay	18.8	25.9	10.9	26.9	13.2
HCM Lane LOS	C	D	B	D	B
HCM 95th-tile Q	3.7	6.8	0.2	6.4	2.1

Timings

S. Nichols Mixed-Use Development (JN 10878)

5: Strickland Av./Gunnerson St. & Riverside Dr. (SR-74)

05/24/2018



Lane Group	EBL	EBT	WBL	WBT	NBR	SBL	SBT	SBR
Lane Configurations								
Traffic Volume (vph)	2	869	6	891	6	29	1	2
Future Volume (vph)	2	869	6	891	6	29	1	2
Turn Type	Perm	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		8			6	
Permitted Phases	4		8		2	6		6
Detector Phase	4	4	8	8	2	6	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	93.0	93.0	93.0	93.0	27.0	27.0	27.0	27.0
Total Split (%)	77.5%	77.5%	77.5%	77.5%	22.5%	22.5%	22.5%	22.5%
Yellow Time (s)	4.4	4.4	4.4	4.4	3.6	4.4	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.4	5.4	5.4	5.4	4.6		5.4	5.4
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	Min	Min	Min	Min
Act Effect Green (s)	44.1	44.1	44.1	44.1	12.6		11.7	11.7
Actuated g/C Ratio	0.65	0.65	0.65	0.65	0.19		0.17	0.17
v/c Ratio	0.01	0.74	0.02	0.87	0.01		0.13	0.01
Control Delay	4.0	11.5	3.8	17.6	0.0		32.2	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay	4.0	11.5	3.8	17.6	0.0		32.2	0.0
LOS	A	B	A	B	A		C	A
Approach Delay		11.5		17.6			30.2	
Approach LOS		B		B			C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 67.5

Natural Cycle: 75

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 15.0

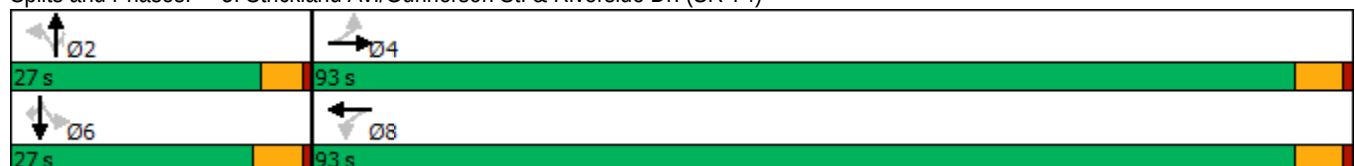
Intersection LOS: B

Intersection Capacity Utilization 75.5%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 5: Strickland Av./Gunnerson St. & Riverside Dr. (SR-74)



												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	869	4	6	891	120	0	0	6	29	1	2
Future Volume (veh/h)	2	869	4	6	891	120	0	0	6	29	1	2
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	2	896	4	6	919	124	0	0	0	30	1	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	235	1236	6	334	1072	145	0	302		336	9	
Arrive On Green	0.66	0.66	0.66	0.66	0.66	0.66	0.00	0.00	0.00	0.16	0.16	0.00
Sat Flow, veh/h	541	1861	8	619	1613	218	0	1870	1585	1373	58	1585
Grp Volume(v), veh/h	2	0	900	6	0	1043	0	0	0	31	0	0
Grp Sat Flow(s),veh/h/ln	541	0	1869	619	0	1831	0	1870	1585	1432	0	1585
Q Serve(g_s), s	0.2	0.0	19.3	0.4	0.0	27.5	0.0	0.0	0.0	1.1	0.0	0.0
Cycle Q Clear(g_c), s	27.7	0.0	19.3	19.7	0.0	27.5	0.0	0.0	0.0	1.1	0.0	0.0
Prop In Lane	1.00		0.00	1.00		0.12	0.00		1.00	0.97		1.00
Lane Grp Cap(c), veh/h	235	0	1242	334	0	1217	0	302		345	0	
V/C Ratio(X)	0.01	0.00	0.72	0.02	0.00	0.86	0.00	0.00		0.09	0.00	
Avail Cap(c_a), veh/h	640	0	2641	798	0	2588	0	676		613	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	18.9	0.0	6.7	13.1	0.0	8.1	0.0	0.0	0.0	22.3	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.8	0.0	0.0	1.9	0.0	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	4.6	0.0	0.0	6.6	0.0	0.0	0.0	0.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.9	0.0	7.6	13.1	0.0	10.0	0.0	0.0	0.0	22.4	0.0	0.0
LnGrp LOS	B	A	A	B	A	A	A	A		C	A	
Approach Vol, veh/h	902			1049			0			A	31	A
Approach Delay, s/veh	7.6			10.0			0.0				22.4	
Approach LOS	A			A							C	
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	15.4			46.6			15.4			46.6		
Change Period (Y+Rc), s	* 5.4			5.4			5.4			5.4		
Max Green Setting (Gmax), s	* 22			87.6			21.6			87.6		
Max Q Clear Time (g_c+I1), s	0.0			29.7			3.1			29.5		
Green Ext Time (p_c), s	0.0			8.3			0.1			11.7		

Intersection Summary

HCM 6th Ctrl Delay	9.1
HCM 6th LOS	A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

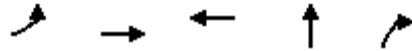
Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Timings

S. Nichols Mixed-Use Development (JN 10878)

10: I-15 NB Ramps & Nichols Rd.

06/28/2018

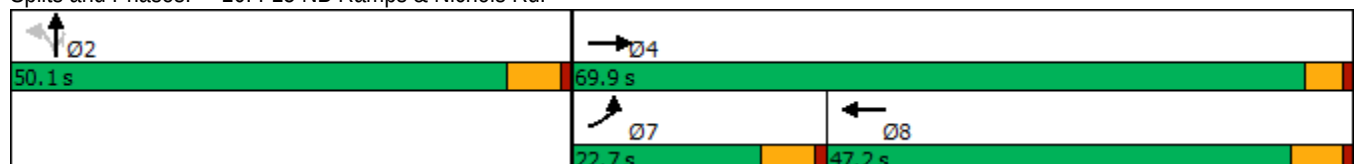


Lane Group	EBL	EBT	WBT	NBT	NBR
Lane Configurations					
Traffic Volume (vph)	146	196	124	1	38
Future Volume (vph)	146	196	124	1	38
Turn Type	Prot	NA	NA	NA	Perm
Protected Phases	7	4	8	2	
Permitted Phases					2
Detector Phase	7	4	8	2	2
Switch Phase					
Minimum Initial (s)	5.0	10.0	10.0	10.0	10.0
Minimum Split (s)	10.8	22.5	23.8	23.8	23.8
Total Split (s)	22.7	69.9	47.2	50.1	50.1
Total Split (%)	18.9%	58.3%	39.3%	41.8%	41.8%
Yellow Time (s)	4.8	3.5	4.8	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	4.5	5.8	5.8	5.8
Lead/Lag	Lead		Lag		
Lead-Lag Optimize?	Yes		Yes		
Recall Mode	None	None	None	Min	Min
Act Effect Green (s)	17.2	42.6	18.1	23.4	23.4
Actuated g/C Ratio	0.22	0.56	0.24	0.31	0.31
v/c Ratio	0.61	0.31	0.67	0.80	0.12
Control Delay	38.9	11.4	34.7	37.3	4.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	38.9	11.4	34.7	37.3	4.0
LOS	D	B	C	D	A
Approach Delay		23.1	34.7	33.1	
Approach LOS		C	C	C	

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 76.7
Natural Cycle: 65
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.80
Intersection Signal Delay: 29.2
Intersection Capacity Utilization 46.4%
Analysis Period (min) 15
Intersection LOS: C
ICU Level of Service A

Splits and Phases: 10: I-15 NB Ramps & Nichols Rd.



HCM 6th Signalized Intersection Summary
10: I-15 NB Ramps & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

06/28/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	146	196	0	0	124	45	262	1	38	0	0	0
Future Volume (veh/h)	146	196	0	0	124	45	262	1	38	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1826	1826	0	0	1737	1737	1811	1900	1811			
Adj Flow Rate, veh/h	235	316	0	0	200	73	423	2	61			
Peak Hour Factor	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62			
Percent Heavy Veh, %	5	5	0	0	11	11	6	0	6			
Cap, veh/h	294	908	0	0	267	97	516	2	430			
Arrive On Green	0.17	0.50	0.00	0.00	0.22	0.22	0.29	0.29	0.29			
Sat Flow, veh/h	1739	1826	0	0	1214	443	1801	9	1502			
Grp Volume(v), veh/h	235	316	0	0	0	273	425	0	61			
Grp Sat Flow(s),veh/h/ln	1739	1826	0	0	0	1657	1810	0	1502			
Q Serve(g_s), s	7.0	5.6	0.0	0.0	0.0	8.3	11.7	0.0	1.6			
Cycle Q Clear(g_c), s	7.0	5.6	0.0	0.0	0.0	8.3	11.7	0.0	1.6			
Prop In Lane	1.00		0.00	0.00		0.27	1.00		1.00			
Lane Grp Cap(c), veh/h	294	908	0	0	0	364	519	0	430			
V/C Ratio(X)	0.80	0.35	0.00	0.00	0.00	0.75	0.82	0.00	0.14			
Avail Cap(c_a), veh/h	548	2227	0	0	0	1279	1495	0	1241			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	0.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	21.4	8.2	0.0	0.0	0.0	19.5	17.8	0.0	14.2			
Incr Delay (d2), s/veh	5.0	0.2	0.0	0.0	0.0	3.1	1.2	0.0	0.1			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	2.8	1.5	0.0	0.0	0.0	2.9	4.1	0.0	0.5			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.4	8.4	0.0	0.0	0.0	22.6	19.1	0.0	14.3			
LnGrp LOS	C	A	A	A	A	C	B	A	B			
Approach Vol, veh/h	551				273				486			
Approach Delay, s/veh	16.1				22.6				18.5			
Approach LOS	B				C				B			
Timer - Assigned Phs	2			4			7		8			
Phs Duration (G+Y+Rc), s	21.2			32.5			14.9		17.6			
Change Period (Y+Rc), s	5.8			* 5.8			5.8		5.8			
Max Green Setting (Gmax), s	44.3			* 65			16.9		41.4			
Max Q Clear Time (g_c+l1), s	13.7			7.6			9.0		10.3			
Green Ext Time (p_c), s	1.6			1.8			0.4		1.5			
Intersection Summary												
HCM 6th Ctrl Delay			18.3									
HCM 6th LOS			B									
Notes												

Intersection

Intersection Delay, s/veh	9.4
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	0	30	5	0	1	14	143	4	6	154	10
Future Vol, veh/h	15	0	30	5	0	1	14	143	4	6	154	10
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	22	0	43	7	0	1	20	207	6	9	223	14
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	1	1
HCM Control Delay	8.2	8.3	9.4	9.7
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	9%	33%	83%	4%	0%
Vol Thru, %	89%	0%	0%	96%	0%
Vol Right, %	2%	67%	17%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	161	45	6	160	10
LT Vol	14	15	5	6	0
Through Vol	143	0	0	154	0
RT Vol	4	30	1	0	10
Lane Flow Rate	233	65	9	232	14
Geometry Grp	5	2	2	7	7
Degree of Util (X)	0.291	0.085	0.013	0.317	0.017
Departure Headway (Hd)	4.494	4.719	5.204	4.923	4.201
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	800	758	687	735	857
Service Time	2.514	2.751	3.242	2.623	1.901
HCM Lane V/C Ratio	0.291	0.086	0.013	0.316	0.016
HCM Control Delay	9.4	8.2	8.3	9.9	7
HCM Lane LOS	A	A	A	A	A
HCM 95th-tile Q	1.2	0.3	0	1.4	0.1

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APPENDIX 7.1:

EA (2021) CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

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Timings
1: Lake St. & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

08/09/2018

									
Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBL	SBT	Ø5
Lane Configurations									
Traffic Volume (vph)	16	4	188	5	715	368	18	289	
Future Volume (vph)	16	4	188	5	715	368	18	289	
Turn Type	Perm	NA	Perm	NA	NA	Perm	Prot	NA	
Protected Phases		4		8	2		1	6	5
Permitted Phases	4		8			2			
Detector Phase	4	4	8	8	2	2	1	6	
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	5.0	10.0	5.0
Minimum Split (s)	14.6	14.6	16.2	16.2	16.2	16.2	9.6	16.2	9.6
Total Split (s)	42.2	42.2	42.2	42.2	42.2	42.2	35.6	42.2	35.6
Total Split (%)	35.2%	35.2%	35.2%	35.2%	35.2%	35.2%	29.7%	35.2%	30%
Yellow Time (s)	3.6	3.6	5.2	5.2	5.2	5.2	3.6	5.2	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		4.6		6.2	6.2	6.2	4.6	6.2	
Lead/Lag					Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	Max	Max	None	Max	None
Act Effect Green (s)		19.2		17.6	36.8	36.8	5.7	40.6	
Actuated g/C Ratio		0.27		0.25	0.52	0.52	0.08	0.57	
v/c Ratio		0.05		0.72	0.79	0.45	0.13	0.30	
Control Delay		20.2		36.6	25.6	10.8	37.2	9.6	
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay		20.2		36.6	25.6	10.8	37.2	9.6	
LOS		C		D	C	B	D	A	
Approach Delay		20.2		36.6	20.5			11.1	
Approach LOS		C		D	C			B	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 70.9

Natural Cycle: 75

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.79

Intersection Signal Delay: 21.0

Intersection LOS: C

Intersection Capacity Utilization 62.2%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 1: Lake St. & Nichols Rd.

		
Ø1	Ø2	Ø4
35.6 s	42.2 s	42.2 s
		
Ø5	Ø6	Ø8
35.6 s	42.2 s	42.2 s

HCM 6th Signalized Intersection Summary

1: Lake St. & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

08/09/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	4	0	188	5	40	0	715	368	18	289	4
Future Volume (veh/h)	16	4	0	188	5	40	0	715	368	18	289	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	17	4	0	202	5	31	0	769	0	19	311	4
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	345	72	0	345	6	38	3	988		39	1138	15
Arrive On Green	0.20	0.20	0.00	0.20	0.20	0.20	0.00	0.53	0.00	0.02	0.62	0.62
Sat Flow, veh/h	1247	358	0	1236	31	190	1781	1870	1585	1781	1842	24
Grp Volume(v), veh/h	21	0	0	238	0	0	0	769	0	19	0	315
Grp Sat Flow(s),veh/h/ln	1606	0	0	1457	0	0	1781	1870	1585	1781	0	1866
Q Serve(g_s), s	0.0	0.0	0.0	10.0	0.0	0.0	0.0	22.5	0.0	0.7	0.0	5.3
Cycle Q Clear(g_c), s	0.6	0.0	0.0	10.6	0.0	0.0	0.0	22.5	0.0	0.7	0.0	5.3
Prop In Lane	0.81		0.00	0.85		0.13	1.00		1.00	1.00		0.01
Lane Grp Cap(c), veh/h	417	0	0	389	0	0	3	988		39	0	1153
V/C Ratio(X)	0.05	0.00	0.00	0.61	0.00	0.00	0.00	0.78		0.48	0.00	0.27
Avail Cap(c_a), veh/h	925	0	0	862	0	0	810	988		810	0	1153
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.0	0.0	0.0	26.0	0.0	0.0	0.0	12.9	0.0	32.9	0.0	6.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	1.6	0.0	0.0	0.0	6.0	0.0	3.3	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.0	3.4	0.0	0.0	0.0	8.4	0.0	0.3	0.0	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.1	0.0	0.0	27.5	0.0	0.0	0.0	18.9	0.0	36.3	0.0	6.6
LnGrp LOS	C	A	A	C	A	A	A	B		D	A	A
Approach Vol, veh/h		21			238			769	A		334	
Approach Delay, s/veh		22.1			27.5			18.9			8.3	
Approach LOS		C			C			B			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.1	42.2		19.8	0.0	48.3		19.8				
Change Period (Y+Rc), s	4.6	6.2		* 6.2	4.6	6.2		6.2				
Max Green Setting (Gmax), s	31.0	36.0		* 38	31.0	36.0		36.0				
Max Q Clear Time (g_c+I1), s	2.7	24.5		2.6	0.0	7.3		12.6				
Green Ext Time (p_c), s	0.0	5.0		0.1	0.0	2.5		1.1				
Intersection Summary												
HCM 6th Ctrl Delay				17.9								
HCM 6th LOS				B								
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.												

Timings
2: Lake St. & Alberhill Ranch Rd.

S. Nichols Mixed-Use Development (JN 10878)

08/09/2018

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	60	50	1075	51	19	439
Future Volume (vph)	60	50	1075	51	19	439
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2		
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	15.1	15.1	16.2	16.2	11.2	16.2
Total Split (s)	15.8	15.8	93.0	93.0	11.2	104.2
Total Split (%)	13.2%	13.2%	77.5%	77.5%	9.3%	86.8%
Yellow Time (s)	4.1	4.1	5.2	5.2	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	6.2	6.2	6.2	6.2
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	Max	Max	None	Max
Act Effect Green (s)	10.2	10.2	97.8	97.8	5.0	102.3
Actuated g/C Ratio	0.09	0.09	0.82	0.82	0.04	0.86
v/c Ratio	0.43	0.29	0.75	0.04	0.27	0.29
Control Delay	61.1	17.9	12.4	1.7	64.9	2.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.1	17.9	12.4	1.7	64.9	2.8
LOS	E	B	B	A	E	A
Approach Delay	41.5		11.9			5.4
Approach LOS	D		B			A

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 119.5

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.75

Intersection Signal Delay: 12.1

Intersection LOS: B

Intersection Capacity Utilization 74.3%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 2: Lake St. & Alberhill Ranch Rd.



HCM 6th Signalized Intersection Summary 2: Lake St. & Alberhill Ranch Rd.

S. Nichols Mixed-Use Development (JN 10878)

08/09/2018

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰	↰	↰	↰	↰	↰
Traffic Volume (veh/h)	60	50	1075	51	19	439
Future Volume (veh/h)	60	50	1075	51	19	439
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	64	29	1144	45	20	467
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	143	127	1407	1190	36	1542
Arrive On Green	0.08	0.08	0.75	0.75	0.02	0.82
Sat Flow, veh/h	1781	1585	1870	1582	1781	1870
Grp Volume(v), veh/h	64	29	1144	45	20	467
Grp Sat Flow(s),veh/h/ln	1781	1585	1870	1582	1781	1870
Q Serve(g_s), s	4.1	2.0	46.4	0.9	1.3	6.9
Cycle Q Clear(g_c), s	4.1	2.0	46.4	0.9	1.3	6.9
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	143	127	1407	1190	36	1542
V/C Ratio(X)	0.45	0.23	0.81	0.04	0.55	0.30
Avail Cap(c_a), veh/h	160	143	1407	1190	75	1542
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.1	51.2	9.4	3.8	57.7	2.4
Incr Delay (d2), s/veh	0.8	0.3	5.2	0.1	4.8	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.8	15.0	0.2	0.6	1.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	53.0	51.5	14.6	3.8	62.5	2.9
LnGrp LOS	D	D	B	A	E	A
Approach Vol, veh/h	93		1189			487
Approach Delay, s/veh	52.5		14.2			5.4
Approach LOS	D		B			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	8.6	95.6			104.2	14.6
Change Period (Y+Rc), s	6.2	6.2			6.2	5.1
Max Green Setting (Gmax), s	5.0	86.8			98.0	10.7
Max Q Clear Time (g_c+I1), s	3.3	48.4			8.9	6.1
Green Ext Time (p_c), s	0.0	12.0			2.8	0.0
Intersection Summary						
HCM 6th Ctrl Delay			13.8			
HCM 6th LOS			B			

Intersection

Intersection Delay, s/veh 12

Intersection LOS B

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	381	17	37	192	40	73
Future Vol, veh/h	381	17	37	192	40	73
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	433	19	42	218	45	83
Number of Lanes	1	0	0	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	1
HCM Control Delay	13.6	10.5	9.4
HCM LOS	B	B	A

Lane	NBLn1	NBLn2	EBLn1	WBLn1
Vol Left, %	100%	0%	0%	16%
Vol Thru, %	0%	0%	96%	84%
Vol Right, %	0%	100%	4%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	40	73	398	229
LT Vol	40	0	0	37
Through Vol	0	0	381	192
RT Vol	0	73	17	0
Lane Flow Rate	45	83	452	260
Geometry Grp	7	7	2	2
Degree of Util (X)	0.084	0.125	0.574	0.349
Departure Headway (Hd)	6.631	5.414	4.569	4.825
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	537	656	787	742
Service Time	4.416	3.199	2.617	2.883
HCM Lane V/C Ratio	0.084	0.127	0.574	0.35
HCM Control Delay	10	9	13.6	10.5
HCM Lane LOS	A	A	B	B
HCM 95th-tile Q	0.3	0.4	3.7	1.6

Timings
4: Lakeshore Dr. & Riverside Dr. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

08/09/2018

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	20	470	150	137	561	358	282	311	211	181	10
Future Volume (vph)	20	470	150	137	561	358	282	311	211	181	10
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2	1	6	
Permitted Phases			4			8					6
Detector Phase	7	4	4	3	8	8	5	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	32.4	32.4	9.6	33.4	33.4	9.6	34.7	9.6	32.7	32.7
Total Split (s)	9.6	35.6	35.6	22.0	48.0	48.0	28.0	38.4	24.0	34.4	34.4
Total Split (%)	8.0%	29.7%	29.7%	18.3%	40.0%	40.0%	23.3%	32.0%	20.0%	28.7%	28.7%
Yellow Time (s)	3.6	4.4	4.4	3.6	4.4	4.4	3.6	3.7	3.6	3.7	3.7
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.4	5.4	4.6	5.4	5.4	4.6	4.7	4.6	4.7	4.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	None	Max	Max
Act Effect Green (s)	5.0	28.2	28.2	13.7	41.0	41.0	22.4	34.7	17.6	29.9	29.9
Actuated g/C Ratio	0.04	0.25	0.25	0.12	0.36	0.36	0.20	0.31	0.15	0.26	0.26
v/c Ratio	0.28	0.60	0.33	0.73	0.94	0.52	0.91	0.45	0.86	0.22	0.02
Control Delay	64.9	41.4	7.2	68.6	58.7	8.9	76.0	31.7	76.6	35.1	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.9	41.4	7.2	68.6	58.7	8.9	76.0	31.7	76.6	35.1	0.1
LOS	E	D	A	E	E	A	E	C	E	D	A
Approach Delay		34.1			43.1			49.4		56.1	
Approach LOS		C			D			D		E	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 113.6

Natural Cycle: 110

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.94

Intersection Signal Delay: 44.5

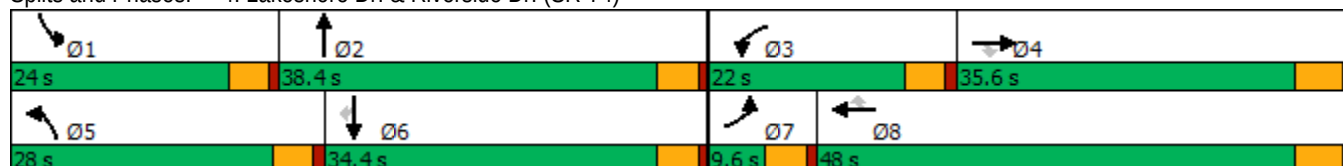
Intersection LOS: D

Intersection Capacity Utilization 86.5%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 4: Lakeshore Dr. & Riverside Dr. (SR-74)



HCM 6th Signalized Intersection Summary 4: Lakeshore Dr. & Riverside Dr. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

08/09/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	470	150	137	561	358	282	311	116	211	181	10
Future Volume (veh/h)	20	470	150	137	561	358	282	311	116	211	181	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	22	528	106	154	630	23	317	349	65	237	203	8
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	39	978	435	183	665	563	344	911	168	265	925	412
Arrive On Green	0.02	0.28	0.28	0.10	0.36	0.36	0.19	0.30	0.30	0.15	0.26	0.26
Sat Flow, veh/h	1781	3554	1582	1781	1870	1584	1781	2994	552	1781	3554	1585
Grp Volume(v), veh/h	22	528	106	154	630	23	317	206	208	237	203	8
Grp Sat Flow(s),veh/h/ln	1781	1777	1582	1781	1870	1584	1781	1777	1769	1781	1777	1585
Q Serve(g_s), s	1.4	14.4	5.9	9.7	37.4	1.1	19.9	10.4	10.6	14.9	5.1	0.4
Cycle Q Clear(g_c), s	1.4	14.4	5.9	9.7	37.4	1.1	19.9	10.4	10.6	14.9	5.1	0.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.31	1.00		1.00
Lane Grp Cap(c), veh/h	39	978	435	183	665	563	344	541	538	265	925	412
V/C Ratio(X)	0.56	0.54	0.24	0.84	0.95	0.04	0.92	0.38	0.39	0.89	0.22	0.02
Avail Cap(c_a), veh/h	78	978	435	272	698	591	365	541	538	303	925	412
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.3	35.2	32.1	50.3	35.7	24.0	45.2	31.2	31.3	47.7	33.1	31.4
Incr Delay (d2), s/veh	4.6	0.6	0.3	9.6	21.5	0.0	26.6	2.0	2.1	23.1	0.5	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	6.2	2.3	4.7	20.2	0.4	11.3	4.8	4.8	8.3	2.3	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.9	35.8	32.4	59.9	57.2	24.1	71.9	33.3	33.4	70.8	33.7	31.5
LnGrp LOS	E	D	C	E	E	C	E	C	C	E	C	C
Approach Vol, veh/h	656			807			731			448		
Approach Delay, s/veh	36.1			56.8			50.0			53.3		
Approach LOS	D			E			D			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	21.6	39.4	16.3	36.8	26.6	34.4	7.1	46.0				
Change Period (Y+Rc), s	4.6	* 4.7	4.6	5.4	4.6	* 4.7	4.6	5.4				
Max Green Setting (Gmax), s	19.4	* 34	17.4	30.2	23.4	* 30	5.0	42.6				
Max Q Clear Time (g_c+I1), s	16.9	12.6	11.7	16.4	21.9	7.1	3.4	39.4				
Green Ext Time (p_c), s	0.1	2.4	0.1	3.1	0.1	1.2	0.0	1.2				

Intersection Summary

HCM 6th Ctrl Delay 49.2

HCM 6th LOS D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection

Int Delay, s/veh 3.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	878	3	2	658	37	0	2	12	49	3	5
Future Vol, veh/h	0	878	3	2	658	37	0	2	12	49	3	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Stop	-	-	Stop
Storage Length	-	-	-	-	-	-	-	-	75	-	-	75
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	905	3	2	678	38	0	2	12	51	3	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	716	0	0	908	0	0	1610	1627	907	1609	1609	697
Stage 1	-	-	-	-	-	-	907	907	-	701	701	-
Stage 2	-	-	-	-	-	-	703	720	-	908	908	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	885	-	-	750	-	-	84	102	334	84	105	441
Stage 1	-	-	-	-	-	-	330	355	-	429	441	-
Stage 2	-	-	-	-	-	-	428	432	-	330	354	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	885	-	-	750	-	-	81	102	334	79	105	441
Mov Cap-2 Maneuver	-	-	-	-	-	-	81	102	-	79	105	-
Stage 1	-	-	-	-	-	-	330	355	-	429	439	-
Stage 2	-	-	-	-	-	-	418	430	-	316	354	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	19.7	105.1
HCM LOS			C	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	102	334	885	-	-	750	-	-	80	441
HCM Lane V/C Ratio	0.02	0.037	-	-	-	0.003	-	-	0.67	0.012
HCM Control Delay (s)	41	16.2	0	-	-	9.8	0	-	113.9	13.3
HCM Lane LOS	E	C	A	-	-	A	A	-	F	B
HCM 95th %tile Q(veh)	0.1	0.1	0	-	-	0	-	-	3.1	0

Intersection												
Int Delay, s/veh	3.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	878	3	2	658	37	0	2	12	49	3	5
Future Vol, veh/h	0	878	3	2	658	37	0	2	12	49	3	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Stop	-	-	Stop
Storage Length	100	-	-	100	-	-	-	-	75	-	-	75
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	905	3	2	678	38	0	2	12	51	3	5
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	716	0	0	908	0	0	1610	1627	907	1609	1609	697
Stage 1	-	-	-	-	-	-	907	907	-	701	701	-
Stage 2	-	-	-	-	-	-	703	720	-	908	908	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	885	-	-	750	-	-	84	102	334	84	105	441
Stage 1	-	-	-	-	-	-	330	355	-	429	441	-
Stage 2	-	-	-	-	-	-	428	432	-	330	354	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	885	-	-	750	-	-	81	102	334	79	105	441
Mov Cap-2 Maneuver	-	-	-	-	-	-	81	102	-	79	105	-
Stage 1	-	-	-	-	-	-	330	355	-	429	440	-
Stage 2	-	-	-	-	-	-	419	431	-	316	354	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0			19.7			105.1		
HCM LOS							C			F		
Minor Lane/Major Mvmt	NBLn1 NBLn2		EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2		
Capacity (veh/h)	102	334	885	-	-	750	-	-	80	441		
HCM Lane V/C Ratio	0.02	0.037	-	-	-	0.003	-	-	0.67	0.012		
HCM Control Delay (s)	41	16.2	0	-	-	9.8	-	-	113.9	13.3		
HCM Lane LOS	E	C	A	-	-	A	-	-	F	B		
HCM 95th %tile Q(veh)	0.1	0.1	0	-	-	0	-	-	3.1	0		

Intersection

Int Delay, s/veh 3.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	428	34	99	195	39	97
Future Vol, veh/h	428	34	99	195	39	97
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	120	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	492	39	114	224	45	111

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	531
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.12
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.218
Pot Cap-1 Maneuver	-	-	1036
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1036
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	3	15.7
HCM LOS			C

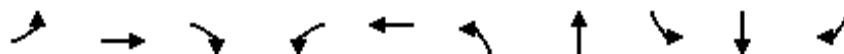
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	252	562	-	-	1036	-
HCM Lane V/C Ratio	0.178	0.198	-	-	0.11	-
HCM Control Delay (s)	22.4	13	-	-	8.9	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	0.6	0.7	-	-	0.4	-

Timings

S. Nichols Mixed-Use Development (JN 10878)

7: Collier Av. (SR-74)/Collier Av. & Riverside Dr. (SR-74)/Riverside Dr.

08/09/2018



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations		↔	↔		↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	79	11	849	5	1	648	75	1	55	48
Future Volume (vph)	79	11	849	5	1	648	75	1	55	48
Turn Type	Perm	NA	pm+ov	Perm	NA	Split	NA	Split	NA	Perm
Protected Phases		4	2		8	2	2	6	6	
Permitted Phases	4		4	8						6
Detector Phase	4	4	2	8	8	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	15.4	15.4	15.8	14.6	14.6	15.8	15.8	16.2	16.2	16.2
Total Split (s)	23.0	23.0	79.0	23.0	23.0	79.0	79.0	18.0	18.0	18.0
Total Split (%)	19.2%	19.2%	65.8%	19.2%	19.2%	65.8%	65.8%	15.0%	15.0%	15.0%
Yellow Time (s)	4.4	4.4	4.8	3.6	3.6	4.8	4.8	5.2	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.4	5.8		4.6	5.8	5.8	6.2	6.2	6.2
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	None	None	Max	None	None	Max	Max	Max	Max	Max
Act Effect Green (s)		13.4	92.0		14.2	73.2	73.2	11.8	11.8	11.8
Actuated g/C Ratio		0.12	0.79		0.12	0.63	0.63	0.10	0.10	0.10
v/c Ratio		0.59	0.66		0.04	0.61	0.08	0.01	0.31	0.22
Control Delay		64.1	4.3		39.4	16.1	7.8	49.0	53.9	7.3
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		64.1	4.3		39.4	16.1	7.8	49.0	53.9	7.3
LOS		E	A		D	B	A	D	D	A
Approach Delay		10.0			39.4		15.2		32.3	
Approach LOS		B			D		B		C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 115.8

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.66

Intersection Signal Delay: 13.6

Intersection LOS: B

Intersection Capacity Utilization 83.1%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 7: Collier Av. (SR-74)/Collier Av. & Riverside Dr. (SR-74)/Riverside Dr.

↖ ↗ Ø2	↖ ↗ Ø6	↖ ↗ Ø4
79 s	18 s	23 s
		↖ ↗ Ø8
		23 s

HCM 6th Signalized Intersection Summary S. Nichols Mixed-Use Development (JN 10878)
 7: Collier Av. (SR-74)/Collier Av. & Riverside Dr. (SR-74)/Riverside Dr. 08/09/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	79	11	849	5	1	2	648	75	11	1	55	48
Future Volume (veh/h)	79	11	849	5	1	2	648	75	11	1	55	48
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	83	12	828	5	1	0	682	79	11	1	58	11
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	249	32	1199	113	18	0	1087	980	136	175	184	156
Arrive On Green	0.15	0.15	0.15	0.15	0.15	0.00	0.61	0.61	0.61	0.10	0.10	0.10
Sat Flow, veh/h	1317	221	1585	399	122	0	1781	1606	224	1781	1870	1585
Grp Volume(v), veh/h	95	0	828	6	0	0	682	0	90	1	58	11
Grp Sat Flow(s),veh/h/ln	1538	0	1585	521	0	0	1781	0	1830	1781	1870	1585
Q Serve(g_s), s	0.0	0.0	17.6	0.0	0.0	0.0	29.0	0.0	2.4	0.1	3.5	0.8
Cycle Q Clear(g_c), s	6.1	0.0	17.6	6.2	0.0	0.0	29.0	0.0	2.4	0.1	3.5	0.8
Prop In Lane	0.87		1.00	0.83		0.00	1.00		0.12	1.00		1.00
Lane Grp Cap(c), veh/h	282	0	1199	131	0	0	1087	0	1116	175	184	156
V/C Ratio(X)	0.34	0.00	0.69	0.05	0.00	0.00	0.63	0.00	0.08	0.01	0.32	0.07
Avail Cap(c_a), veh/h	282	0	1199	136	0	0	1087	0	1116	175	184	156
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.3	0.0	5.7	44.0	0.0	0.0	14.8	0.0	9.6	48.8	50.3	49.1
Incr Delay (d2), s/veh	0.7	0.0	1.7	0.1	0.0	0.0	2.7	0.0	0.1	0.1	4.4	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	0.0	25.4	0.2	0.0	0.0	11.3	0.0	0.9	0.0	1.8	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.0	0.0	7.4	44.1	0.0	0.0	17.5	0.0	9.7	48.9	54.8	50.0
LnGrp LOS	D	A	A	D	A	A	B	A	A	D	D	D
Approach Vol, veh/h		923			6			772			70	
Approach Delay, s/veh		11.5			44.1			16.6			53.9	
Approach LOS		B			D			B			D	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		79.0		23.0		18.0		23.0				
Change Period (Y+Rc), s		5.8		5.4		6.2		* 5.4				
Max Green Setting (Gmax), s		73.2		17.6		11.8		* 18				
Max Q Clear Time (g_c+I1), s		31.0		19.6		5.5		8.2				
Green Ext Time (p_c), s		2.9		0.0		0.1		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			15.5									
HCM 6th LOS			B									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Timings

S. Nichols Mixed-Use Development (JN 10878)

8: Collier Av./Collier Av. (SR-74) & Central Av./Central Av. (SR-74)

08/09/2018

											
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 		 		 			 	 		 
Traffic Volume (vph)	35	92	530	292	627	31	56	291	803	60	12
Future Volume (vph)	35	92	530	292	627	31	56	291	803	60	12
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	7	4	3	8	1	5	2	3	1	6	
Permitted Phases					8			2			6
Detector Phase	7	4	3	8	1	5	2	3	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	5.0	10.0	5.0	5.0	10.0	10.0
Minimum Split (s)	9.6	14.7	9.6	42.8	9.6	9.6	15.8	9.6	9.6	29.8	29.8
Total Split (s)	10.0	21.0	34.0	45.0	46.0	12.0	19.0	34.0	46.0	53.0	53.0
Total Split (%)	8.3%	17.5%	28.3%	37.5%	38.3%	10.0%	15.8%	28.3%	38.3%	44.2%	44.2%
Yellow Time (s)	3.6	3.7	3.6	4.8	3.6	3.6	4.8	3.6	3.6	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.7	4.6	5.8	4.6	4.6	5.8	4.6	4.6	5.8	5.8
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	None	None	Max	Max
Act Effect Green (s)	5.3	10.8	20.9	29.7	61.1	6.3	19.5	41.6	30.1	47.8	47.8
Actuated g/C Ratio	0.05	0.11	0.21	0.29	0.60	0.06	0.19	0.41	0.30	0.47	0.47
v/c Ratio	0.21	0.34	0.80	0.57	0.35	0.30	0.17	0.42	0.84	0.04	0.02
Control Delay	53.2	36.1	47.8	37.0	1.0	56.8	41.4	11.9	41.6	18.1	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.2	36.1	47.8	37.0	1.0	56.8	41.4	11.9	41.6	18.1	0.0
LOS	D	D	D	D	A	E	D	B	D	B	A
Approach Delay		39.9		25.4			20.0			39.4	
Approach LOS		D		C			B			D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 101.3

Natural Cycle: 95

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.84

Intersection Signal Delay: 29.7

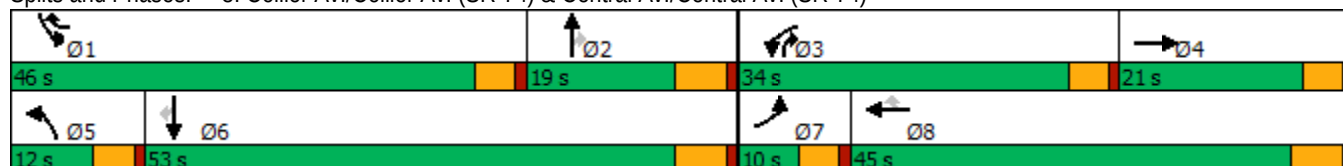
Intersection LOS: C

Intersection Capacity Utilization 65.6%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 8: Collier Av./Collier Av. (SR-74) & Central Av./Central Av. (SR-74)



HCM 6th Signalized Intersection Summary S. Nichols Mixed-Use Development (JN 10878)
 8: Collier Av./Collier Av. (SR-74) & Central Av./Central Av. (SR-74) 08/09/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	92	31	530	292	627	31	56	291	803	60	12
Future Volume (veh/h)	35	92	31	530	292	627	31	56	291	803	60	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	37	98	24	564	311	272	33	60	146	854	64	10
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	111	285	67	648	478	1461	54	429	656	947	1683	740
Arrive On Green	0.03	0.10	0.10	0.19	0.26	0.26	0.03	0.23	0.23	0.27	0.47	0.47
Sat Flow, veh/h	3456	2841	672	3456	1870	2725	1781	1870	1563	3456	3554	1562
Grp Volume(v), veh/h	37	60	62	564	311	272	33	60	146	854	64	10
Grp Sat Flow(s),veh/h/ln	1728	1777	1736	1728	1870	1362	1781	1870	1563	1728	1777	1562
Q Serve(g_s), s	1.0	3.1	3.3	15.8	14.8	5.2	1.8	2.5	6.0	23.8	1.0	0.3
Cycle Q Clear(g_c), s	1.0	3.1	3.3	15.8	14.8	5.2	1.8	2.5	6.0	23.8	1.0	0.3
Prop In Lane	1.00		0.39	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	111	178	174	648	478	1461	54	429	656	947	1683	740
V/C Ratio(X)	0.33	0.34	0.36	0.87	0.65	0.19	0.62	0.14	0.22	0.90	0.04	0.01
Avail Cap(c_a), veh/h	187	291	284	1019	735	1836	132	429	656	1435	1683	740
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.2	41.8	41.8	39.3	33.1	12.2	47.8	30.6	18.7	34.9	14.1	13.9
Incr Delay (d2), s/veh	0.6	1.1	1.2	3.2	1.5	0.1	4.2	0.7	0.8	4.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	1.4	1.5	6.7	6.6	1.4	0.8	1.2	2.2	9.9	0.4	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.8	42.9	43.1	42.5	34.6	12.3	52.0	31.3	19.5	39.0	14.1	13.9
LnGrp LOS	D	D	D	D	C	B	D	C	B	D	B	B
Approach Vol, veh/h		159			1147			239			928	
Approach Delay, s/veh		44.1			33.2			26.9			37.0	
Approach LOS		D			C			C			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	31.9	28.7	23.3	15.8	7.6	53.0	7.8	31.3				
Change Period (Y+Rc), s	4.6	5.8	4.6	* 5.8	4.6	5.8	4.6	5.8				
Max Green Setting (Gmax), s	41.4	13.2	29.4	* 16	7.4	47.2	5.4	39.2				
Max Q Clear Time (g_c+I1), s	25.8	8.0	17.8	5.3	3.8	3.0	3.0	16.8				
Green Ext Time (p_c), s	1.6	0.3	0.9	0.4	0.0	0.4	0.0	2.7				
Intersection Summary												
HCM 6th Ctrl Delay			34.7									
HCM 6th LOS			C									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Intersection

Intersection Delay, s/veh16.9

Intersection LOS C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗	↖	↑						↕	
Traffic Vol, veh/h	0	242	283	59	228	0	0	0	0	174	6	66
Future Vol, veh/h	0	242	283	59	228	0	0	0	0	174	6	66
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles, %	0	3	3	25	3	0	0	0	0	8	67	13
Mvmt Flow	0	323	377	79	304	0	0	0	0	232	8	88
Number of Lanes	0	1	1	1	1	0	0	0	0	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	2
HCM Control Delay	16.6	16.5	18.2
HCM LOS	C	C	C

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	100%	0%	71%
Vol Thru, %	100%	0%	0%	100%	2%
Vol Right, %	0%	100%	0%	0%	27%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	242	283	59	228	246
LT Vol	0	0	59	0	174
Through Vol	242	0	0	228	6
RT Vol	0	283	0	0	66
Lane Flow Rate	323	377	79	304	328
Geometry Grp	7	7	7	7	2
Degree of Util (X)	0.567	0.588	0.165	0.561	0.585
Departure Headway (Hd)	6.323	5.609	7.537	6.644	6.423
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	568	641	474	541	561
Service Time	4.089	3.375	5.312	4.419	4.481
HCM Lane V/C Ratio	0.569	0.588	0.167	0.562	0.585
HCM Control Delay	17.1	16.1	11.8	17.7	18.2
HCM Lane LOS	C	C	B	C	C
HCM 95th-tile Q	3.5	3.8	0.6	3.4	3.7

Intersection												
Int Delay, s/veh	83.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	79	337	0	0	139	94	149	3	115	0	0	0
Future Vol, veh/h	79	337	0	0	139	94	149	3	115	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	230	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	62	62	62	62	62	62	62	62	62	62	62	62
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	127	544	0	0	224	152	240	5	185	0	0	0

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	376	0	- - - 0 1098 1174 544
Stage 1	-	-	- - - 798 798 -
Stage 2	-	-	- - - 300 376 -
Critical Hdwy	4.15	-	- - - 6.44 6.5 6.26
Critical Hdwy Stg 1	-	-	- - - 5.44 5.5 -
Critical Hdwy Stg 2	-	-	- - - 5.44 5.5 -
Follow-up Hdwy	2.245	-	- - - 3.536 4 3.354
Pot Cap-1 Maneuver	1166	-	0 0 - - ~ 233 193 531
Stage 1	-	-	0 0 - - 440 401 -
Stage 2	-	-	0 0 - - 747 620 -
Platoon blocked, %	-	-	- -
Mov Cap-1 Maneuver	1166	-	- - - ~ 208 0 531
Mov Cap-2 Maneuver	-	-	- - - ~ 208 0 -
Stage 1	-	-	- - - 392 0 -
Stage 2	-	-	- - - 747 0 -

Approach	EB	WB	NB
HCM Control Delay, s	1.6	0	285.1
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR
Capacity (veh/h)	283	1166	-	-	-
HCM Lane V/C Ratio	1.522	0.109	-	-	-
HCM Control Delay (s)	285.1	8.5	-	-	-
HCM Lane LOS	F	A	-	-	-
HCM 95th %tile Q(veh)	24.9	0.4	-	-	-

Notes			
~: Volume exceeds capacity	\$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Intersection Delay, s/veh	43.8
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	79	337	0	0	139	94	149	3	115	0	0	0
Future Vol, veh/h	79	337	0	0	139	94	149	3	115	0	0	0
Peak Hour Factor	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	127	544	0	0	224	152	240	5	185	0	0	0
Number of Lanes	1	1	0	0	1	0	0	1	0	0	0	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	64.5	23	29.8
HCM LOS	F	C	D

Lane	NBLn1	EBLn1	EBLn2	WBLn1
Vol Left, %	56%	100%	0%	0%
Vol Thru, %	1%	0%	100%	60%
Vol Right, %	43%	0%	0%	40%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	267	79	337	233
LT Vol	149	79	0	0
Through Vol	3	0	337	139
RT Vol	115	0	0	94
Lane Flow Rate	431	127	544	376
Geometry Grp	2	7	7	5
Degree of Util (X)	0.784	0.262	1.042	0.685
Departure Headway (Hd)	6.682	7.414	6.902	6.71
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	547	488	527	541
Service Time	4.682	5.114	4.602	4.71
HCM Lane V/C Ratio	0.788	0.26	1.032	0.695
HCM Control Delay	29.8	12.7	76.7	23
HCM Lane LOS	D	B	F	C
HCM 95th-tile Q	7.3	1	15.7	5.2

Intersection						
Int Delay, s/veh	35					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	176	24	194	69	19	438
Future Vol, veh/h	176	24	194	69	19	438
Conflicting Peds, #/hr	0	1	0	3	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	66	66	66	66	66	66
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	267	36	294	105	29	664
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	1072	351	0	0	402	0
Stage 1	350	-	-	-	-	-
Stage 2	722	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	~ 244	692	-	-	1157	-
Stage 1	713	-	-	-	-	-
Stage 2	481	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 234	689	-	-	1154	-
Mov Cap-2 Maneuver	~ 234	-	-	-	-	-
Stage 1	682	-	-	-	-	-
Stage 2	481	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	160.1	0		0.3		
HCM LOS	F					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	-	254	1154	-	
HCM Lane V/C Ratio	-	-	1.193	0.025	-	
HCM Control Delay (s)	-	-	160.1	8.2	0	
HCM Lane LOS	-	-	F	A	A	
HCM 95th %tile Q(veh)	-	-	14.2	0.1	-	
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

Intersection

Int Delay, s/veh 5.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	176	24	194	69	19	438
Future Vol, veh/h	176	24	194	69	19	438
Conflicting Peds, #/hr	0	1	0	3	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	191	26	211	75	21	476

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	770	253	0
Stage 1	252	-	-
Stage 2	518	-	-
Critical Hdwy	6.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	-
Pot Cap-1 Maneuver	369	786	-
Stage 1	790	-	-
Stage 2	598	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	360	783	-
Mov Cap-2 Maneuver	360	-	-
Stage 1	770	-	-
Stage 2	598	-	-

Approach	WB	NB	SB
HCM Control Delay, s	25.8	0	0.3
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	385	1269
HCM Lane V/C Ratio	-	-	0.565	0.016
HCM Control Delay (s)	-	-	25.8	7.9
HCM Lane LOS	-	-	D	A
HCM 95th %tile Q(veh)	-	-	3.4	0.1

Intersection												
Int Delay, s/veh	401											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	137	0	279	6	0	16	176	110	6	8	364	242
Future Vol, veh/h	137	0	279	6	0	16	176	110	6	8	364	242
Conflicting Peds, #/hr	0	0	0	0	0	21	0	0	14	0	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	69	69	69	69	69	69	69	69	69	69	69	69
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	199	0	404	9	0	23	255	159	9	12	528	351
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1435	1421	705	1618	1592	199	880	0	0	182	0	0
Stage 1	729	729	-	688	688	-	-	-	-	-	-	-
Stage 2	706	692	-	930	904	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	~ 111	136	436	83	107	842	768	-	-	1393	-	-
Stage 1	414	428	-	436	447	-	-	-	-	-	-	-
Stage 2	427	445	-	321	356	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	~ 74	83	436	~ 4	66	814	767	-	-	1374	-	-
Mov Cap-2 Maneuver	~ 74	83	-	~ 4	66	-	-	-	-	-	-	-
Stage 1	262	420	-	273	279	-	-	-	-	-	-	-
Stage 2	257	278	-	23	349	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, \$	1230.2		\$ 1137.9		7.2		0.1					
HCM LOS	F		F									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	767	-	-	167	14	1374	-	-				
HCM Lane V/C Ratio	0.333	-	-	3.61	2.277	0.008	-	-				
HCM Control Delay (s)	12	0	\$ 1230.2	\$ 1137.9	7.6	0	-	-				
HCM Lane LOS	B	A	-	F	F	A	A	-				
HCM 95th %tile Q(veh)	1.5	-	-	58.4	4.8	0	-	-				
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s			+: Computation Not Defined				*: All major volume in platoon			

Intersection												
Int Delay, s/veh	88.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	137	0	279	6	0	16	176	110	6	8	364	242
Future Vol, veh/h	137	0	279	6	0	16	176	110	6	8	364	242
Conflicting Peds, #/hr	0	0	0	0	0	21	0	0	14	0	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	149	0	303	7	0	17	191	120	7	9	396	263

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1082	1070	529	1217	1198	159	660	0	0	141	0	0
Stage 1	547	547	-	520	520	-	-	-	-	-	-	-
Stage 2	535	523	-	697	678	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	195	221	550	158	186	886	928	-	-	1442	-	-
Stage 1	521	517	-	539	532	-	-	-	-	-	-	-
Stage 2	529	530	-	431	452	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	154	168	549	57	141	857	927	-	-	1423	-	-
Mov Cap-2 Maneuver	154	168	-	57	141	-	-	-	-	-	-	-
Stage 1	405	511	-	414	409	-	-	-	-	-	-	-
Stage 2	395	407	-	191	447	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	281.1		28.3		6		0.1	
HCM LOS	F		D					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	927	-	-	298	178	1423	-
HCM Lane V/C Ratio	0.206	-	-	1.517	0.134	0.006	-
HCM Control Delay (s)	9.9	0	-	281.1	28.3	7.5	0
HCM Lane LOS	A	A	-	F	D	A	A
HCM 95th %tile Q(veh)	0.8	-	-	25.8	0.5	0	-

Timings
19: Dexter Av. & Central Av. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

08/09/2018

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	241	940	132	128	1457	197	105	266	72	150	395
Future Volume (vph)	241	940	132	128	1457	197	105	266	72	150	395
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2	1	6	7
Permitted Phases			4			8					6
Detector Phase	7	4	4	3	8	8	5	2	1	6	7
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0	5.0
Minimum Split (s)	9.6	26.8	26.8	9.6	26.8	26.8	9.6	42.4	9.6	15.8	9.6
Total Split (s)	26.0	42.4	42.4	21.1	37.5	37.5	19.5	43.5	13.0	37.0	26.0
Total Split (%)	21.7%	35.3%	35.3%	17.6%	31.3%	31.3%	16.3%	36.3%	10.8%	30.8%	21.7%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	4.8	3.6	4.4	3.6	4.8	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	5.8	4.6	5.8	5.8	4.6	5.4	4.6	5.8	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	None	Max	None
Act Effect Green (s)	19.7	38.4	38.4	13.1	31.8	31.8	11.5	39.3	7.8	32.9	58.4
Actuated g/C Ratio	0.17	0.33	0.33	0.11	0.27	0.27	0.10	0.34	0.07	0.28	0.50
v/c Ratio	0.89	0.62	0.23	0.71	0.92	0.38	0.66	0.64	0.67	0.31	0.51
Control Delay	78.3	35.6	5.4	70.1	51.2	7.3	69.3	38.7	81.4	36.3	17.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	78.3	35.6	5.4	70.1	51.2	7.3	69.3	38.7	81.4	36.3	17.0
LOS	E	D	A	E	D	A	E	D	F	D	B
Approach Delay		40.4			47.7			45.6		29.2	
Approach LOS		D			D			D		C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 116.7

Natural Cycle: 100

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.92

Intersection Signal Delay: 42.5

Intersection LOS: D

Intersection Capacity Utilization 86.5%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 19: Dexter Av. & Central Av. (SR-74)

			
Ø1	Ø2	Ø3	Ø4
13 s	43.5 s	21.1 s	42.4 s
			
Ø5	Ø6	Ø7	Ø8
19.5 s	37 s	26 s	37.5 s

HCM 6th Signalized Intersection Summary
19: Dexter Av. & Central Av. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

08/09/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  							
Traffic Volume (veh/h)	241	940	132	128	1457	197	105	266	92	72	150	395
Future Volume (veh/h)	241	940	132	128	1457	197	105	266	92	72	150	395
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	265	1033	102	141	1601	174	115	292	60	79	165	378
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	292	1740	540	169	1745	424	141	495	102	100	572	745
Arrive On Green	0.16	0.34	0.34	0.09	0.27	0.27	0.08	0.33	0.33	0.06	0.31	0.31
Sat Flow, veh/h	1781	5106	1585	1781	6434	1565	1781	1505	309	1781	1870	1585
Grp Volume(v), veh/h	265	1033	102	141	1601	174	115	0	352	79	165	378
Grp Sat Flow(s),veh/h/ln	1781	1702	1585	1781	1609	1565	1781	0	1814	1781	1870	1585
Q Serve(g_s), s	16.9	19.4	5.3	9.0	28.0	10.6	7.4	0.0	18.7	5.1	7.8	19.2
Cycle Q Clear(g_c), s	16.9	19.4	5.3	9.0	28.0	10.6	7.4	0.0	18.7	5.1	7.8	19.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.17	1.00		1.00
Lane Grp Cap(c), veh/h	292	1740	540	169	1745	424	141	0	597	100	572	745
V/C Ratio(X)	0.91	0.59	0.19	0.84	0.92	0.41	0.81	0.00	0.59	0.79	0.29	0.51
Avail Cap(c_a), veh/h	329	1740	540	254	1760	428	229	0	597	129	572	745
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.5	31.6	26.9	51.6	41.0	34.6	52.5	0.0	32.4	54.0	30.6	21.4
Incr Delay (d2), s/veh	24.2	0.5	0.2	8.9	8.1	0.6	4.5	0.0	4.2	16.2	1.3	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.2	7.7	1.9	4.3	11.6	4.0	3.4	0.0	8.7	2.7	3.6	7.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	71.8	32.1	27.1	60.4	49.1	35.3	57.0	0.0	36.6	70.2	31.9	23.8
LnGrp LOS	E	C	C	E	D	D	E	A	D	E	C	C
Approach Vol, veh/h		1400			1916			467			622	
Approach Delay, s/veh		39.3			48.6			41.6			31.9	
Approach LOS		D			D			D			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.1	43.9	15.6	45.3	13.8	41.2	23.6	37.2				
Change Period (Y+Rc), s	4.6	* 5.8	4.6	5.8	4.6	5.8	4.6	5.8				
Max Green Setting (Gmax), s	8.4	* 38	16.5	36.6	14.9	31.2	21.4	31.7				
Max Q Clear Time (g_c+I1), s	7.1	20.7	11.0	21.4	9.4	21.2	18.9	30.0				
Green Ext Time (p_c), s	0.0	1.8	0.1	6.2	0.1	1.6	0.1	1.5				

Intersection Summary

HCM 6th Ctrl Delay 42.5

HCM 6th LOS D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Timings

S. Nichols Mixed-Use Development (JN 10878)

20: Cambern Av./Cambern Av & Central Av. (SR-74)

08/09/2018



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	131	1086	1	1703	118	3	2	134	4	91
Future Volume (vph)	131	1086	1	1703	118	3	2	134	4	91
Turn Type	Prot	NA	Prot	NA	Perm	Perm	NA	Perm	NA	Perm
Protected Phases	7	4	3	8			2		6	
Permitted Phases					8	2		6		6
Detector Phase	7	4	3	8	8	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	24.8	9.6	25.5	25.5	34.7	34.7	14.7	14.7	14.7
Total Split (s)	12.0	75.4	9.6	73.0	73.0	35.0	35.0	35.0	35.0	35.0
Total Split (%)	10.0%	62.8%	8.0%	60.8%	60.8%	29.2%	29.2%	29.2%	29.2%	29.2%
Yellow Time (s)	3.6	4.8	3.6	5.5	5.5	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.6	5.8	4.6	6.5	6.5	4.7	4.7		4.7	4.7
Lead/Lag	Lead	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	Max	None	None	None	None	Max	Max	Max	Max	Max
Act Effect Green (s)	7.4	77.3	5.0	66.5	66.5	30.3	30.3		30.3	30.3
Actuated g/C Ratio	0.06	0.64	0.04	0.55	0.55	0.25	0.25		0.25	0.25
v/c Ratio	0.68	0.52	0.01	0.95	0.14	0.01	0.01		0.44	0.22
Control Delay	71.9	13.0	56.0	37.9	2.5	34.0	30.0		42.6	11.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay	71.9	13.0	56.0	37.9	2.5	34.0	30.0		42.6	11.0
LOS	E	B	E	D	A	C	C		D	B
Approach Delay		19.3		35.6			32.0		30.0	
Approach LOS		B		D			C		C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Natural Cycle: 110

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.95

Intersection Signal Delay: 29.1

Intersection LOS: C

Intersection Capacity Utilization 93.7%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 20: Cambern Av./Cambern Av & Central Av. (SR-74)

Ø2	Ø3	Ø4	
35 s	9.6 s	75.4 s	
Ø6	Ø7	Ø8	
35 s	12 s	73 s	

HCM 6th Signalized Intersection Summary S. Nichols Mixed-Use Development (JN 10878)
 20: Cambern Av./Cambern Av & Central Av. (SR-74) 08/09/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	131	1086	1	1	1703	118	3	2	1	134	4	91
Future Volume (veh/h)	131	1086	1	1	1703	118	3	2	1	134	4	91
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	144	1193	1	1	1871	88	3	2	0	147	4	56
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	214	2234	2	2	1964	864	280	474	0	409	10	401
Arrive On Green	0.06	0.61	0.61	0.00	0.55	0.55	0.25	0.25	0.00	0.25	0.25	0.25
Sat Flow, veh/h	3456	3644	3	1781	3554	1564	1341	1870	0	1379	38	1583
Grp Volume(v), veh/h	144	582	612	1	1871	88	3	2	0	151	0	56
Grp Sat Flow(s),veh/h/ln	1728	1777	1870	1781	1777	1564	1341	1870	0	1416	0	1583
Q Serve(g_s), s	4.9	22.5	22.5	0.1	59.5	3.2	0.2	0.1	0.0	10.6	0.0	3.3
Cycle Q Clear(g_c), s	4.9	22.5	22.5	0.1	59.5	3.2	10.9	0.1	0.0	10.7	0.0	3.3
Prop In Lane	1.00		0.00	1.00		1.00	1.00		0.00	0.97		1.00
Lane Grp Cap(c), veh/h	214	1089	1146	2	1964	864	280	474	0	418	0	401
V/C Ratio(X)	0.67	0.53	0.53	0.41	0.95	0.10	0.01	0.00	0.00	0.36	0.00	0.14
Avail Cap(c_a), veh/h	214	1089	1146	74	1977	870	280	474	0	418	0	401
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	54.9	13.3	13.3	59.7	25.3	12.7	41.9	33.4	0.0	37.4	0.0	34.5
Incr Delay (d2), s/veh	15.7	0.7	0.6	36.4	11.2	0.1	0.1	0.0	0.0	2.4	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	8.2	8.7	0.1	24.5	1.0	0.1	0.0	0.0	4.0	0.0	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	70.6	14.0	13.9	96.1	36.5	12.8	42.0	33.4	0.0	39.8	0.0	35.3
LnGrp LOS	E	B	B	F	D	B	D	C	A	D	A	D
Approach Vol, veh/h		1338			1960			5			207	
Approach Delay, s/veh		20.1			35.5			38.5			38.6	
Approach LOS		C			D			D			D	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		35.0	4.8	79.8		35.0	12.0	72.6				
Change Period (Y+Rc), s		* 4.7	4.6	* 6.5		* 4.7	4.6	6.5				
Max Green Setting (Gmax), s		* 30	5.0	* 70		* 30	7.4	66.5				
Max Q Clear Time (g_c+I1), s		12.9	2.1	24.5		12.7	6.9	61.5				
Green Ext Time (p_c), s		0.0	0.0	14.4		0.9	0.0	4.6				
Intersection Summary												
HCM 6th Ctrl Delay			29.8									
HCM 6th LOS			C									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Timings
1: Lake St. & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

08/09/2018

									
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	1	6	241	0	1	384	174	31	897
Future Volume (vph)	1	6	241	0	1	384	174	31	897
Turn Type	Perm	NA	Perm	NA	Prot	NA	Perm	Prot	NA
Protected Phases		4		8	5	2		1	6
Permitted Phases	4		8				2		
Detector Phase	4	4	8	8	5	2	2	1	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	14.6	14.6	16.2	16.2	9.6	16.2	16.2	9.6	16.2
Total Split (s)	42.2	42.2	42.2	42.2	35.6	42.2	42.2	35.6	42.2
Total Split (%)	35.2%	35.2%	35.2%	35.2%	29.7%	35.2%	35.2%	29.7%	35.2%
Yellow Time (s)	3.6	3.6	5.2	5.2	3.6	5.2	5.2	3.6	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.6		6.2	4.6	6.2	6.2	4.6	6.2
Lead/Lag					Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	None	Max
Act Effect Green (s)		19.2		17.6	5.1	37.0	37.0	6.3	41.7
Actuated g/C Ratio		0.26		0.24	0.07	0.50	0.50	0.09	0.57
v/c Ratio		0.02		0.76	0.01	0.45	0.22	0.23	0.94
Control Delay		19.8		33.4	39.0	16.8	7.0	39.2	34.6
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		19.8		33.4	39.0	16.8	7.0	39.2	34.6
LOS		B		C	D	B	A	D	C
Approach Delay		19.8		33.4		13.8			34.8
Approach LOS		B		C		B			C

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 73.6

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.94

Intersection Signal Delay: 27.8

Intersection LOS: C

Intersection Capacity Utilization 78.8%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 1: Lake St. & Nichols Rd.

		
Ø1	Ø2	Ø4
35.6 s	42.2 s	42.2 s
		
Ø5	Ø6	Ø8
35.6 s	42.2 s	42.2 s

HCM 6th Signalized Intersection Summary

1: Lake St. & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

08/09/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	6	1	241	0	19	1	384	174	31	897	1
Future Volume (veh/h)	1	6	1	241	0	19	1	384	174	31	897	1
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1	7	1	265	0	13	1	422	0	34	986	1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	74	358	47	411	0	15	2	932		61	993	1
Arrive On Green	0.23	0.23	0.23	0.23	0.00	0.23	0.00	0.50	0.00	0.03	0.53	0.53
Sat Flow, veh/h	81	1543	203	1354	0	66	1781	1870	1585	1781	1868	2
Grp Volume(v), veh/h	9	0	0	278	0	0	1	422	0	34	0	987
Grp Sat Flow(s),veh/h/ln	1827	0	0	1421	0	0	1781	1870	1585	1781	0	1870
Q Serve(g_s), s	0.0	0.0	0.0	13.2	0.0	0.0	0.0	10.6	0.0	1.4	0.0	37.8
Cycle Q Clear(g_c), s	0.3	0.0	0.0	13.5	0.0	0.0	0.0	10.6	0.0	1.4	0.0	37.8
Prop In Lane	0.11		0.11	0.95		0.05	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	479	0	0	427	0	0	2	932		61	0	994
V/C Ratio(X)	0.02	0.00	0.00	0.65	0.00	0.00	0.41	0.45		0.56	0.00	0.99
Avail Cap(c_a), veh/h	990	0	0	804	0	0	765	932		765	0	994
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.4	0.0	0.0	26.4	0.0	0.0	36.0	11.7	0.0	34.3	0.0	16.8
Incr Delay (d2), s/veh	0.0	0.0	0.0	1.7	0.0	0.0	35.3	1.6	0.0	2.9	0.0	27.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.0	4.2	0.0	0.0	0.0	3.8	0.0	0.6	0.0	19.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.4	0.0	0.0	28.1	0.0	0.0	71.3	13.3	0.0	37.3	0.0	43.8
LnGrp LOS	C	A	A	C	A	A	E	B		D	A	D
Approach Vol, veh/h	9			278			423			1021		
Approach Delay, s/veh	21.4			28.1			13.4			43.5		
Approach LOS	C			C			B			D		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.1	42.2		22.9	4.7	44.6		22.9				
Change Period (Y+Rc), s	4.6	6.2		* 6.2	4.6	6.2		6.2				
Max Green Setting (Gmax), s	31.0	36.0		* 38	31.0	36.0		36.0				
Max Q Clear Time (g_c+I1), s	3.4	12.6		2.3	2.0	39.8		15.5				
Green Ext Time (p_c), s	0.0	3.3		0.0	0.0	0.0		1.3				
Intersection Summary												
HCM 6th Ctrl Delay	33.6											
HCM 6th LOS	C											
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.												

Timings
2: Lake St. & Alberhill Ranch Rd.

S. Nichols Mixed-Use Development (JN 10878)

08/09/2018

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	37	20	510	32	24	1074
Future Volume (vph)	37	20	510	32	24	1074
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2		
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	15.1	15.1	16.2	16.2	11.2	16.2
Total Split (s)	16.0	16.0	91.0	91.0	13.0	104.0
Total Split (%)	13.3%	13.3%	75.8%	75.8%	10.8%	86.7%
Yellow Time (s)	4.1	4.1	5.2	5.2	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	6.2	6.2	6.2	6.2
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	Max	Max	None	Max
Act Effect Green (s)	10.0	10.0	94.4	94.4	5.9	102.1
Actuated g/C Ratio	0.08	0.08	0.79	0.79	0.05	0.86
v/c Ratio	0.26	0.13	0.35	0.03	0.27	0.69
Control Delay	55.8	22.2	6.1	1.7	62.0	6.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.8	22.2	6.1	1.7	62.0	6.9
LOS	E	C	A	A	E	A
Approach Delay	44.2		5.8			8.0
Approach LOS	D		A			A

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 119.1
 Natural Cycle: 65
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.69
 Intersection Signal Delay: 8.5
 Intersection LOS: A
 Intersection Capacity Utilization 74.3%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 2: Lake St. & Alberhill Ranch Rd.



HCM 6th Signalized Intersection Summary 2: Lake St. & Alberhill Ranch Rd.

S. Nichols Mixed-Use Development (JN 10878)

08/09/2018

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	37	20	510	32	24	1074
Future Volume (veh/h)	37	20	510	32	24	1074
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		0.98	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	38	7	520	30	24	1096
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	117	104	1424	1182	41	1566
Arrive On Green	0.07	0.07	0.76	0.76	0.02	0.84
Sat Flow, veh/h	1781	1585	1870	1553	1781	1870
Grp Volume(v), veh/h	38	7	520	30	24	1096
Grp Sat Flow(s),veh/h/ln	1781	1585	1870	1553	1781	1870
Q Serve(g_s), s	2.4	0.5	10.7	0.5	1.6	26.9
Cycle Q Clear(g_c), s	2.4	0.5	10.7	0.5	1.6	26.9
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	117	104	1424	1182	41	1566
V/C Ratio(X)	0.32	0.07	0.37	0.03	0.58	0.70
Avail Cap(c_a), veh/h	166	148	1424	1182	104	1566
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.1	51.2	4.6	3.4	56.5	3.7
Incr Delay (d2), s/veh	0.6	0.1	0.7	0.0	4.7	2.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.2	3.1	0.1	0.7	5.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	52.7	51.3	5.3	3.4	61.2	6.4
LnGrp LOS	D	D	A	A	E	A
Approach Vol, veh/h	45		550			1120
Approach Delay, s/veh	52.5		5.2			7.5
Approach LOS	D		A			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	8.9	95.1			104.0	12.8
Change Period (Y+Rc), s	6.2	6.2			6.2	5.1
Max Green Setting (Gmax), s	6.8	84.8			97.8	10.9
Max Q Clear Time (g_c+I1), s	3.6	12.7			28.9	4.4
Green Ext Time (p_c), s	0.0	3.3			11.6	0.0
Intersection Summary						
HCM 6th Ctrl Delay			8.0			
HCM 6th LOS			A			

Intersection

Intersection Delay, s/veh 10

Intersection LOS A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	194	19	79	252	10	65
Future Vol, veh/h	194	19	79	252	10	65
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	206	20	84	268	11	69
Number of Lanes	1	0	0	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	1
HCM Control Delay	9.2	10.8	8.5
HCM LOS	A	B	A

Lane	NBLn1	NBLn2	EBLn1	WBLn1
Vol Left, %	100%	0%	0%	24%
Vol Thru, %	0%	0%	91%	76%
Vol Right, %	0%	100%	9%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	10	65	213	331
LT Vol	10	0	0	79
Through Vol	0	0	194	252
RT Vol	0	65	19	0
Lane Flow Rate	11	69	227	352
Geometry Grp	7	7	2	2
Degree of Util (X)	0.019	0.098	0.281	0.433
Departure Headway (Hd)	6.316	5.103	4.462	4.431
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	566	700	804	813
Service Time	4.058	2.845	2.488	2.455
HCM Lane V/C Ratio	0.019	0.099	0.282	0.433
HCM Control Delay	9.2	8.4	9.2	10.8
HCM Lane LOS	A	A	A	B
HCM 95th-tile Q	0.1	0.3	1.2	2.2

Timings
4: Lakeshore Dr. & Riverside Dr. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

08/09/2018

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	31	505	279	124	629	316	206	266	281	327	16
Future Volume (vph)	31	505	279	124	629	316	206	266	281	327	16
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2	1	6	
Permitted Phases			4			8					6
Detector Phase	7	4	4	3	8	8	5	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	32.4	32.4	9.6	33.4	33.4	9.6	34.7	9.6	32.7	32.7
Total Split (s)	9.6	38.3	38.3	20.3	49.0	49.0	27.6	35.4	26.0	33.8	33.8
Total Split (%)	8.0%	31.9%	31.9%	16.9%	40.8%	40.8%	23.0%	29.5%	21.7%	28.2%	28.2%
Yellow Time (s)	3.6	4.4	4.4	3.6	4.4	4.4	3.6	3.7	3.6	3.7	3.7
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.4	5.4	4.6	5.4	5.4	4.6	4.7	4.6	4.7	4.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	None	Max	Max
Act Effect Green (s)	5.0	30.8	30.8	12.1	42.1	42.1	17.5	30.9	20.6	33.9	33.9
Actuated g/C Ratio	0.04	0.27	0.27	0.11	0.37	0.37	0.15	0.27	0.18	0.30	0.30
v/c Ratio	0.41	0.54	0.45	0.68	0.94	0.44	0.78	0.46	0.91	0.32	0.03
Control Delay	71.7	38.2	6.3	68.1	58.6	8.4	66.4	28.4	78.9	34.4	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	71.7	38.2	6.3	68.1	58.6	8.4	66.4	28.4	78.9	34.4	0.1
LOS	E	D	A	E	E	A	E	C	E	C	A
Approach Delay		28.6			44.8			40.6		53.6	
Approach LOS		C			D			D		D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 113.8

Natural Cycle: 110

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.94

Intersection Signal Delay: 41.5

Intersection LOS: D

Intersection Capacity Utilization 93.9%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 4: Lakeshore Dr. & Riverside Dr. (SR-74)

			
Ø1	Ø2	Ø3	Ø4
26 s	35.4 s	20.3 s	38.3 s
			
Ø5	Ø6	Ø7	Ø8
27.6 s	33.8 s	9.6 s	49 s

HCM 6th Signalized Intersection Summary 4: Lakeshore Dr. & Riverside Dr. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

08/09/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	505	279	124	629	316	206	266	166	281	327	16
Future Volume (veh/h)	31	505	279	124	629	316	206	266	166	281	327	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	32	521	168	128	648	172	212	274	67	290	337	12
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	49	1083	483	155	681	570	241	751	180	316	1089	480
Arrive On Green	0.03	0.30	0.30	0.09	0.36	0.36	0.14	0.26	0.26	0.18	0.31	0.31
Sat Flow, veh/h	1781	3554	1585	1781	1870	1564	1781	2840	682	1781	3554	1565
Grp Volume(v), veh/h	32	521	168	128	648	172	212	170	171	290	337	12
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1870	1564	1781	1777	1746	1781	1777	1565
Q Serve(g_s), s	2.1	13.9	9.6	8.2	39.1	9.1	13.6	9.0	9.3	18.6	8.4	0.6
Cycle Q Clear(g_c), s	2.1	13.9	9.6	8.2	39.1	9.1	13.6	9.0	9.3	18.6	8.4	0.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.39	1.00		1.00
Lane Grp Cap(c), veh/h	49	1083	483	155	681	570	241	470	461	316	1089	480
V/C Ratio(X)	0.65	0.48	0.35	0.83	0.95	0.30	0.88	0.36	0.37	0.92	0.31	0.03
Avail Cap(c_a), veh/h	77	1083	483	241	702	587	353	470	461	328	1089	480
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.9	32.9	31.4	52.1	35.9	26.4	49.3	34.7	34.8	46.9	30.9	28.1
Incr Delay (d2), s/veh	5.2	0.3	0.4	7.0	22.4	0.3	11.8	2.1	2.3	28.2	0.7	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	5.9	3.6	3.9	21.3	3.4	6.8	4.2	4.3	10.7	3.7	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	61.1	33.2	31.8	59.1	58.3	26.7	61.1	36.9	37.1	75.1	31.6	28.2
LnGrp LOS	E	C	C	E	E	C	E	D	D	E	C	C
Approach Vol, veh/h		721			948			553			639	
Approach Delay, s/veh		34.1			52.7			46.2			51.3	
Approach LOS		C			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	25.2	35.4	14.7	40.8	20.3	40.3	7.8	47.7				
Change Period (Y+Rc), s	4.6	* 4.7	4.6	5.4	4.6	* 4.7	4.6	5.4				
Max Green Setting (Gmax), s	21.4	* 31	15.7	32.9	23.0	* 29	5.0	43.6				
Max Q Clear Time (g_c+I1), s	20.6	11.3	10.2	15.9	15.6	10.4	4.1	41.1				
Green Ext Time (p_c), s	0.0	1.9	0.1	3.5	0.2	2.1	0.0	1.2				
Intersection Summary												
HCM 6th Ctrl Delay			46.5									
HCM 6th LOS			D									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Intersection

Int Delay, s/veh 2.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕	↕		↕	↕
Traffic Vol, veh/h	2	884	4	6	907	122	0	0	6	30	1	2
Future Vol, veh/h	2	884	4	6	907	122	0	0	6	30	1	2
Conflicting Peds, #/hr	0	0	0	0	0	1	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Stop	-	-	Stop
Storage Length	-	-	-	-	-	-	-	-	75	-	-	75
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	911	4	6	935	126	0	0	6	31	1	2

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1062	0	0	915	0	0	1928	1991	913	1928	1930	999
Stage 1	-	-	-	-	-	-	917	917	-	1011	1011	-
Stage 2	-	-	-	-	-	-	1011	1074	-	917	919	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	656	-	-	745	-	-	50	61	331	50	66	295
Stage 1	-	-	-	-	-	-	326	351	-	289	317	-
Stage 2	-	-	-	-	-	-	289	296	-	326	350	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	655	-	-	745	-	-	48	59	331	48	64	295
Mov Cap-2 Maneuver	-	-	-	-	-	-	48	59	-	48	64	-
Stage 1	-	-	-	-	-	-	324	349	-	287	310	-
Stage 2	-	-	-	-	-	-	280	290	-	318	348	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.1	16.1	163.1
HCM LOS			C	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	-	331	655	-	-	745	-	-	48	295
HCM Lane V/C Ratio	-	0.019	0.003	-	-	0.008	-	-	0.666	0.007
HCM Control Delay (s)	0	16.1	10.5	0	-	9.9	0	-	172.5	17.3
HCM Lane LOS	A	C	B	A	-	A	A	-	F	C
HCM 95th %tile Q(veh)	-	0.1	0	-	-	0	-	-	2.6	0

Intersection												
Int Delay, s/veh	2.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	884	4	6	907	122	0	0	6	30	1	2
Future Vol, veh/h	2	884	4	6	907	122	0	0	6	30	1	2
Conflicting Peds, #/hr	0	0	0	0	0	1	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Stop	-	-	Stop
Storage Length	100	-	-	100	-	-	-	-	75	-	-	75
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	911	4	6	935	126	0	0	6	31	1	2

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1062	0	0	915	0	0	1928	1991	913	1928	1930	999
Stage 1	-	-	-	-	-	-	917	917	-	1011	1011	-
Stage 2	-	-	-	-	-	-	1011	1074	-	917	919	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	656	-	-	745	-	-	50	61	331	50	66	295
Stage 1	-	-	-	-	-	-	326	351	-	289	317	-
Stage 2	-	-	-	-	-	-	289	296	-	326	350	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	655	-	-	745	-	-	49	60	331	49	65	295
Mov Cap-2 Maneuver	-	-	-	-	-	-	49	60	-	49	65	-
Stage 1	-	-	-	-	-	-	325	350	-	288	314	-
Stage 2	-	-	-	-	-	-	284	293	-	319	349	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.1			16.1			157.6		
HCM LOS							C			F		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	-	331	655	-	-	745	-	-	49	295
HCM Lane V/C Ratio	-	0.019	0.003	-	-	0.008	-	-	0.652	0.007
HCM Control Delay (s)	0	16.1	10.5	-	-	9.9	-	-	166.6	17.3
HCM Lane LOS	A	C	B	-	-	A	-	-	F	C
HCM 95th %tile Q(veh)	-	0.1	0	-	-	0	-	-	2.6	0

Intersection

Int Delay, s/veh 7.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	198	57	236	264	83	270
Future Vol, veh/h	198	57	236	264	83	270
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	120	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	211	61	251	281	88	287

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	272
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.12
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.218
Pot Cap-1 Maneuver	-	-	1291
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1291
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	4	17.2
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	210	797	-	-	1291	-
HCM Lane V/C Ratio	0.42	0.36	-	-	0.194	-
HCM Control Delay (s)	34	12	-	-	8.5	-
HCM Lane LOS	D	B	-	-	A	-
HCM 95th %tile Q(veh)	1.9	1.6	-	-	0.7	-

Timings

S. Nichols Mixed-Use Development (JN 10878)

7: Collier Av. (SR-74)/Collier Av. & Riverside Dr. (SR-74)/Riverside Dr.

08/09/2018

										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	105	12	803	21	18	920	236	3	189	98
Future Volume (vph)	105	12	803	21	18	920	236	3	189	98
Turn Type	Perm	NA	pm+ov	Perm	NA	Split	NA	Split	NA	Perm
Protected Phases		4	2		8	2	2	6	6	
Permitted Phases	4		4	8						6
Detector Phase	4	4	2	8	8	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	15.4	15.4	15.8	14.6	14.6	15.8	15.8	16.2	16.2	16.2
Total Split (s)	19.0	19.0	79.0	19.0	19.0	79.0	79.0	22.0	22.0	22.0
Total Split (%)	15.8%	15.8%	65.8%	15.8%	15.8%	65.8%	65.8%	18.3%	18.3%	18.3%
Yellow Time (s)	4.4	4.4	4.8	3.6	3.6	4.8	4.8	5.2	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.4	5.8		4.6	5.8	5.8	6.2	6.2	6.2
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	None	None	Max	None	None	Max	Max	Max	Max	Max
Act Effct Green (s)		12.9	85.7		13.7	73.2	73.2	15.8	15.8	15.8
Actuated g/C Ratio		0.11	0.72		0.11	0.61	0.61	0.13	0.13	0.13
v/c Ratio		0.79	0.71		0.27	0.88	0.24	0.01	0.80	0.34
Control Delay		85.3	10.7		47.6	31.1	10.9	45.7	74.2	12.4
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		85.3	10.7		47.6	31.1	10.9	45.7	74.2	12.4
LOS		F	B		D	C	B	D	E	B
Approach Delay		20.2			47.6		26.7		53.1	
Approach LOS		C			D		C		D	
Intersection Summary										
Cycle Length: 120										
Actuated Cycle Length: 119.3										
Natural Cycle: 90										
Control Type: Actuated-Uncoordinated										
Maximum v/c Ratio: 0.88										
Intersection Signal Delay: 27.8					Intersection LOS: C					
Intersection Capacity Utilization 86.9%					ICU Level of Service E					
Analysis Period (min) 15										

Splits and Phases: 7: Collier Av. (SR-74)/Collier Av. & Riverside Dr. (SR-74)/Riverside Dr.

											
Ø2	Ø6	Ø4	Ø8								
79 s	22 s	19 s	19 s								

HCM 6th Signalized Intersection Summary S. Nichols Mixed-Use Development (JN 10878)
 7: Collier Av. (SR-74)/Collier Av. & Riverside Dr. (SR-74)/Riverside Dr. 08/09/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	105	12	803	21	18	7	920	236	20	3	189	98
Future Volume (veh/h)	105	12	803	21	18	7	920	236	20	3	189	98
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	109	12	788	22	19	1	958	246	20	3	197	29
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	173	13	1145	50	31	1	1079	1032	84	233	245	207
Arrive On Green	0.12	0.12	0.12	0.12	0.12	0.12	0.61	0.61	0.61	0.13	0.13	0.13
Sat Flow, veh/h	974	107	1548	35	258	7	1781	1703	138	1781	1870	1585
Grp Volume(v), veh/h	121	0	788	42	0	0	958	0	266	3	197	29
Grp Sat Flow(s),veh/h/ln	1081	0	1548	301	0	0	1781	0	1842	1781	1870	1585
Q Serve(g_s), s	0.0	0.0	14.4	1.0	0.0	0.0	55.4	0.0	8.0	0.2	12.4	2.0
Cycle Q Clear(g_c), s	13.4	0.0	14.4	14.4	0.0	0.0	55.4	0.0	8.0	0.2	12.4	2.0
Prop In Lane	0.90		1.00	0.52		0.02	1.00		0.08	1.00		1.00
Lane Grp Cap(c), veh/h	185	0	1145	81	0	0	1079	0	1116	233	245	207
V/C Ratio(X)	0.65	0.00	0.69	0.52	0.00	0.00	0.89	0.00	0.24	0.01	0.81	0.14
Avail Cap(c_a), veh/h	185	0	1145	81	0	0	1079	0	1116	233	245	207
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.8	0.0	6.5	51.3	0.0	0.0	20.3	0.0	11.0	45.7	51.0	46.5
Incr Delay (d2), s/veh	7.9	0.0	1.8	5.6	0.0	0.0	10.8	0.0	0.5	0.1	23.9	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.0	0.0	24.3	1.4	0.0	0.0	23.3	0.0	3.2	0.1	7.2	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.7	0.0	8.3	57.0	0.0	0.0	31.1	0.0	11.5	45.8	74.9	47.9
LnGrp LOS	E	A	A	E	A	A	C	A	B	D	E	D
Approach Vol, veh/h		909			42			1224			229	
Approach Delay, s/veh		15.3			57.0			26.9			71.1	
Approach LOS		B			E			C			E	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		79.0		19.8		22.0		19.8				
Change Period (Y+Rc), s		5.8		5.4		6.2		* 5.4				
Max Green Setting (Gmax), s		73.2		13.6		15.8		* 14				
Max Q Clear Time (g_c+I1), s		57.4		16.4		14.4		16.4				
Green Ext Time (p_c), s		4.9		0.0		0.1		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			27.2									
HCM 6th LOS			C									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Timings

S. Nichols Mixed-Use Development (JN 10878)

8: Collier Av./Collier Av. (SR-74) & Central Av./Central Av. (SR-74)

08/09/2018

											
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	198	334	215	203	756	52	124	357	957	140	33
Future Volume (vph)	198	334	215	203	756	52	124	357	957	140	33
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	7	4	3	8	1	5	2	3	1	6	
Permitted Phases					8			2			6
Detector Phase	7	4	3	8	1	5	2	3	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	5.0	10.0	5.0	5.0	10.0	10.0
Minimum Split (s)	9.6	14.7	9.6	42.8	9.6	9.6	15.8	9.6	9.6	29.8	29.8
Total Split (s)	14.0	28.8	28.0	42.8	43.0	13.6	20.2	28.0	43.0	49.6	49.6
Total Split (%)	11.7%	24.0%	23.3%	35.7%	35.8%	11.3%	16.8%	23.3%	35.8%	41.3%	41.3%
Yellow Time (s)	3.6	3.7	3.6	4.8	3.6	3.6	4.8	3.6	3.6	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.7	4.6	5.8	4.6	4.6	5.8	4.6	4.6	5.8	5.8
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	None	None	Max	Max
Act Effect Green (s)	9.0	17.1	11.8	18.8	52.8	7.2	16.8	29.8	32.8	44.8	44.8
Actuated g/C Ratio	0.09	0.17	0.12	0.19	0.54	0.07	0.17	0.30	0.33	0.45	0.45
v/c Ratio	0.65	0.65	0.54	0.59	0.48	0.42	0.41	0.67	0.87	0.09	0.04
Control Delay	56.3	42.9	47.0	43.4	7.1	57.7	45.5	27.0	40.7	18.9	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.3	42.9	47.0	43.4	7.1	57.7	45.5	27.0	40.7	18.9	0.1
LOS	E	D	D	D	A	E	D	C	D	B	A
Approach Delay		47.4		20.7			34.3			36.8	
Approach LOS		D		C			C			D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 98.6

Natural Cycle: 105

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 32.7

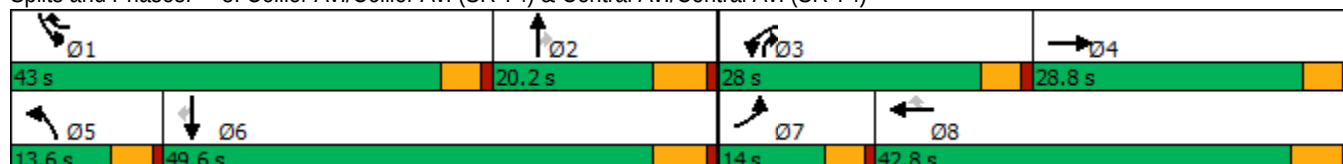
Intersection LOS: C

Intersection Capacity Utilization 72.4%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 8: Collier Av./Collier Av. (SR-74) & Central Av./Central Av. (SR-74)



HCM 6th Signalized Intersection Summary S. Nichols Mixed-Use Development (JN 10878)
 8: Collier Av./Collier Av. (SR-74) & Central Av./Central Av. (SR-74) 08/09/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	198	334	53	215	203	756	52	124	357	957	140	33
Future Volume (veh/h)	198	334	53	215	203	756	52	124	357	957	140	33
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	204	344	51	222	209	256	54	128	140	987	144	21
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	277	492	72	304	311	1335	73	391	466	1089	1717	755
Arrive On Green	0.08	0.16	0.16	0.09	0.17	0.17	0.04	0.21	0.21	0.32	0.48	0.48
Sat Flow, veh/h	3456	3108	457	3456	1870	2748	1781	1870	1561	3456	3554	1563
Grp Volume(v), veh/h	204	195	200	222	209	256	54	128	140	987	144	21
Grp Sat Flow(s),veh/h/ln	1728	1777	1788	1728	1870	1374	1781	1870	1561	1728	1777	1563
Q Serve(g_s), s	5.2	9.4	9.6	5.7	9.5	4.8	2.7	5.3	6.3	24.8	2.0	0.6
Cycle Q Clear(g_c), s	5.2	9.4	9.6	5.7	9.5	4.8	2.7	5.3	6.3	24.8	2.0	0.6
Prop In Lane	1.00		0.26	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	277	281	283	304	311	1335	73	391	466	1089	1717	755
V/C Ratio(X)	0.74	0.69	0.71	0.73	0.67	0.19	0.74	0.33	0.30	0.91	0.08	0.03
Avail Cap(c_a), veh/h	358	472	475	892	764	2001	177	391	466	1464	1717	755
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.7	36.1	36.1	40.3	35.5	13.5	43.0	30.4	24.6	29.8	12.6	12.3
Incr Delay (d2), s/veh	3.6	3.1	3.2	1.3	2.5	0.1	5.4	2.2	1.7	5.7	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	4.3	4.4	2.4	4.3	1.3	1.3	2.5	2.4	10.3	0.7	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.4	39.1	39.3	41.6	38.0	13.5	48.3	32.7	26.3	35.4	12.7	12.3
LnGrp LOS	D	D	D	D	D	B	D	C	C	D	B	B
Approach Vol, veh/h		599			687			322			1152	
Approach Delay, s/veh		41.0			30.0			32.5			32.2	
Approach LOS		D			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	33.2	24.8	12.6	20.2	8.3	49.6	11.9	20.9				
Change Period (Y+Rc), s	4.6	5.8	4.6	* 5.8	4.6	5.8	4.6	5.8				
Max Green Setting (Gmax), s	38.4	14.4	23.4	* 24	9.0	43.8	9.4	37.0				
Max Q Clear Time (g_c+I1), s	26.8	8.3	7.7	11.6	4.7	4.0	7.2	11.5				
Green Ext Time (p_c), s	1.7	0.5	0.3	1.8	0.0	0.9	0.1	2.1				
Intersection Summary												
HCM 6th Ctrl Delay			33.6									
HCM 6th LOS			C									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Intersection

Intersection Delay, s/veh14.5

Intersection LOS B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗	↖	↑						↕	
Traffic Vol, veh/h	0	254	284	27	360	0	0	0	0	83	2	140
Future Vol, veh/h	0	254	284	27	360	0	0	0	0	83	2	140
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	0	3	3	25	3	0	0	0	0	8	67	13
Mvmt Flow	0	270	302	29	383	0	0	0	0	88	2	149
Number of Lanes	0	1	1	1	1	0	0	0	0	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	2
HCM Control Delay	12.5	18.3	12.9
HCM LOS	B	C	B

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	100%	0%	37%
Vol Thru, %	100%	0%	0%	100%	1%
Vol Right, %	0%	100%	0%	0%	62%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	254	284	27	360	225
LT Vol	0	0	27	0	83
Through Vol	254	0	0	360	2
RT Vol	0	284	0	0	140
Lane Flow Rate	270	302	29	383	239
Geometry Grp	7	7	7	7	2
Degree of Util (X)	0.441	0.434	0.055	0.64	0.398
Departure Headway (Hd)	5.879	5.169	6.908	6.02	5.979
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	613	695	518	601	601
Service Time	3.618	2.908	4.651	3.763	4.024
HCM Lane V/C Ratio	0.44	0.435	0.056	0.637	0.398
HCM Control Delay	13.2	11.8	10.1	18.9	12.9
HCM Lane LOS	B	B	B	C	B
HCM 95th-tile Q	2.2	2.2	0.2	4.6	1.9

Intersection												
Int Delay, s/veh	15.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	149	188	0	0	119	41	267	1	32	0	0	0
Future Vol, veh/h	149	188	0	0	119	41	267	1	32	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	230	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	155	196	0	0	124	43	278	1	33	0	0	0

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	167	0	- - - 0 652 673 196
Stage 1	-	-	- - - 506 506 -
Stage 2	-	-	- - - 146 167 -
Critical Hdwy	4.15	-	- - - 6.44 6.5 6.26
Critical Hdwy Stg 1	-	-	- - - 5.44 5.5 -
Critical Hdwy Stg 2	-	-	- - - 5.44 5.5 -
Follow-up Hdwy	2.245	-	- - - 3.536 4 3.354
Pot Cap-1 Maneuver	1393	-	0 0 - - 429 379 835
Stage 1	-	-	0 0 - - 601 543 -
Stage 2	-	-	0 0 - - 876 764 -
Platoon blocked, %	-	-	- -
Mov Cap-1 Maneuver	1393	-	- - - 381 0 835
Mov Cap-2 Maneuver	-	-	- - - 381 0 -
Stage 1	-	-	- - - 534 0 -
Stage 2	-	-	- - - 876 0 -

Approach	EB	WB	NB
HCM Control Delay, s	3.5	0	38.2
HCM LOS	E		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR
Capacity (veh/h)	405	1393	-	-	-
HCM Lane V/C Ratio	0.772	0.111	-	-	-
HCM Control Delay (s)	38.2	7.9	-	-	-
HCM Lane LOS	E	A	-	-	-
HCM 95th %tile Q(veh)	6.5	0.4	-	-	-

Intersection	
Intersection Delay, s/veh	11.7
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	149	188	0	0	119	41	267	1	32	0	0	0
Future Vol, veh/h	149	188	0	0	119	41	267	1	32	0	0	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	155	196	0	0	124	43	278	1	33	0	0	0
Number of Lanes	1	1	0	0	1	0	0	1	0	0	0	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	11.1	10.3	13.2
HCM LOS	B	B	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1
Vol Left, %	89%	100%	0%	0%
Vol Thru, %	0%	0%	100%	74%
Vol Right, %	11%	0%	0%	26%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	300	149	188	160
LT Vol	267	149	0	0
Through Vol	1	0	188	119
RT Vol	32	0	0	41
Lane Flow Rate	312	155	196	167
Geometry Grp	2	7	7	5
Degree of Util (X)	0.473	0.269	0.311	0.253
Departure Headway (Hd)	5.449	6.229	5.724	5.459
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	666	577	629	658
Service Time	3.449	3.954	3.448	3.486
HCM Lane V/C Ratio	0.468	0.269	0.312	0.254
HCM Control Delay	13.2	11.2	11	10.3
HCM Lane LOS	B	B	B	B
HCM 95th-tile Q	2.5	1.1	1.3	1

Intersection

Int Delay, s/veh 1.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	13	18	134	25	51	159
Future Vol, veh/h	13	18	134	25	51	159
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	14	20	146	27	55	173

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	443	160	0
Stage 1	160	-	-
Stage 2	283	-	-
Critical Hdwy	6.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	-
Pot Cap-1 Maneuver	572	885	-
Stage 1	869	-	-
Stage 2	765	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	547	885	-
Mov Cap-2 Maneuver	547	-	-
Stage 1	832	-	-
Stage 2	765	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.4	0	1.9
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	703	1404
HCM Lane V/C Ratio	-	-	0.048	0.039
HCM Control Delay (s)	-	-	10.4	7.7
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.2	0.1

Intersection												
Int Delay, s/veh	1.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	15	0	31	5	0	1	14	143	4	6	155	11
Future Vol, veh/h	15	0	31	5	0	1	14	143	4	6	155	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	3
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	18	0	37	6	0	1	17	170	5	7	185	13
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	416	418	195	431	422	173	201	0	0	175	0	0
Stage 1	209	209	-	207	207	-	-	-	-	-	-	-
Stage 2	207	209	-	224	215	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	547	526	846	535	523	871	1371	-	-	1401	-	-
Stage 1	793	729	-	795	731	-	-	-	-	-	-	-
Stage 2	795	729	-	779	725	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	537	514	844	504	511	871	1367	-	-	1401	-	-
Mov Cap-2 Maneuver	537	514	-	504	511	-	-	-	-	-	-	-
Stage 1	780	722	-	784	721	-	-	-	-	-	-	-
Stage 2	783	719	-	740	718	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	10.5		11.7		0.7		0.3					
HCM LOS	B		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1367	-	-	711	542	1401	-	-				
HCM Lane V/C Ratio	0.012	-	-	0.077	0.013	0.005	-	-				
HCM Control Delay (s)	7.7	0	-	10.5	11.7	7.6	0	-				
HCM Lane LOS	A	A	-	B	B	A	A	-				
HCM 95th %tile O(veh)	0	-	-	0.2	0	0	-	-				

Timings
19: Dexter Av. & Central Av. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

08/09/2018

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	359	1716	171	166	1180	71	126	138	71	97	334
Future Volume (vph)	359	1716	171	166	1180	71	126	138	71	97	334
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2	1	6	7
Permitted Phases			4			8					6
Detector Phase	7	4	4	3	8	8	5	2	1	6	7
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0	5.0
Minimum Split (s)	9.6	26.8	26.8	9.6	26.8	26.8	9.6	42.4	9.6	15.8	9.6
Total Split (s)	32.0	47.2	47.2	17.0	32.2	32.2	22.1	43.8	12.0	33.7	32.0
Total Split (%)	26.7%	39.3%	39.3%	14.2%	26.8%	26.8%	18.4%	36.5%	10.0%	28.1%	26.7%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	4.8	3.6	4.4	3.6	4.8	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	5.8	4.6	5.8	5.8	4.6	5.4	4.6	5.8	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	None	Max	None
Act Effect Green (s)	26.1	41.4	41.4	12.4	27.7	27.7	12.8	38.9	7.0	30.5	57.8
Actuated g/C Ratio	0.22	0.35	0.35	0.11	0.23	0.23	0.11	0.33	0.06	0.26	0.49
v/c Ratio	0.94	0.92	0.27	0.91	0.69	0.14	0.68	0.54	0.69	0.21	0.41
Control Delay	77.5	46.0	7.4	100.1	44.2	0.6	68.0	30.9	86.2	36.6	12.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	77.5	46.0	7.4	100.1	44.2	0.6	68.0	30.9	86.2	36.6	12.4
LOS	E	D	A	F	D	A	E	C	F	D	B
Approach Delay		48.1			48.6			41.5		27.5	
Approach LOS		D			D			D		C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 117.9

Natural Cycle: 110

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.94

Intersection Signal Delay: 45.4

Intersection LOS: D

Intersection Capacity Utilization 94.4%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 19: Dexter Av. & Central Av. (SR-74)

Ø1	Ø2	Ø3	Ø4
12 s	43.8 s	17 s	47.2 s
Ø5	Ø6	Ø7	Ø8
22.1 s	33.7 s	32 s	32.2 s

HCM 6th Signalized Intersection Summary
19: Dexter Av. & Central Av. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

08/09/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	359	1716	171	166	1180	71	126	138	178	71	97	334
Future Volume (veh/h)	359	1716	171	166	1180	71	126	138	178	71	97	334
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	366	1751	132	169	1204	48	129	141	122	72	99	278
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	391	1881	534	186	1724	359	156	297	257	92	538	798
Arrive On Green	0.22	0.35	0.35	0.10	0.23	0.23	0.09	0.32	0.32	0.05	0.29	0.29
Sat Flow, veh/h	1781	5443	1545	1781	7481	1559	1781	918	794	1781	1870	1565
Grp Volume(v), veh/h	366	1751	132	169	1204	48	129	0	263	72	99	278
Grp Sat Flow(s),veh/h/ln	1781	1814	1545	1781	1870	1559	1781	0	1712	1781	1870	1565
Q Serve(g_s), s	24.0	36.9	7.3	11.1	17.5	2.9	8.5	0.0	14.6	4.7	4.7	12.6
Cycle Q Clear(g_c), s	24.0	36.9	7.3	11.1	17.5	2.9	8.5	0.0	14.6	4.7	4.7	12.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.46	1.00		1.00
Lane Grp Cap(c), veh/h	391	1881	534	186	1724	359	156	0	554	92	538	798
V/C Ratio(X)	0.94	0.93	0.25	0.91	0.70	0.13	0.83	0.00	0.48	0.78	0.18	0.35
Avail Cap(c_a), veh/h	411	1898	539	186	1724	359	263	0	554	111	538	798
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.5	37.5	27.8	52.6	41.9	36.3	53.3	0.0	32.1	55.7	31.8	17.6
Incr Delay (d2), s/veh	27.5	8.8	0.2	40.4	1.3	0.2	4.2	0.0	2.9	20.8	0.8	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	13.2	17.1	2.6	6.9	8.0	1.1	3.9	0.0	6.3	2.6	2.2	4.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	73.0	46.3	28.0	93.0	43.2	36.5	57.5	0.0	35.0	76.4	32.6	18.8
LnGrp LOS	E	D	C	F	D	D	E	A	D	E	C	B
Approach Vol, veh/h		2249			1421			392			449	
Approach Delay, s/veh		49.6			48.9			42.4			31.1	
Approach LOS		D			D			D			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.7	44.2	17.0	46.8	15.0	39.9	30.7	33.2				
Change Period (Y+Rc), s	4.6	* 5.8	4.6	5.8	4.6	5.8	4.6	5.8				
Max Green Setting (Gmax), s	7.4	* 38	12.4	41.4	17.5	27.9	27.4	26.4				
Max Q Clear Time (g_c+I1), s	6.7	16.6	13.1	38.9	10.5	14.6	26.0	19.5				
Green Ext Time (p_c), s	0.0	1.4	0.0	2.2	0.1	1.2	0.1	4.1				
Intersection Summary												
HCM 6th Ctrl Delay			46.9									
HCM 6th LOS			D									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Timings

S. Nichols Mixed-Use Development (JN 10878)

20: Cambern Av./Cambern Av & Central Av. (SR-74)

08/09/2018



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT	SBR	Ø3
Lane Configurations	←←	↑↑	↑↑	→	←	→		↑	→	
Traffic Volume (vph)	267	1842	1187	152	1	3	244	3	88	
Future Volume (vph)	267	1842	1187	152	1	3	244	3	88	
Turn Type	Prot	NA	NA	Perm	Perm	NA	Perm	NA	Perm	
Protected Phases	7	4	8			2		6		3
Permitted Phases				8	2		6		6	
Detector Phase	7	4	8	8	2	2	6	6	6	
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	5.0
Minimum Split (s)	9.6	24.8	25.5	25.5	34.7	34.7	14.7	14.7	14.7	9.6
Total Split (s)	19.8	74.0	63.8	63.8	36.4	36.4	36.4	36.4	36.4	9.6
Total Split (%)	16.5%	61.7%	53.2%	53.2%	30.3%	30.3%	30.3%	30.3%	30.3%	8%
Yellow Time (s)	3.6	4.8	5.5	5.5	3.7	3.7	3.7	3.7	3.7	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.6	5.8	6.5	6.5	4.7	4.7		4.7	4.7	
Lead/Lag	Lead	Lag	Lag	Lag						Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes						Yes
Recall Mode	Max	None	None	None	Max	Max	Max	Max	Max	None
Act Effect Green (s)	15.2	71.9	51.4	51.4	31.8	31.8		31.8	31.8	
Actuated g/C Ratio	0.13	0.63	0.45	0.45	0.28	0.28		0.28	0.28	
v/c Ratio	0.61	0.86	0.78	0.20	0.00	0.01		0.68	0.18	
Control Delay	53.8	22.1	30.4	3.3	32.0	29.2		48.5	4.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	53.8	22.1	30.4	3.3	32.0	29.2		48.5	4.4	
LOS	D	C	C	A	C	C		D	A	
Approach Delay		26.1	27.4			29.8		36.8		
Approach LOS		C	C			C		D		

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 114.2

Natural Cycle: 110

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 27.5

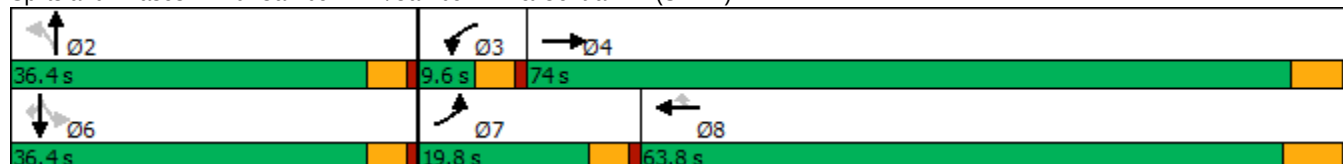
Intersection LOS: C

Intersection Capacity Utilization 88.0%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 20: Cambern Av./Cambern Av & Central Av. (SR-74)



HCM 6th Signalized Intersection Summary S. Nichols Mixed-Use Development (JN 10878)
 20: Cambern Av./Cambern Av & Central Av. (SR-74) 08/09/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	267	1842	1	0	1187	152	1	3	1	244	3	88
Future Volume (veh/h)	267	1842	1	0	1187	152	1	3	1	244	3	88
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	278	1919	1	0	1236	106	1	3	1	254	3	39
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	478	2223	1	2	1527	671	241	387	129	466	5	451
Arrive On Green	0.14	0.61	0.61	0.00	0.43	0.43	0.29	0.29	0.29	0.29	0.29	0.29
Sat Flow, veh/h	3456	3645	2	1781	3554	1561	1365	1342	447	1392	16	1565
Grp Volume(v), veh/h	278	935	985	0	1236	106	1	0	4	257	0	39
Grp Sat Flow(s),veh/h/ln	1728	1777	1870	1781	1777	1561	1365	0	1790	1409	0	1565
Q Serve(g_s), s	8.3	47.7	47.7	0.0	33.4	4.6	0.1	0.0	0.2	17.4	0.0	2.0
Cycle Q Clear(g_c), s	8.3	47.7	47.7	0.0	33.4	4.6	17.6	0.0	0.2	17.6	0.0	2.0
Prop In Lane	1.00		0.00	1.00		1.00	1.00		0.25	0.99		1.00
Lane Grp Cap(c), veh/h	478	1084	1140	2	1527	671	241	0	516	471	0	451
V/C Ratio(X)	0.58	0.86	0.86	0.00	0.81	0.16	0.00	0.00	0.01	0.55	0.00	0.09
Avail Cap(c_a), veh/h	478	1102	1160	81	1852	814	241	0	516	471	0	451
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	44.4	17.7	17.7	0.0	27.4	19.2	41.8	0.0	27.9	34.2	0.0	28.6
Incr Delay (d2), s/veh	5.1	7.4	7.1	0.0	2.6	0.2	0.0	0.0	0.0	4.5	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	18.7	19.6	0.0	13.2	1.6	0.0	0.0	0.1	6.5	0.0	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.5	25.1	24.8	0.0	30.0	19.3	41.8	0.0	27.9	38.7	0.0	28.9
LnGrp LOS	D	C	C	A	C	B	D	A	C	D	A	C
Approach Vol, veh/h		2198			1342			5			296	
Approach Delay, s/veh		28.0			29.2			30.7			37.4	
Approach LOS		C			C			C			D	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		36.4	0.0	73.6		36.4	19.8	53.8				
Change Period (Y+Rc), s		* 4.7	4.6	* 6.5		* 4.7	4.6	6.5				
Max Green Setting (Gmax), s		* 32	5.0	* 68		* 32	15.2	57.3				
Max Q Clear Time (g_c+I1), s		19.6	0.0	49.7		19.6	10.3	35.4				
Green Ext Time (p_c), s		0.0	0.0	15.4		1.2	0.2	11.8				
Intersection Summary												
HCM 6th Ctrl Delay			29.2									
HCM 6th LOS			C									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

APPENDIX 7.2:

EAP (2021) CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

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Timings
1: Lake St. & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

05/21/2018

									
Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBL	SBT	Ø5
Lane Configurations									
Traffic Volume (vph)	16	4	193	5	715	370	19	289	
Future Volume (vph)	16	4	193	5	715	370	19	289	
Turn Type	Perm	NA	Perm	NA	NA	Perm	Prot	NA	
Protected Phases		4		8	2		1	6	5
Permitted Phases	4		8			2			
Detector Phase	4	4	8	8	2	2	1	6	
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	5.0	10.0	5.0
Minimum Split (s)	14.6	14.6	16.2	16.2	16.2	16.2	9.6	16.2	9.6
Total Split (s)	42.2	42.2	42.2	42.2	42.2	42.2	35.6	42.2	35.6
Total Split (%)	35.2%	35.2%	35.2%	35.2%	35.2%	35.2%	29.7%	35.2%	30%
Yellow Time (s)	3.6	3.6	5.2	5.2	5.2	5.2	3.6	5.2	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		4.6		6.2	6.2	6.2	4.6	6.2	
Lead/Lag					Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	Max	Max	None	Max	None
Act Effect Green (s)		19.8		18.2	36.9	36.9	5.7	40.6	
Actuated g/C Ratio		0.28		0.25	0.52	0.52	0.08	0.57	
v/c Ratio		0.05		0.73	0.80	0.45	0.14	0.30	
Control Delay		20.0		36.8	26.3	11.1	37.6	9.8	
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay		20.0		36.8	26.3	11.1	37.6	9.8	
LOS		B		D	C	B	D	A	
Approach Delay		20.0		36.8	21.1			11.5	
Approach LOS		B		D	C			B	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 71.5

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.80

Intersection Signal Delay: 21.6

Intersection LOS: C

Intersection Capacity Utilization 62.6%

ICU Level of Service B

Analysis Period (min) 15

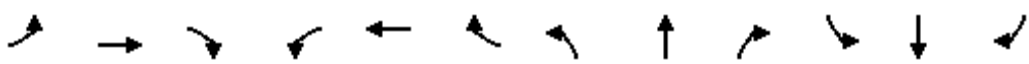
Splits and Phases: 1: Lake St. & Nichols Rd.

		
Ø1	Ø2	Ø4
35.6 s	42.2 s	42.2 s
		
Ø5	Ø6	Ø8
35.6 s	42.2 s	42.2 s

HCM 6th Signalized Intersection Summary
1: Lake St. & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

05/21/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↔	↑	↑	↔	↔	↑
Traffic Volume (veh/h)	16	4	0	193	5	42	0	715	370	19	289	4
Future Volume (veh/h)	16	4	0	193	5	42	0	715	370	19	289	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	17	4	0	208	5	33	0	769	0	20	311	4
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	351	73	0	350	6	40	3	980		41	1131	15
Arrive On Green	0.21	0.21	0.00	0.21	0.21	0.21	0.00	0.52	0.00	0.02	0.61	0.61
Sat Flow, veh/h	1246	355	0	1232	30	195	1781	1870	1585	1781	1842	24
Grp Volume(v), veh/h	21	0	0	246	0	0	0	769	0	20	0	315
Grp Sat Flow(s),veh/h/ln	1601	0	0	1457	0	0	1781	1870	1585	1781	0	1866
Q Serve(g_s), s	0.0	0.0	0.0	10.4	0.0	0.0	0.0	22.9	0.0	0.8	0.0	5.4
Cycle Q Clear(g_c), s	0.6	0.0	0.0	11.1	0.0	0.0	0.0	22.9	0.0	0.8	0.0	5.4
Prop In Lane	0.81		0.00	0.85		0.13	1.00		1.00	1.00		0.01
Lane Grp Cap(c), veh/h	424	0	0	396	0	0	3	980		41	0	1145
V/C Ratio(X)	0.05	0.00	0.00	0.62	0.00	0.00	0.00	0.79		0.49	0.00	0.28
Avail Cap(c_a), veh/h	917	0	0	854	0	0	803	980		803	0	1145
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.9	0.0	0.0	26.0	0.0	0.0	0.0	13.2	0.0	33.2	0.0	6.2
Incr Delay (d2), s/veh	0.0	0.0	0.0	1.6	0.0	0.0	0.0	6.3	0.0	3.3	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.0	3.5	0.0	0.0	0.0	8.7	0.0	0.3	0.0	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.0	0.0	0.0	27.6	0.0	0.0	0.0	19.5	0.0	36.4	0.0	6.8
LnGrp LOS	C	A	A	C	A	A	A	B		D	A	A
Approach Vol, veh/h		21			246			769	A		335	
Approach Delay, s/veh		22.0			27.6			19.5			8.5	
Approach LOS		C			C			B			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.2	42.2		20.3	0.0	48.4		20.3				
Change Period (Y+Rc), s	4.6	6.2		* 6.2	4.6	6.2		6.2				
Max Green Setting (Gmax), s	31.0	36.0		* 38	31.0	36.0		36.0				
Max Q Clear Time (g_c+I1), s	2.8	24.9		2.6	0.0	7.4		13.1				
Green Ext Time (p_c), s	0.0	4.9		0.1	0.0	2.4		1.2				

Intersection Summary

HCM 6th Ctrl Delay 18.3

HCM 6th LOS B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Timings
2: Lake St. & Alberhill Ranch Rd.

S. Nichols Mixed-Use Development (JN 10878)

05/21/2018

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	60	50	1077	51	19	444
Future Volume (vph)	60	50	1077	51	19	444
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2		
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	15.1	15.1	16.2	16.2	11.2	16.2
Total Split (s)	15.1	15.1	93.7	93.7	11.2	104.9
Total Split (%)	12.6%	12.6%	78.1%	78.1%	9.3%	87.4%
Yellow Time (s)	4.1	4.1	5.2	5.2	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	6.2	6.2	6.2	6.2
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	Max	Max	None	Max
Act Effect Green (s)	10.0	10.0	98.5	98.5	5.0	103.0
Actuated g/C Ratio	0.08	0.08	0.82	0.82	0.04	0.86
v/c Ratio	0.44	0.29	0.75	0.04	0.27	0.30
Control Delay	62.1	18.2	12.2	1.6	65.3	2.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.1	18.2	12.2	1.6	65.3	2.7
LOS	E	B	B	A	E	A
Approach Delay	42.2		11.7			5.3
Approach LOS	D		B			A

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.75
 Intersection Signal Delay: 11.9
 Intersection LOS: B
 Intersection Capacity Utilization 74.4%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 2: Lake St. & Alberhill Ranch Rd.



HCM 6th Signalized Intersection Summary
2: Lake St. & Alberhill Ranch Rd.

S. Nichols Mixed-Use Development (JN 10878)

05/21/2018

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	60	50	1077	51	19	444
Future Volume (veh/h)	60	50	1077	51	19	444
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	64	29	1146	45	20	472
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	142	127	1409	1192	36	1544
Arrive On Green	0.08	0.08	0.75	0.75	0.02	0.83
Sat Flow, veh/h	1781	1585	1870	1582	1781	1870
Grp Volume(v), veh/h	64	29	1146	45	20	472
Grp Sat Flow(s),veh/h/ln	1781	1585	1870	1582	1781	1870
Q Serve(g_s), s	4.1	2.1	46.6	0.9	1.3	7.0
Cycle Q Clear(g_c), s	4.1	2.1	46.6	0.9	1.3	7.0
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	142	127	1409	1192	36	1544
V/C Ratio(X)	0.45	0.23	0.81	0.04	0.55	0.31
Avail Cap(c_a), veh/h	149	133	1409	1192	75	1544
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.5	51.6	9.4	3.7	58.0	2.4
Incr Delay (d2), s/veh	0.8	0.3	5.2	0.1	4.8	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	0.8	15.1	0.2	0.6	1.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	53.3	51.9	14.6	3.8	62.9	2.9
LnGrp LOS	D	D	B	A	E	A
Approach Vol, veh/h	93		1191			492
Approach Delay, s/veh	52.9		14.2			5.4
Approach LOS	D		B			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	8.6	96.3			104.9	14.6
Change Period (Y+Rc), s	6.2	6.2			6.2	5.1
Max Green Setting (Gmax), s	5.0	87.5			98.7	10.0
Max Q Clear Time (g_c+l1), s	3.3	48.6			9.0	6.1
Green Ext Time (p_c), s	0.0	12.1			2.8	0.0
Intersection Summary						
HCM 6th Ctrl Delay			13.8			
HCM 6th LOS			B			

Intersection

Intersection Delay, s/veh12.1

Intersection LOS B

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	383	17	37	199	40	73
Future Vol, veh/h	383	17	37	199	40	73
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	435	19	42	226	45	83
Number of Lanes	1	0	0	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	1
HCM Control Delay	13.8	10.6	9.4
HCM LOS	B	B	A

Lane	NBLn1	NBLn2	EBLn1	WBLn1
Vol Left, %	100%	0%	0%	16%
Vol Thru, %	0%	0%	96%	84%
Vol Right, %	0%	100%	4%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	40	73	400	236
LT Vol	40	0	0	37
Through Vol	0	0	383	199
RT Vol	0	73	17	0
Lane Flow Rate	45	83	455	268
Geometry Grp	7	7	2	2
Degree of Util (X)	0.084	0.125	0.578	0.36
Departure Headway (Hd)	6.652	5.435	4.58	4.829
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	535	653	786	740
Service Time	4.44	3.223	2.627	2.886
HCM Lane V/C Ratio	0.084	0.127	0.579	0.362
HCM Control Delay	10.1	9	13.8	10.6
HCM Lane LOS	B	A	B	B
HCM 95th-tile Q	0.3	0.4	3.8	1.6

Timings
4: Lakeshore Dr. & Riverside Dr. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

05/21/2018

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	20	472	150	140	568	358	282	311	211	181	10
Future Volume (vph)	20	472	150	140	568	358	282	311	211	181	10
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2	1	6	
Permitted Phases			4			8					6
Detector Phase	7	4	4	3	8	8	5	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	32.4	32.4	9.6	33.4	33.4	9.6	34.7	9.6	32.7	32.7
Total Split (s)	9.6	35.0	35.0	22.6	48.0	48.0	28.0	38.4	24.0	34.4	34.4
Total Split (%)	8.0%	29.2%	29.2%	18.8%	40.0%	40.0%	23.3%	32.0%	20.0%	28.7%	28.7%
Yellow Time (s)	3.6	4.4	4.4	3.6	4.4	4.4	3.6	3.7	3.6	3.7	3.7
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.4	5.4	4.6	5.4	5.4	4.6	4.7	4.6	4.7	4.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	None	Max	Max
Act Effect Green (s)	5.0	28.5	28.5	13.9	41.6	41.6	22.4	34.6	17.7	29.8	29.8
Actuated g/C Ratio	0.04	0.25	0.25	0.12	0.36	0.36	0.20	0.30	0.16	0.26	0.26
v/c Ratio	0.29	0.60	0.33	0.73	0.94	0.52	0.91	0.45	0.86	0.22	0.02
Control Delay	65.0	41.6	7.2	68.2	59.3	9.1	76.5	31.8	77.2	35.2	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.0	41.6	7.2	68.2	59.3	9.1	76.5	31.8	77.2	35.2	0.1
LOS	E	D	A	E	E	A	E	C	E	D	A
Approach Delay		34.2			43.6			49.6		56.4	
Approach LOS		C			D			D		E	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 114.1

Natural Cycle: 110

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.94

Intersection Signal Delay: 44.8

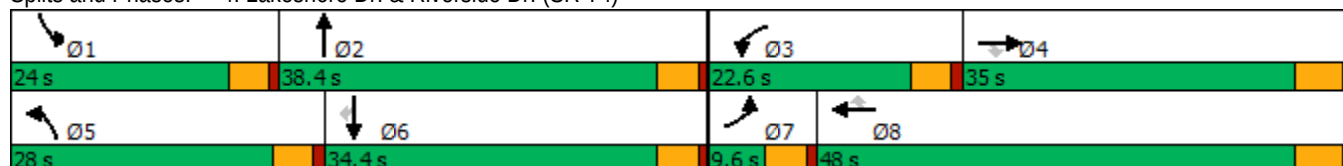
Intersection LOS: D

Intersection Capacity Utilization 86.8%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 4: Lakeshore Dr. & Riverside Dr. (SR-74)



HCM 6th Signalized Intersection Summary 4: Lakeshore Dr. & Riverside Dr. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

05/21/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	472	150	140	568	358	282	311	117	211	181	10
Future Volume (veh/h)	20	472	150	140	568	358	282	311	117	211	181	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	22	530	106	157	638	23	317	349	66	237	203	8
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	39	981	437	186	670	567	344	904	169	265	919	410
Arrive On Green	0.02	0.28	0.28	0.10	0.36	0.36	0.19	0.30	0.30	0.15	0.26	0.26
Sat Flow, veh/h	1781	3554	1582	1781	1870	1584	1781	2986	559	1781	3554	1585
Grp Volume(v), veh/h	22	530	106	157	638	23	317	206	209	237	203	8
Grp Sat Flow(s),veh/h/ln	1781	1777	1582	1781	1870	1584	1781	1777	1768	1781	1777	1585
Q Serve(g_s), s	1.4	14.6	6.0	9.9	38.1	1.1	20.1	10.5	10.7	15.0	5.2	0.4
Cycle Q Clear(g_c), s	1.4	14.6	6.0	9.9	38.1	1.1	20.1	10.5	10.7	15.0	5.2	0.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.32	1.00		1.00
Lane Grp Cap(c), veh/h	39	981	437	186	670	567	344	538	535	265	919	410
V/C Ratio(X)	0.56	0.54	0.24	0.85	0.95	0.04	0.92	0.38	0.39	0.89	0.22	0.02
Avail Cap(c_a), veh/h	78	981	437	279	694	588	363	538	535	301	919	410
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.6	35.3	32.2	50.5	35.9	24.0	45.5	31.6	31.6	48.0	33.4	31.7
Incr Delay (d2), s/veh	4.6	0.6	0.3	9.2	22.7	0.0	27.0	2.1	2.1	23.4	0.6	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	6.2	2.3	4.8	20.8	0.4	11.4	4.8	4.9	8.4	2.3	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.2	35.9	32.5	59.7	58.6	24.0	72.5	33.6	33.8	71.4	34.0	31.8
LnGrp LOS	E	D	C	E	E	C	E	C	C	E	C	C
Approach Vol, veh/h	658		818				732		448			
Approach Delay, s/veh	36.2		57.8				50.5		53.7			
Approach LOS	D		E				D		D			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	21.7	39.5	16.6	37.1	26.7	34.4	7.1	46.5				
Change Period (Y+Rc), s	4.6	* 4.7	4.6	5.4	4.6	* 4.7	4.6	5.4				
Max Green Setting (Gmax), s	19.4	* 34	18.0	29.6	23.4	* 30	5.0	42.6				
Max Q Clear Time (g_c+I1), s	17.0	12.7	11.9	16.6	22.1	7.2	3.4	40.1				
Green Ext Time (p_c), s	0.1	2.4	0.1	3.0	0.1	1.2	0.0	1.0				
Intersection Summary												
HCM 6th Ctrl Delay			49.8									
HCM 6th LOS			D									
Notes												

Intersection												
Int Delay, s/veh	3.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕	↕		↕	↕
Traffic Vol, veh/h	0	881	3	2	668	37	0	2	12	49	3	5
Future Vol, veh/h	0	881	3	2	668	37	0	2	12	49	3	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Stop	-	-	Stop
Storage Length	-	-	-	-	-	-	-	-	75	-	-	75
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	908	3	2	689	38	0	2	12	51	3	5
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	727	0	0	911	0	0	1624	1641	910	1623	1623	708
Stage 1	-	-	-	-	-	-	910	910	-	712	712	-
Stage 2	-	-	-	-	-	-	714	731	-	911	911	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	876	-	-	748	-	-	82	100	333	82	103	435
Stage 1	-	-	-	-	-	-	329	353	-	423	436	-
Stage 2	-	-	-	-	-	-	422	427	-	328	353	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	876	-	-	748	-	-	79	100	333	77	102	435
Mov Cap-2 Maneuver	-	-	-	-	-	-	79	100	-	77	102	-
Stage 1	-	-	-	-	-	-	329	353	-	423	434	-
Stage 2	-	-	-	-	-	-	412	425	-	314	353	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0			19.9			110.1		
HCM LOS							C			F		
Minor Lane/Major Mvmt	NBLn1 NBLn2		EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2		
Capacity (veh/h)	100	333	876	-	-	748	-	-	78	435		
HCM Lane V/C Ratio	0.021	0.037	-	-	-	0.003	-	-	0.687	0.012		
HCM Control Delay (s)	41.8	16.2	0	-	-	9.8	0	-	119.4	13.4		
HCM Lane LOS	E	C	A	-	-	A	A	-	F	B		
HCM 95th %tile Q(veh)	0.1	0.1	0	-	-	0	-	-	3.2	0		

Intersection

Int Delay, s/veh 3.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	881	3	2	668	37	0	2	12	49	3	5
Future Vol, veh/h	0	881	3	2	668	37	0	2	12	49	3	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Stop	-	-	Stop
Storage Length	100	-	-	100	-	-	-	-	75	-	-	75
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	908	3	2	689	38	0	2	12	51	3	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	727	0	0	911	0	0	1624	1641	910	1623	1623	708
Stage 1	-	-	-	-	-	-	910	910	-	712	712	-
Stage 2	-	-	-	-	-	-	714	731	-	911	911	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	876	-	-	748	-	-	82	100	333	82	103	435
Stage 1	-	-	-	-	-	-	329	353	-	423	436	-
Stage 2	-	-	-	-	-	-	422	427	-	328	353	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	876	-	-	748	-	-	79	100	333	78	103	435
Mov Cap-2 Maneuver	-	-	-	-	-	-	79	100	-	78	103	-
Stage 1	-	-	-	-	-	-	329	353	-	423	435	-
Stage 2	-	-	-	-	-	-	413	426	-	314	353	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	19.9	107.5
HCM LOS			C	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	100	333	876	-	-	748	-	-	79	435
HCM Lane V/C Ratio	0.021	0.037	-	-	-	0.003	-	-	0.679	0.012
HCM Control Delay (s)	41.8	16.2	0	-	-	9.8	-	-	116.6	13.4
HCM Lane LOS	E	C	A	-	-	A	-	-	F	B
HCM 95th %tile Q(veh)	0.1	0.1	0	-	-	0	-	-	3.2	0

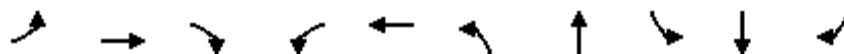
Intersection						
Int Delay, s/veh	3.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	430	34	116	202	39	103
Future Vol, veh/h	430	34	116	202	39	103
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	120	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	494	39	133	232	45	118
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	533	0	1012	514
Stage 1	-	-	-	-	514	-
Stage 2	-	-	-	-	498	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1035	-	265	560
Stage 1	-	-	-	-	600	-
Stage 2	-	-	-	-	611	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1035	-	231	560
Mov Cap-2 Maneuver	-	-	-	-	231	-
Stage 1	-	-	-	-	523	-
Stage 2	-	-	-	-	611	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		3.3		16.2	
HCM LOS					C	
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	231	560	-	-	1035	-
HCM Lane V/C Ratio	0.194	0.211	-	-	0.129	-
HCM Control Delay (s)	24.3	13.1	-	-	9	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile O(veh)	0.7	0.8	-	-	0.4	-

Timings

S. Nichols Mixed-Use Development (JN 10878)

7: Collier Av. (SR-74)/Collier Av. & Riverside Dr. (SR-74)/Riverside Dr.

05/21/2018



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations		↔	↔		↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	82	11	849	5	1	648	78	1	63	58
Future Volume (vph)	82	11	849	5	1	648	78	1	63	58
Turn Type	Perm	NA	pm+ov	Perm	NA	Split	NA	Split	NA	Perm
Protected Phases		4	2		8	2	2	6	6	
Permitted Phases	4		4	8						6
Detector Phase	4	4	2	8	8	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	15.4	15.4	15.8	14.6	14.6	15.8	15.8	16.2	16.2	16.2
Total Split (s)	23.0	23.0	79.0	23.0	23.0	79.0	79.0	18.0	18.0	18.0
Total Split (%)	19.2%	19.2%	65.8%	19.2%	19.2%	65.8%	65.8%	15.0%	15.0%	15.0%
Yellow Time (s)	4.4	4.4	4.8	3.6	3.6	4.8	4.8	5.2	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.4	5.8		4.6	5.8	5.8	6.2	6.2	6.2
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	None	None	Max	None	None	Max	Max	Max	Max	Max
Act Effect Green (s)		13.5	92.2		14.3	73.3	73.3	11.8	11.8	11.8
Actuated g/C Ratio		0.12	0.79		0.12	0.63	0.63	0.10	0.10	0.10
v/c Ratio		0.61	0.66		0.04	0.61	0.08	0.01	0.35	0.27
Control Delay		64.8	4.7		39.2	16.2	8.0	49.0	55.1	11.1
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		64.8	4.7		39.2	16.2	8.0	49.0	55.1	11.1
LOS		E	A		D	B	A	D	E	B
Approach Delay		10.6			39.3		15.2		34.1	
Approach LOS		B			D		B		C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 116

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.66

Intersection Signal Delay: 14.2

Intersection LOS: B

Intersection Capacity Utilization 83.1%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 7: Collier Av. (SR-74)/Collier Av. & Riverside Dr. (SR-74)/Riverside Dr.

↖ 02	↖ 06	↖ 04
79 s	18 s	23 s
		↖ 08
		23 s

HCM 6th Signalized Intersection Summary S. Nichols Mixed-Use Development (JN 10878)
 7: Collier Av. (SR-74)/Collier Av. & Riverside Dr. (SR-74)/Riverside Dr. 05/21/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	82	11	849	5	1	2	648	78	11	1	63	58
Future Volume (veh/h)	82	11	849	5	1	2	648	78	11	1	63	58
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	86	12	828	5	1	0	682	82	11	1	66	21
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	250	31	1199	112	18	0	1087	985	132	175	184	156
Arrive On Green	0.15	0.15	0.15	0.15	0.15	0.00	0.61	0.61	0.61	0.10	0.10	0.10
Sat Flow, veh/h	1322	214	1585	390	121	0	1781	1615	217	1781	1870	1585
Grp Volume(v), veh/h	98	0	828	6	0	0	682	0	93	1	66	21
Grp Sat Flow(s),veh/h/ln	1536	0	1585	510	0	0	1781	0	1831	1781	1870	1585
Q Serve(g_s), s	0.0	0.0	17.6	0.0	0.0	0.0	29.0	0.0	2.5	0.1	4.0	1.5
Cycle Q Clear(g_c), s	6.4	0.0	17.6	6.4	0.0	0.0	29.0	0.0	2.5	0.1	4.0	1.5
Prop In Lane	0.88		1.00	0.83		0.00	1.00		0.12	1.00		1.00
Lane Grp Cap(c), veh/h	282	0	1199	130	0	0	1087	0	1117	175	184	156
V/C Ratio(X)	0.35	0.00	0.69	0.05	0.00	0.00	0.63	0.00	0.08	0.01	0.36	0.13
Avail Cap(c_a), veh/h	282	0	1199	135	0	0	1087	0	1117	175	184	156
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.4	0.0	5.7	44.0	0.0	0.0	14.8	0.0	9.6	48.8	50.6	49.4
Incr Delay (d2), s/veh	0.7	0.0	1.7	0.1	0.0	0.0	2.7	0.0	0.1	0.1	5.4	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	0.0	25.4	0.2	0.0	0.0	11.3	0.0	1.0	0.0	2.1	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.1	0.0	7.4	44.1	0.0	0.0	17.5	0.0	9.8	48.9	55.9	51.2
LnGrp LOS	D	A	A	D	A	A	B	A	A	D	E	D
Approach Vol, veh/h	926		6				775				88	
Approach Delay, s/veh	11.6		44.1				16.6				54.7	
Approach LOS	B		D				B				D	
Timer - Assigned Phs	2		4		6		8					
Phs Duration (G+Y+Rc), s	79.0		23.0		18.0		23.0					
Change Period (Y+Rc), s	5.8		5.4		6.2		* 5.4					
Max Green Setting (Gmax), s	73.2		17.6		11.8		* 18					
Max Q Clear Time (g_c+I1), s	31.0		19.6		6.0		8.4					
Green Ext Time (p_c), s	2.9		0.0		0.1		0.0					
Intersection Summary												
HCM 6th Ctrl Delay			16.0									
HCM 6th LOS			B									
Notes												

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Timings

S. Nichols Mixed-Use Development (JN 10878)

8: Collier Av./Collier Av. (SR-74) & Central Av./Central Av. (SR-74)

05/21/2018

											
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 		 		 				 		
Traffic Volume (vph)	36	92	530	292	627	31	57	291	803	64	16
Future Volume (vph)	36	92	530	292	627	31	57	291	803	64	16
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	7	4	3	8	1	5	2	3	1	6	
Permitted Phases					8			2			6
Detector Phase	7	4	3	8	1	5	2	3	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	5.0	10.0	5.0	5.0	10.0	10.0
Minimum Split (s)	9.6	14.7	9.6	42.8	9.6	9.6	15.8	9.6	9.6	29.8	29.8
Total Split (s)	10.0	21.0	34.0	45.0	46.0	12.0	19.0	34.0	46.0	53.0	53.0
Total Split (%)	8.3%	17.5%	28.3%	37.5%	38.3%	10.0%	15.8%	28.3%	38.3%	44.2%	44.2%
Yellow Time (s)	3.6	3.7	3.6	4.8	3.6	3.6	4.8	3.6	3.6	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.7	4.6	5.8	4.6	4.6	5.8	4.6	4.6	5.8	5.8
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	None	None	Max	Max
Act Effect Green (s)	5.3	10.8	20.9	29.7	61.1	6.3	19.5	41.6	30.1	47.8	47.8
Actuated g/C Ratio	0.05	0.11	0.21	0.29	0.60	0.06	0.19	0.41	0.30	0.47	0.47
v/c Ratio	0.21	0.34	0.80	0.57	0.35	0.30	0.17	0.42	0.84	0.04	0.02
Control Delay	53.3	36.1	47.8	37.0	1.0	56.8	41.4	11.9	41.6	18.1	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.3	36.1	47.8	37.0	1.0	56.8	41.4	11.9	41.6	18.1	0.1
LOS	D	D	D	D	A	E	D	B	D	B	A
Approach Delay		40.0		25.4			20.0			39.1	
Approach LOS		D		C			C			D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 101.3

Natural Cycle: 95

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.84

Intersection Signal Delay: 29.7

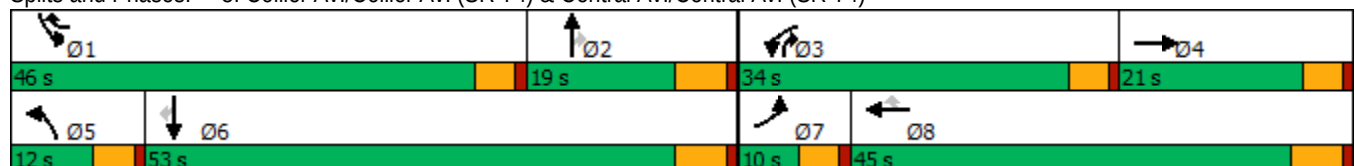
Intersection LOS: C

Intersection Capacity Utilization 65.6%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 8: Collier Av./Collier Av. (SR-74) & Central Av./Central Av. (SR-74)



HCM 6th Signalized Intersection Summary S. Nichols Mixed-Use Development (JN 10878)
 8: Collier Av./Collier Av. (SR-74) & Central Av./Central Av. (SR-74) 05/21/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	36	92	31	530	292	627	31	57	291	803	64	16
Future Volume (veh/h)	36	92	31	530	292	627	31	57	291	803	64	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	38	98	24	564	311	272	33	61	146	854	68	14
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	113	285	67	648	477	1460	54	429	656	947	1683	740
Arrive On Green	0.03	0.10	0.10	0.19	0.26	0.26	0.03	0.23	0.23	0.27	0.47	0.47
Sat Flow, veh/h	3456	2841	672	3456	1870	2724	1781	1870	1563	3456	3554	1562
Grp Volume(v), veh/h	38	60	62	564	311	272	33	61	146	854	68	14
Grp Sat Flow(s),veh/h/ln	1728	1777	1736	1728	1870	1362	1781	1870	1563	1728	1777	1562
Q Serve(g_s), s	1.1	3.1	3.3	15.8	14.8	5.2	1.8	2.6	6.0	23.8	1.0	0.5
Cycle Q Clear(g_c), s	1.1	3.1	3.3	15.8	14.8	5.2	1.8	2.6	6.0	23.8	1.0	0.5
Prop In Lane	1.00		0.39	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	113	178	174	648	477	1460	54	429	656	947	1683	740
V/C Ratio(X)	0.34	0.34	0.36	0.87	0.65	0.19	0.62	0.14	0.22	0.90	0.04	0.02
Avail Cap(c_a), veh/h	187	291	284	1019	735	1836	132	429	656	1435	1683	740
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.2	41.8	41.8	39.3	33.2	12.3	47.8	30.6	18.7	34.9	14.1	13.9
Incr Delay (d2), s/veh	0.6	1.1	1.2	3.2	1.5	0.1	4.2	0.7	0.8	4.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	1.4	1.5	6.7	6.6	1.4	0.8	1.2	2.2	9.9	0.4	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.8	42.9	43.1	42.5	34.7	12.3	52.0	31.3	19.5	39.0	14.1	14.0
LnGrp LOS	D	D	D	D	C	B	D	C	B	D	B	B
Approach Vol, veh/h		160			1147			240			936	
Approach Delay, s/veh		44.1			33.2			26.9			36.8	
Approach LOS		D			C			C			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	31.9	28.7	23.3	15.8	7.6	53.0	7.9	31.2				
Change Period (Y+Rc), s	4.6	5.8	4.6	* 5.8	4.6	5.8	4.6	5.8				
Max Green Setting (Gmax), s	41.4	13.2	29.4	* 16	7.4	47.2	5.4	39.2				
Max Q Clear Time (g_c+I1), s	25.8	8.0	17.8	5.3	3.8	3.0	3.1	16.8				
Green Ext Time (p_c), s	1.6	0.3	0.9	0.4	0.0	0.4	0.0	2.7				
Intersection Summary												
HCM 6th Ctrl Delay			34.7									
HCM 6th LOS			C									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Intersection

Intersection Delay, s/veh 18.7

Intersection LOS C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗	↖	↑						↕	
Traffic Vol, veh/h	0	250	283	88	252	0	0	0	0	184	6	66
Future Vol, veh/h	0	250	283	88	252	0	0	0	0	184	6	66
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles, %	0	3	3	25	3	0	0	0	0	8	67	13
Mvmt Flow	0	333	377	117	336	0	0	0	0	245	8	88
Number of Lanes	0	1	1	1	1	0	0	0	0	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	2
HCM Control Delay	18.1	18.6	20.1
HCM LOS	C	C	C

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	100%	0%	72%
Vol Thru, %	100%	0%	0%	100%	2%
Vol Right, %	0%	100%	0%	0%	26%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	250	283	88	252	256
LT Vol	0	0	88	0	184
Through Vol	250	0	0	252	6
RT Vol	0	283	0	0	66
Lane Flow Rate	333	377	117	336	341
Geometry Grp	7	7	7	7	2
Degree of Util (X)	0.605	0.61	0.25	0.632	0.625
Departure Headway (Hd)	6.531	5.816	7.663	6.769	6.589
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	550	615	466	531	546
Service Time	4.312	3.596	5.45	4.555	4.654
HCM Lane V/C Ratio	0.605	0.613	0.251	0.633	0.625
HCM Control Delay	18.9	17.4	13	20.6	20.1
HCM Lane LOS	C	C	B	C	C
HCM 95th-tile Q	4	4.1	1	4.4	4.3

Intersection												
Int Delay, s/veh	116.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	79	355	0	0	191	123	149	3	125	0	0	0
Future Vol, veh/h	79	355	0	0	191	123	149	3	125	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	230	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	62	62	62	62	62	62	62	62	62	62	62	62
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	127	573	0	0	308	198	240	5	202	0	0	0
Major/Minor	Major1		Major2			Minor1						
Conflicting Flow All	506	0	-	-	-	0	1234	1333	573			
Stage 1	-	-	-	-	-	-	827	827	-			
Stage 2	-	-	-	-	-	-	407	506	-			
Critical Hdwy	4.15	-	-	-	-	-	6.44	6.5	6.26			
Critical Hdwy Stg 1	-	-	-	-	-	-	5.44	5.5	-			
Critical Hdwy Stg 2	-	-	-	-	-	-	5.44	5.5	-			
Follow-up Hdwy	2.245	-	-	-	-	-	3.536	4	3.354			
Pot Cap-1 Maneuver	1043	-	0	0	-	-	~ 193	155	511			
Stage 1	-	-	0	0	-	-	426	389	-			
Stage 2	-	-	0	0	-	-	668	543	-			
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	1043	-	-	-	-	-	~ 169	0	511			
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 169	0	-			
Stage 1	-	-	-	-	-	-	374	0	-			
Stage 2	-	-	-	-	-	-	668	0	-			
Approach	EB		WB			NB						
HCM Control Delay, s	1.6			0			\$ 427.3					
HCM LOS	F											
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR							
Capacity (veh/h)	243	1043	-	-	-							
HCM Lane V/C Ratio	1.839	0.122	-	-	-							
HCM Control Delay (s)	\$ 427.3	8.9	-	-	-							
HCM Lane LOS	F	A	-	-	-							
HCM 95th %tile Q(veh)	30.9	0.4	-	-	-							
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s			+: Computation Not Defined				*: All major volume in platoon			

Intersection	
Intersection Delay, s/veh	68.6
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	79	355	0	0	191	123	149	3	125	0	0	0
Future Vol, veh/h	79	355	0	0	191	123	149	3	125	0	0	0
Peak Hour Factor	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	127	573	0	0	308	198	240	5	202	0	0	0
Number of Lanes	1	1	0	0	1	0	0	1	0	0	0	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	100.8	51.6	37.5
HCM LOS	F	F	E

Lane	NBLn1	EBLn1	EBLn2	WBLn1
Vol Left, %	54%	100%	0%	0%
Vol Thru, %	1%	0%	100%	61%
Vol Right, %	45%	0%	0%	39%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	277	79	355	314
LT Vol	149	79	0	0
Through Vol	3	0	355	191
RT Vol	125	0	0	123
Lane Flow Rate	447	127	573	506
Geometry Grp	2	7	7	5
Degree of Util (X)	0.842	0.278	1.167	0.936
Departure Headway (Hd)	7.105	7.85	7.336	6.966
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	514	460	498	527
Service Time	5.105	5.55	5.036	4.966
HCM Lane V/C Ratio	0.87	0.276	1.151	0.96
HCM Control Delay	37.5	13.5	120.2	51.6
HCM Lane LOS	E	B	F	F
HCM 95th-tile Q	8.6	1.1	20.6	11.6

Intersection						
Int Delay, s/veh	0.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	470	10	0	285	29	0
Future Vol, veh/h	470	10	0	285	29	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	200	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	511	11	0	310	32	0
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	522	0	827	517
Stage 1	-	-	-	-	517	-
Stage 2	-	-	-	-	310	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1044	-	341	558
Stage 1	-	-	-	-	598	-
Stage 2	-	-	-	-	744	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1044	-	341	558
Mov Cap-2 Maneuver	-	-	-	-	341	-
Stage 1	-	-	-	-	598	-
Stage 2	-	-	-	-	744	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		16.6	
HCM LOS					C	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	341	-	-	1044	-	
HCM Lane V/C Ratio	0.092	-	-	-	-	
HCM Control Delay (s)	16.6	-	-	0	-	
HCM Lane LOS	C	-	-	A	-	
HCM 95th %tile Q(veh)	0.3	-	-	0	-	

Intersection						
Int Delay, s/veh	3.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	231	239	0	124	161	0
Future Vol, veh/h	231	239	0	124	161	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	200	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	251	260	0	135	175	0
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	511	0	516	381
Stage 1	-	-	-	-	381	-
Stage 2	-	-	-	-	135	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1054	-	519	666
Stage 1	-	-	-	-	691	-
Stage 2	-	-	-	-	891	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1054	-	519	666
Mov Cap-2 Maneuver	-	-	-	-	519	-
Stage 1	-	-	-	-	691	-
Stage 2	-	-	-	-	891	-
Approach	EB	WB		NB		
HCM Control Delay, s	0	0		15.4		
HCM LOS	C					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	519	-	-	1054	-	
HCM Lane V/C Ratio	0.337	-	-	-	-	
HCM Control Delay (s)	15.4	-	-	0	-	
HCM Lane LOS	C	-	-	A	-	
HCM 95th %tile O(veh)	1.5	-	-	0	-	

Intersection												
Int Delay, s/veh	1.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	37	0	4	1	0	6	1	118	0	2	224	13
Future Vol, veh/h	37	0	4	1	0	6	1	118	0	2	224	13
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	40	0	4	1	0	7	1	128	0	2	243	14
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	388	384	250	386	391	128	257	0	0	128	0	0
Stage 1	254	254	-	130	130	-	-	-	-	-	-	-
Stage 2	134	130	-	256	261	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	571	550	789	573	545	922	1308	-	-	1458	-	-
Stage 1	750	697	-	874	789	-	-	-	-	-	-	-
Stage 2	869	789	-	749	692	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	566	548	789	568	543	922	1308	-	-	1458	-	-
Mov Cap-2 Maneuver	566	548	-	568	543	-	-	-	-	-	-	-
Stage 1	749	696	-	873	788	-	-	-	-	-	-	-
Stage 2	862	788	-	743	691	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	11.7		9.3		0.1		0.1					
HCM LOS	B		A									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1308	-	-	582	847	1458	-	-				
HCM Lane V/C Ratio	0.001	-	-	0.077	0.009	0.001	-	-				
HCM Control Delay (s)	7.8	0	-	11.7	9.3	7.5	0	-				
HCM Lane LOS	A	A	-	B	A	A	A	-				
HCM 95th %tile O(veh)	0	-	-	0.2	0	0	-	-				

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	120	229	0
Future Vol, veh/h	0	0	0	120	229	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	0	130	249	0
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	379	249	249	0	-	0
Stage 1	249	-	-	-	-	-
Stage 2	130	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	623	790	1317	-	-	-
Stage 1	792	-	-	-	-	-
Stage 2	896	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	623	790	1317	-	-	-
Mov Cap-2 Maneuver	623	-	-	-	-	-
Stage 1	792	-	-	-	-	-
Stage 2	896	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	0	0		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1317	-	-	-	-	
HCM Lane V/C Ratio	-	-	-	-	-	
HCM Control Delay (s)	0	-	0	-	-	
HCM Lane LOS	A	-	A	-	-	
HCM 95th %tile Q(veh)	0	-	-	-	-	

Intersection						
Int Delay, s/veh	0.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	3	226	111	3	10	9
Future Vol, veh/h	3	226	111	3	10	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	246	121	3	11	10
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	124	0	-	0	375	123
Stage 1	-	-	-	-	123	-
Stage 2	-	-	-	-	252	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1463	-	-	-	626	928
Stage 1	-	-	-	-	902	-
Stage 2	-	-	-	-	790	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1463	-	-	-	625	928
Mov Cap-2 Maneuver	-	-	-	-	625	-
Stage 1	-	-	-	-	900	-
Stage 2	-	-	-	-	790	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.1	0		10		
HCM LOS				B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1463	-	-	-	739	
HCM Lane V/C Ratio	0.002	-	-	-	0.028	
HCM Control Delay (s)	7.5	0	-	-	10	
HCM Lane LOS	A	A	-	-	B	
HCM 95th %tile Q(veh)	0	-	-	-	0.1	

Intersection						
Int Delay, s/veh	5.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	235	114	109	237	0
Future Vol, veh/h	0	235	114	109	237	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	255	124	118	258	0
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	624	258	258	0	-	0
Stage 1	258	-	-	-	-	-
Stage 2	366	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	449	781	1307	-	-	-
Stage 1	785	-	-	-	-	-
Stage 2	702	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	403	781	1307	-	-	-
Mov Cap-2 Maneuver	403	-	-	-	-	-
Stage 1	705	-	-	-	-	-
Stage 2	702	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	11.8	4.1		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1307	-	781	-	-	
HCM Lane V/C Ratio	0.095	-	0.327	-	-	
HCM Control Delay (s)	8	0	11.8	-	-	
HCM Lane LOS	A	A	B	-	-	
HCM 95th %tile Q(veh)	0.3	-	1.4	-	-	

Intersection						
Int Delay, s/veh	38.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	176	24	199	69	19	452
Future Vol, veh/h	176	24	199	69	19	452
Conflicting Peds, #/hr	0	1	0	3	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	66	66	66	66	66	66
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	267	36	302	105	29	685
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	1101	359	0	0	410	0
Stage 1	358	-	-	-	-	-
Stage 2	743	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	~ 235	685	-	-	1149	-
Stage 1	707	-	-	-	-	-
Stage 2	470	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 225	682	-	-	1146	-
Mov Cap-2 Maneuver	~ 225	-	-	-	-	-
Stage 1	676	-	-	-	-	-
Stage 2	470	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	178	0		0.3		
HCM LOS	F					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	-	245	1146	-	
HCM Lane V/C Ratio	-	-	1.237	0.025	-	
HCM Control Delay (s)	-	-	178	8.2	0	
HCM Lane LOS	-	-	F	A	A	
HCM 95th %tile Q(veh)	-	-	14.9	0.1	-	
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

Intersection

Int Delay, s/veh 5.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	176	24	199	69	19	452
Future Vol, veh/h	176	24	199	69	19	452
Conflicting Peds, #/hr	0	1	0	3	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	191	26	216	75	21	491

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	790	258	0
Stage 1	257	-	-
Stage 2	533	-	-
Critical Hdwy	6.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	-
Pot Cap-1 Maneuver	359	781	-
Stage 1	786	-	-
Stage 2	588	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	350	778	-
Mov Cap-2 Maneuver	350	-	-
Stage 1	766	-	-
Stage 2	588	-	-

Approach	WB	NB	SB
HCM Control Delay, s	27	0	0.3
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	375	1264
HCM Lane V/C Ratio	-	-	0.58	0.016
HCM Control Delay (s)	-	-	27	7.9
HCM Lane LOS	-	-	D	A
HCM 95th %tile Q(veh)	-	-	3.5	0.1

Intersection												
Int Delay, s/veh	420.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	137	0	279	6	0	16	176	115	6	8	378	242
Future Vol, veh/h	137	0	279	6	0	16	176	115	6	8	378	242
Conflicting Peds, #/hr	0	0	0	0	0	21	0	0	14	0	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	69	69	69	69	69	69	69	69	69	69	69	69
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	199	0	404	9	0	23	255	167	9	12	548	351
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1463	1449	725	1646	1620	207	900	0	0	190	0	0
Stage 1	749	749	-	696	696	-	-	-	-	-	-	-
Stage 2	714	700	-	950	924	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	~ 107	131	425	79	103	833	755	-	-	1384	-	-
Stage 1	404	419	-	432	443	-	-	-	-	-	-	-
Stage 2	422	441	-	312	348	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	~ 71	79	425	~ 3	62	805	754	-	-	1366	-	-
Mov Cap-2 Maneuver	~ 71	79	-	~ 3	62	-	-	-	-	-	-	-
Stage 1	252	411	-	267	273	-	-	-	-	-	-	-
Stage 2	251	272	-	15	341	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, \$	1292.3		\$ 1540.1		7.2		0.1					
HCM LOS	F		F									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	754	-	-	161	11	1366	-	-				
HCM Lane V/C Ratio	0.338	-	-	3.745	2.899	0.008	-	-				
HCM Control Delay (s)	12.2	0	\$ 1292	\$ 1540.1	7.7	0	-	-				
HCM Lane LOS	B	A	-	F	F	A	A	-				
HCM 95th %tile Q(veh)	1.5	-	-	59.1	5	0	-	-				
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s			+: Computation Not Defined				*: All major volume in platoon			

Intersection												
Int Delay, s/veh	94.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	137	0	279	6	0	16	176	115	6	8	378	242
Future Vol, veh/h	137	0	279	6	0	16	176	115	6	8	378	242
Conflicting Peds, #/hr	0	0	0	0	0	21	0	0	14	0	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	149	0	303	7	0	17	191	125	7	9	411	263
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1102	1090	544	1237	1218	164	675	0	0	146	0	0
Stage 1	562	562	-	525	525	-	-	-	-	-	-	-
Stage 2	540	528	-	712	693	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	189	215	539	153	181	881	916	-	-	1436	-	-
Stage 1	512	510	-	536	529	-	-	-	-	-	-	-
Stage 2	526	528	-	423	445	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	149	163	538	54	137	852	915	-	-	1417	-	-
Mov Cap-2 Maneuver	149	163	-	54	137	-	-	-	-	-	-	-
Stage 1	396	504	-	410	405	-	-	-	-	-	-	-
Stage 2	391	404	-	183	440	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s\$	302.3		29.8		5.9		0.1					
HCM LOS	F		D									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	915	-	-	289	169	1417	-	-				
HCM Lane V/C Ratio	0.209	-	-	1.565	0.141	0.006	-	-				
HCM Control Delay (s)	10	0	-	\$ 302.3	29.8	7.6	0	-				
HCM Lane LOS	A	A	-	F	D	A	A	-				
HCM 95th %tile Q(veh)	0.8	-	-	26.7	0.5	0	-	-				
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s			+: Computation Not Defined				*: All major volume in platoon			

Timings
19: Dexter Av. & Central Av. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

05/21/2018

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	241	940	132	128	1457	198	105	267	75	152	395
Future Volume (vph)	241	940	132	128	1457	198	105	267	75	152	395
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2	1	6	7
Permitted Phases			4			8					6
Detector Phase	7	4	4	3	8	8	5	2	1	6	7
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0	5.0
Minimum Split (s)	9.6	26.8	26.8	9.6	26.8	26.8	9.6	42.4	9.6	15.8	9.6
Total Split (s)	26.0	42.4	42.4	21.1	37.5	37.5	19.5	43.5	13.0	37.0	26.0
Total Split (%)	21.7%	35.3%	35.3%	17.6%	31.3%	31.3%	16.3%	36.3%	10.8%	30.8%	21.7%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	4.8	3.6	4.4	3.6	4.8	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	5.8	4.6	5.8	5.8	4.6	5.4	4.6	5.8	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	None	Max	None
Act Effect Green (s)	19.9	38.5	38.5	13.1	31.7	31.7	11.6	38.1	7.9	34.1	59.7
Actuated g/C Ratio	0.17	0.33	0.33	0.11	0.27	0.27	0.10	0.32	0.07	0.29	0.51
v/c Ratio	0.89	0.62	0.24	0.72	0.93	0.38	0.66	0.67	0.69	0.31	0.51
Control Delay	79.2	36.2	5.4	70.8	53.0	7.4	70.0	40.3	83.9	36.1	16.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	79.2	36.2	5.4	70.8	53.0	7.4	70.0	40.3	83.9	36.1	16.9
LOS	E	D	A	E	D	A	E	D	F	D	B
Approach Delay		41.0			49.2			47.0		29.6	
Approach LOS		D			D			D		C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 118

Natural Cycle: 100

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.93

Intersection Signal Delay: 43.5

Intersection LOS: D

Intersection Capacity Utilization 86.5%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 19: Dexter Av. & Central Av. (SR-74)

			
Ø1	Ø2	Ø3	Ø4
13 s	43.5 s	21.1 s	42.4 s
			
Ø5	Ø6	Ø7	Ø8
19.5 s	37 s	26 s	37.5 s

HCM 6th Signalized Intersection Summary
19: Dexter Av. & Central Av. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

05/21/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  						 	
Traffic Volume (veh/h)	241	940	132	128	1457	198	105	267	92	75	152	395
Future Volume (veh/h)	241	940	132	128	1457	198	105	267	92	75	152	395
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	265	1033	102	141	1601	176	115	293	60	82	167	378
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	292	1737	539	169	1741	423	141	494	101	104	574	747
Arrive On Green	0.16	0.34	0.34	0.09	0.27	0.27	0.08	0.33	0.33	0.06	0.31	0.31
Sat Flow, veh/h	1781	5106	1585	1781	6434	1565	1781	1506	308	1781	1870	1585
Grp Volume(v), veh/h	265	1033	102	141	1601	176	115	0	353	82	167	378
Grp Sat Flow(s),veh/h/ln	1781	1702	1585	1781	1609	1565	1781	0	1815	1781	1870	1585
Q Serve(g_s), s	17.0	19.4	5.3	9.0	28.1	10.7	7.4	0.0	18.9	5.3	7.9	19.2
Cycle Q Clear(g_c), s	17.0	19.4	5.3	9.0	28.1	10.7	7.4	0.0	18.9	5.3	7.9	19.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.17	1.00		1.00
Lane Grp Cap(c), veh/h	292	1737	539	169	1741	423	141	0	595	104	574	747
V/C Ratio(X)	0.91	0.59	0.19	0.84	0.92	0.42	0.81	0.00	0.59	0.79	0.29	0.51
Avail Cap(c_a), veh/h	328	1737	539	253	1755	427	228	0	595	129	574	747
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.7	31.7	27.0	51.7	41.1	34.8	52.6	0.0	32.6	54.0	30.6	21.3
Incr Delay (d2), s/veh	24.4	0.6	0.2	9.0	8.3	0.7	4.6	0.0	4.3	18.1	1.3	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.3	7.7	2.0	4.4	11.7	4.0	3.4	0.0	8.8	2.8	3.7	7.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	72.1	32.3	27.2	60.7	49.4	35.5	57.2	0.0	36.9	72.2	31.9	23.8
LnGrp LOS	E	C	C	E	D	D	E	A	D	E	C	C
Approach Vol, veh/h		1400			1918			468			627	
Approach Delay, s/veh		39.4			49.0			41.9			32.3	
Approach LOS		D			D			D			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.4	43.9	15.6	45.3	13.8	41.5	23.7	37.2				
Change Period (Y+Rc), s	4.6	* 5.8	4.6	5.8	4.6	5.8	4.6	5.8				
Max Green Setting (Gmax), s	8.4	* 38	16.5	36.6	14.9	31.2	21.4	31.7				
Max Q Clear Time (g_c+I1), s	7.3	20.9	11.0	21.4	9.4	21.2	19.0	30.1				
Green Ext Time (p_c), s	0.0	1.8	0.1	6.2	0.1	1.6	0.1	1.4				

Intersection Summary

HCM 6th Ctrl Delay 42.8

HCM 6th LOS D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Timings

S. Nichols Mixed-Use Development (JN 10878)

20: Cambern Av./Cambern Av & Central Av. (SR-74)

05/21/2018

										
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	131	1089	1	1704	118	3	2	134	4	91
Future Volume (vph)	131	1089	1	1704	118	3	2	134	4	91
Turn Type	Prot	NA	Prot	NA	Perm	Perm	NA	Perm	NA	Perm
Protected Phases	7	4	3	8			2		6	
Permitted Phases					8	2		6		6
Detector Phase	7	4	3	8	8	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	24.8	9.6	25.5	25.5	34.7	34.7	14.7	14.7	14.7
Total Split (s)	12.0	75.4	9.6	73.0	73.0	35.0	35.0	35.0	35.0	35.0
Total Split (%)	10.0%	62.8%	8.0%	60.8%	60.8%	29.2%	29.2%	29.2%	29.2%	29.2%
Yellow Time (s)	3.6	4.8	3.6	5.5	5.5	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.6	5.8	4.6	6.5	6.5	4.7	4.7		4.7	4.7
Lead/Lag	Lead	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	Max	None	None	None	None	Max	Max	Max	Max	Max
Act Effect Green (s)	7.4	77.3	5.0	66.5	66.5	30.3	30.3		30.3	30.3
Actuated g/C Ratio	0.06	0.64	0.04	0.55	0.55	0.25	0.25		0.25	0.25
v/c Ratio	0.68	0.53	0.01	0.96	0.14	0.01	0.01		0.44	0.22
Control Delay	71.9	13.0	56.0	38.0	2.5	34.0	30.0		42.6	11.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay	71.9	13.0	56.0	38.0	2.5	34.0	30.0		42.6	11.0
LOS	E	B	E	D	A	C	C		D	B
Approach Delay		19.3		35.7			32.0		30.0	
Approach LOS		B		D			C		C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Natural Cycle: 110

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.96

Intersection Signal Delay: 29.2

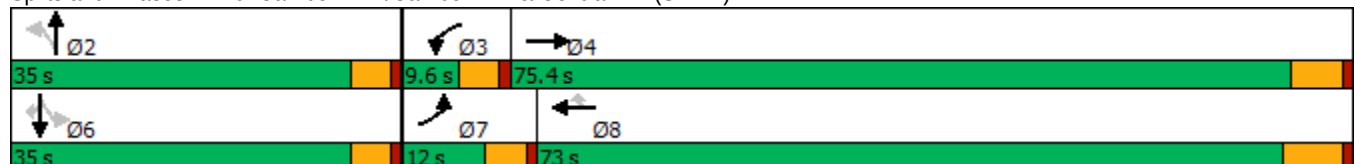
Intersection LOS: C

Intersection Capacity Utilization 93.7%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 20: Cambern Av./Cambern Av & Central Av. (SR-74)



												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	131	1089	1	1	1704	118	3	2	1	134	4	91
Future Volume (veh/h)	131	1089	1	1	1704	118	3	2	1	134	4	91
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	144	1197	1	1	1873	88	3	2	0	147	4	56
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	214	2234	2	2	1964	864	280	474	0	409	10	401
Arrive On Green	0.06	0.61	0.61	0.00	0.55	0.55	0.25	0.25	0.00	0.25	0.25	0.25
Sat Flow, veh/h	3456	3644	3	1781	3554	1564	1341	1870	0	1379	38	1583
Grp Volume(v), veh/h	144	584	614	1	1873	88	3	2	0	151	0	56
Grp Sat Flow(s),veh/h/ln	1728	1777	1870	1781	1777	1564	1341	1870	0	1416	0	1583
Q Serve(g_s), s	4.9	22.6	22.6	0.1	59.6	3.2	0.2	0.1	0.0	10.6	0.0	3.3
Cycle Q Clear(g_c), s	4.9	22.6	22.6	0.1	59.6	3.2	10.9	0.1	0.0	10.7	0.0	3.3
Prop In Lane	1.00		0.00	1.00		1.00	1.00		0.00	0.97		1.00
Lane Grp Cap(c), veh/h	214	1089	1146	2	1964	864	280	474	0	418	0	401
V/C Ratio(X)	0.67	0.54	0.54	0.41	0.95	0.10	0.01	0.00	0.00	0.36	0.00	0.14
Avail Cap(c_a), veh/h	214	1089	1146	74	1976	870	280	474	0	418	0	401
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	54.9	13.3	13.3	59.7	25.3	12.7	41.9	33.4	0.0	37.4	0.0	34.6
Incr Delay (d2), s/veh	15.7	0.7	0.6	36.4	11.3	0.1	0.1	0.0	0.0	2.4	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	8.3	8.7	0.1	24.6	1.0	0.1	0.0	0.0	4.0	0.0	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	70.6	14.0	14.0	96.1	36.7	12.8	42.0	33.4	0.0	39.8	0.0	35.3
LnGrp LOS	E	B	B	F	D	B	D	C	A	D	A	D
Approach Vol, veh/h		1342			1962			5			207	
Approach Delay, s/veh		20.1			35.6			38.5			38.6	
Approach LOS		C			D			D			D	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		35.0	4.8	79.8		35.0	12.0	72.6				
Change Period (Y+Rc), s		* 4.7	4.6	* 6.5		* 4.7	4.6	6.5				
Max Green Setting (Gmax), s		* 30	5.0	* 70		* 30	7.4	66.5				
Max Q Clear Time (g_c+I1), s		12.9	2.1	24.6		12.7	6.9	61.6				
Green Ext Time (p_c), s		0.0	0.0	14.4		0.9	0.0	4.5				
Intersection Summary												
HCM 6th Ctrl Delay			29.9									
HCM 6th LOS			C									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Timings
1: Lake St. & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

05/21/2018

									
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	1	6	244	0	1	384	179	33	897
Future Volume (vph)	1	6	244	0	1	384	179	33	897
Turn Type	Perm	NA	Perm	NA	Prot	NA	Perm	Prot	NA
Protected Phases		4		8	5	2		1	6
Permitted Phases	4		8				2		
Detector Phase	4	4	8	8	5	2	2	1	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	14.6	14.6	16.2	16.2	9.6	16.2	16.2	9.6	16.2
Total Split (s)	42.2	42.2	42.2	42.2	35.6	42.2	42.2	35.6	42.2
Total Split (%)	35.2%	35.2%	35.2%	35.2%	29.7%	35.2%	35.2%	29.7%	35.2%
Yellow Time (s)	3.6	3.6	5.2	5.2	3.6	5.2	5.2	3.6	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.6		6.2	4.6	6.2	6.2	4.6	6.2
Lead/Lag					Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	None	Max
Act Effect Green (s)		19.4		17.8	5.1	37.0	37.0	6.3	41.8
Actuated g/C Ratio		0.26		0.24	0.07	0.50	0.50	0.09	0.57
v/c Ratio		0.02		0.76	0.01	0.45	0.23	0.24	0.94
Control Delay		19.8		33.7	39.0	17.1	7.1	39.5	35.0
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		19.8		33.7	39.0	17.1	7.1	39.5	35.0
LOS		B		C	D	B	A	D	D
Approach Delay		19.8		33.7		13.9			35.2
Approach LOS		B		C		B			D

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 73.9

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.94

Intersection Signal Delay: 28.1

Intersection LOS: C

Intersection Capacity Utilization 79.0%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 1: Lake St. & Nichols Rd.



HCM 6th Signalized Intersection Summary
1: Lake St. & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

05/21/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	6	1	244	0	20	1	384	179	33	897	1
Future Volume (veh/h)	1	6	1	244	0	20	1	384	179	33	897	1
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1	7	1	268	0	14	1	422	0	36	986	1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	74	362	48	413	0	17	2	927		63	990	1
Arrive On Green	0.23	0.23	0.23	0.23	0.00	0.23	0.00	0.50	0.00	0.04	0.53	0.53
Sat Flow, veh/h	82	1542	203	1351	0	71	1781	1870	1585	1781	1868	2
Grp Volume(v), veh/h	9	0	0	282	0	0	1	422	0	36	0	987
Grp Sat Flow(s),veh/h/ln	1827	0	0	1421	0	0	1781	1870	1585	1781	0	1870
Q Serve(g_s), s	0.0	0.0	0.0	13.5	0.0	0.0	0.0	10.7	0.0	1.4	0.0	38.1
Cycle Q Clear(g_c), s	0.3	0.0	0.0	13.7	0.0	0.0	0.0	10.7	0.0	1.4	0.0	38.1
Prop In Lane	0.11		0.11	0.95		0.05	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	483	0	0	430	0	0	2	927		63	0	991
V/C Ratio(X)	0.02	0.00	0.00	0.66	0.00	0.00	0.41	0.46		0.57	0.00	1.00
Avail Cap(c_a), veh/h	985	0	0	800	0	0	761	927		761	0	991
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.4	0.0	0.0	26.5	0.0	0.0	36.2	11.9	0.0	34.5	0.0	17.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	1.7	0.0	0.0	35.7	1.6	0.0	3.0	0.0	27.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.0	4.3	0.0	0.0	0.0	3.9	0.0	0.6	0.0	19.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.4	0.0	0.0	28.2	0.0	0.0	71.9	13.5	0.0	37.4	0.0	44.6
LnGrp LOS	C	A	A	C	A	A	E	B		D	A	D
Approach Vol, veh/h		9			282			423	A		1023	
Approach Delay, s/veh		21.4			28.2			13.7			44.3	
Approach LOS		C			C			B			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.2	42.2		23.2	4.7	44.7		23.2				
Change Period (Y+Rc), s	4.6	6.2		* 6.2	4.6	6.2		6.2				
Max Green Setting (Gmax), s	31.0	36.0		* 38	31.0	36.0		36.0				
Max Q Clear Time (g_c+I1), s	3.4	12.7		2.3	2.0	40.1		15.7				
Green Ext Time (p_c), s	0.0	3.3		0.0	0.0	0.0		1.3				
Intersection Summary												
HCM 6th Ctrl Delay				34.1								
HCM 6th LOS				C								
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.												

Timings
2: Lake St. & Alberhill Ranch Rd.

S. Nichols Mixed-Use Development (JN 10878)

05/21/2018

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	37	20	515	32	24	1077
Future Volume (vph)	37	20	515	32	24	1077
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2		
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	15.1	15.1	16.2	16.2	11.2	16.2
Total Split (s)	16.0	16.0	91.0	91.0	13.0	104.0
Total Split (%)	13.3%	13.3%	75.8%	75.8%	10.8%	86.7%
Yellow Time (s)	4.1	4.1	5.2	5.2	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	6.2	6.2	6.2	6.2
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	Max	Max	None	Max
Act Effect Green (s)	10.0	10.0	94.4	94.4	5.9	102.1
Actuated g/C Ratio	0.08	0.08	0.79	0.79	0.05	0.86
v/c Ratio	0.26	0.13	0.36	0.03	0.27	0.69
Control Delay	55.8	22.2	6.1	1.7	62.0	6.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.8	22.2	6.1	1.7	62.0	6.9
LOS	E	C	A	A	E	A
Approach Delay	44.2		5.8			8.1
Approach LOS	D		A			A

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 119.1
Natural Cycle: 65
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.69
Intersection Signal Delay: 8.6
Intersection Capacity Utilization 74.4%
Analysis Period (min) 15
Intersection LOS: A
ICU Level of Service D

Splits and Phases: 2: Lake St. & Alberhill Ranch Rd.



HCM 6th Signalized Intersection Summary
2: Lake St. & Alberhill Ranch Rd.

S. Nichols Mixed-Use Development (JN 10878)

05/21/2018

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	37	20	515	32	24	1077
Future Volume (veh/h)	37	20	515	32	24	1077
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		0.98	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	38	7	526	30	24	1099
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	117	104	1424	1182	41	1566
Arrive On Green	0.07	0.07	0.76	0.76	0.02	0.84
Sat Flow, veh/h	1781	1585	1870	1553	1781	1870
Grp Volume(v), veh/h	38	7	526	30	24	1099
Grp Sat Flow(s),veh/h/ln	1781	1585	1870	1553	1781	1870
Q Serve(g_s), s	2.4	0.5	10.9	0.5	1.6	27.0
Cycle Q Clear(g_c), s	2.4	0.5	10.9	0.5	1.6	27.0
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	117	104	1424	1182	41	1566
V/C Ratio(X)	0.32	0.07	0.37	0.03	0.58	0.70
Avail Cap(c_a), veh/h	166	148	1424	1182	104	1566
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.1	51.2	4.6	3.4	56.5	3.7
Incr Delay (d2), s/veh	0.6	0.1	0.7	0.0	4.7	2.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.2	3.2	0.1	0.7	5.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	52.7	51.3	5.4	3.4	61.2	6.4
LnGrp LOS	D	D	A	A	E	A
Approach Vol, veh/h	45		556			1123
Approach Delay, s/veh	52.5		5.3			7.6
Approach LOS	D		A			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	8.9	95.1			104.0	12.8
Change Period (Y+Rc), s	6.2	6.2			6.2	5.1
Max Green Setting (Gmax), s	6.8	84.8			97.8	10.9
Max Q Clear Time (g_c+l1), s	3.6	12.9			29.0	4.4
Green Ext Time (p_c), s	0.0	3.3			11.7	0.0
Intersection Summary						
HCM 6th Ctrl Delay			8.0			
HCM 6th LOS			A			

Intersection

Intersection Delay, s/veh10.1

Intersection LOS B

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	201	19	79	256	10	65
Future Vol, veh/h	201	19	79	256	10	65
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	214	20	84	272	11	69
Number of Lanes	1	0	0	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	1
HCM Control Delay	9.3	10.9	8.5
HCM LOS	A	B	A

Lane	NBLn1	NBLn2	EBLn1	WBLn1
Vol Left, %	100%	0%	0%	24%
Vol Thru, %	0%	0%	91%	76%
Vol Right, %	0%	100%	9%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	10	65	220	335
LT Vol	10	0	0	79
Through Vol	0	0	201	256
RT Vol	0	65	19	0
Lane Flow Rate	11	69	234	356
Geometry Grp	7	7	2	2
Degree of Util (X)	0.019	0.098	0.29	0.439
Departure Headway (Hd)	6.34	5.127	4.468	4.438
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	564	697	805	813
Service Time	4.084	2.87	2.495	2.462
HCM Lane V/C Ratio	0.02	0.099	0.291	0.438
HCM Control Delay	9.2	8.4	9.3	10.9
HCM Lane LOS	A	A	A	B
HCM 95th-tile Q	0.1	0.3	1.2	2.3

Timings
4: Lakeshore Dr. & Riverside Dr. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

05/21/2018

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	31	512	279	126	633	316	206	266	281	327	16
Future Volume (vph)	31	512	279	126	633	316	206	266	281	327	16
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2	1	6	
Permitted Phases			4			8					6
Detector Phase	7	4	4	3	8	8	5	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	32.4	32.4	9.6	33.4	33.4	9.6	34.7	9.6	32.7	32.7
Total Split (s)	9.6	38.3	38.3	20.3	49.0	49.0	27.6	35.4	26.0	33.8	33.8
Total Split (%)	8.0%	31.9%	31.9%	16.9%	40.8%	40.8%	23.0%	29.5%	21.7%	28.2%	28.2%
Yellow Time (s)	3.6	4.4	4.4	3.6	4.4	4.4	3.6	3.7	3.6	3.7	3.7
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.4	5.4	4.6	5.4	5.4	4.6	4.7	4.6	4.7	4.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	None	Max	Max
Act Effect Green (s)	5.0	31.0	31.0	12.2	42.4	42.4	17.6	30.9	20.6	33.9	33.9
Actuated g/C Ratio	0.04	0.27	0.27	0.11	0.37	0.37	0.15	0.27	0.18	0.30	0.30
v/c Ratio	0.42	0.55	0.45	0.69	0.95	0.44	0.78	0.46	0.91	0.32	0.03
Control Delay	71.8	38.4	6.3	68.6	59.3	8.5	66.5	28.2	78.9	34.4	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	71.8	38.4	6.3	68.6	59.3	8.5	66.5	28.2	78.9	34.4	0.1
LOS	E	D	A	E	E	A	E	C	E	C	A
Approach Delay		28.8			45.5			40.5		53.6	
Approach LOS		C			D			D		D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 114.1

Natural Cycle: 110

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.95

Intersection Signal Delay: 41.7

Intersection LOS: D

Intersection Capacity Utilization 94.1%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 4: Lakeshore Dr. & Riverside Dr. (SR-74)

			
Ø1	Ø2	Ø3	Ø4
26 s	35.4 s	20.3 s	38.3 s
			
Ø5	Ø6	Ø7	Ø8
27.6 s	33.8 s	9.6 s	49 s

HCM 6th Signalized Intersection Summary 4: Lakeshore Dr. & Riverside Dr. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

05/21/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	512	279	126	633	316	206	266	169	281	327	16
Future Volume (veh/h)	31	512	279	126	633	316	206	266	169	281	327	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	32	528	168	130	653	172	212	274	70	290	337	12
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	49	1084	484	157	684	572	241	741	186	316	1086	478
Arrive On Green	0.03	0.31	0.31	0.09	0.37	0.37	0.14	0.26	0.26	0.18	0.31	0.31
Sat Flow, veh/h	1781	3554	1585	1781	1870	1564	1781	2813	706	1781	3554	1565
Grp Volume(v), veh/h	32	528	168	130	653	172	212	171	173	290	337	12
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1870	1564	1781	1777	1741	1781	1777	1565
Q Serve(g_s), s	2.1	14.1	9.6	8.4	39.6	9.1	13.6	9.1	9.4	18.6	8.5	0.6
Cycle Q Clear(g_c), s	2.1	14.1	9.6	8.4	39.6	9.1	13.6	9.1	9.4	18.6	8.5	0.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.41	1.00		1.00
Lane Grp Cap(c), veh/h	49	1084	484	157	684	572	241	468	459	316	1086	478
V/C Ratio(X)	0.65	0.49	0.35	0.83	0.95	0.30	0.88	0.37	0.38	0.92	0.31	0.03
Avail Cap(c_a), veh/h	76	1084	484	240	700	585	352	468	459	327	1086	478
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.1	33.0	31.5	52.2	36.0	26.3	49.4	35.0	35.1	47.1	31.0	28.3
Incr Delay (d2), s/veh	5.2	0.3	0.4	7.8	23.3	0.3	12.0	2.2	2.3	28.3	0.7	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	6.0	3.7	4.0	21.7	3.4	6.8	4.3	4.3	10.7	3.8	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	61.3	33.4	31.9	60.1	59.3	26.6	61.4	37.2	37.4	75.4	31.8	28.4
LnGrp LOS	E	C	C	E	E	C	E	D	D	E	C	C
Approach Vol, veh/h		728			955			556			639	
Approach Delay, s/veh		34.3			53.5			46.5			51.5	
Approach LOS		C			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	25.3	35.4	14.9	40.9	20.4	40.3	7.8	48.0				
Change Period (Y+Rc), s	4.6	* 4.7	4.6	5.4	4.6	* 4.7	4.6	5.4				
Max Green Setting (Gmax), s	21.4	* 31	15.7	32.9	23.0	* 29	5.0	43.6				
Max Q Clear Time (g_c+I1), s	20.6	11.4	10.4	16.1	15.6	10.5	4.1	41.6				
Green Ext Time (p_c), s	0.0	1.9	0.1	3.6	0.2	2.1	0.0	0.9				
Intersection Summary												
HCM 6th Ctrl Delay			46.8									
HCM 6th LOS			D									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Intersection												
Int Delay, s/veh	2.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕	↕		↕	↕
Traffic Vol, veh/h	2	895	4	6	913	122	0	0	6	30	1	2
Future Vol, veh/h	2	895	4	6	913	122	0	0	6	30	1	2
Conflicting Peds, #/hr	0	0	0	0	0	1	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Stop	-	-	Stop
Storage Length	-	-	-	-	-	-	-	-	75	-	-	75
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	923	4	6	941	126	0	0	6	31	1	2
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1068	0	0	927	0	0	1946	2009	925	1946	1948	1005
Stage 1	-	-	-	-	-	-	929	929	-	1017	1017	-
Stage 2	-	-	-	-	-	-	1017	1080	-	929	931	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	653	-	-	737	-	-	49	59	326	49	65	293
Stage 1	-	-	-	-	-	-	321	346	-	287	315	-
Stage 2	-	-	-	-	-	-	287	294	-	321	346	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	652	-	-	737	-	-	47	57	326	47	63	293
Mov Cap-2 Maneuver	-	-	-	-	-	-	47	57	-	47	63	-
Stage 1	-	-	-	-	-	-	319	344	-	285	308	-
Stage 2	-	-	-	-	-	-	278	288	-	313	344	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.1			16.3			169		
HCM LOS							C			F		
Minor Lane/Major Mvmt	NBLn1		NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2	
Capacity (veh/h)	-		326	652	-	-	737	-	-	47	293	
HCM Lane V/C Ratio	-		0.019	0.003	-	-	0.008	-	-	0.68	0.007	
HCM Control Delay (s)	0		16.3	10.5	0	-	9.9	0	-	178.8	17.4	
HCM Lane LOS	A		C	B	A	-	A	A	-	F	C	
HCM 95th %tile Q(veh)	-		0.1	0	-	-	0	-	-	2.6	0	

Intersection												
Int Delay, s/veh	2.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	895	4	6	913	122	0	0	6	30	1	2
Future Vol, veh/h	2	895	4	6	913	122	0	0	6	30	1	2
Conflicting Peds, #/hr	0	0	0	0	0	1	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Stop	-	-	Stop
Storage Length	100	-	-	100	-	-	-	-	75	-	-	75
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	923	4	6	941	126	0	0	6	31	1	2
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1068	0	0	927	0	0	1946	2009	925	1946	1948	1005
Stage 1	-	-	-	-	-	-	929	929	-	1017	1017	-
Stage 2	-	-	-	-	-	-	1017	1080	-	929	931	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	653	-	-	737	-	-	49	59	326	49	65	293
Stage 1	-	-	-	-	-	-	321	346	-	287	315	-
Stage 2	-	-	-	-	-	-	287	294	-	321	346	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	652	-	-	737	-	-	48	58	326	48	64	293
Mov Cap-2 Maneuver	-	-	-	-	-	-	48	58	-	48	64	-
Stage 1	-	-	-	-	-	-	320	345	-	286	312	-
Stage 2	-	-	-	-	-	-	282	291	-	314	345	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.1			16.3			163.1		
HCM LOS							C			F		
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2		
Capacity (veh/h)	-	326	652	-	-	737	-	-	48	293		
HCM Lane V/C Ratio	-	0.019	0.003	-	-	0.008	-	-	0.666	0.007		
HCM Control Delay (s)	0	16.3	10.5	-	-	9.9	-	-	172.5	17.4		
HCM Lane LOS	A	C	B	-	-	A	-	-	F	C		
HCM 95th %tile Q(veh)	-	0.1	0	-	-	0	-	-	2.6	0		

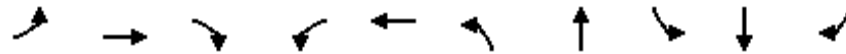
Intersection						
Int Delay, s/veh	7.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	205	57	247	268	83	289
Future Vol, veh/h	205	57	247	268	83	289
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	120	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	218	61	263	285	88	307
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	279	0	1060	249
Stage 1	-	-	-	-	249	-
Stage 2	-	-	-	-	811	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1284	-	248	790
Stage 1	-	-	-	-	792	-
Stage 2	-	-	-	-	437	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1284	-	197	790
Mov Cap-2 Maneuver	-	-	-	-	197	-
Stage 1	-	-	-	-	630	-
Stage 2	-	-	-	-	437	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		4.1		18	
HCM LOS					C	
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	197	790	-	-	1284	-
HCM Lane V/C Ratio	0.448	0.389	-	-	0.205	-
HCM Control Delay (s)	37.3	12.4	-	-	8.5	-
HCM Lane LOS	E	B	-	-	A	-
HCM 95th %tile O(veh)	2.1	1.9	-	-	0.8	-

Timings

S. Nichols Mixed-Use Development (JN 10878)

7: Collier Av. (SR-74)/Collier Av. & Riverside Dr. (SR-74)/Riverside Dr.

05/21/2018



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations		↰	↱		↰	↱	↰	↱	↰	↱
Traffic Volume (vph)	116	12	803	21	18	920	244	3	194	104
Future Volume (vph)	116	12	803	21	18	920	244	3	194	104
Turn Type	Perm	NA	pm+ov	Perm	NA	Split	NA	Split	NA	Perm
Protected Phases		4	2		8	2	2	6	6	
Permitted Phases	4		4	8						6
Detector Phase	4	4	2	8	8	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	15.4	15.4	15.8	14.6	14.6	15.8	15.8	16.2	16.2	16.2
Total Split (s)	19.0	19.0	79.0	19.0	19.0	79.0	79.0	22.0	22.0	22.0
Total Split (%)	15.8%	15.8%	65.8%	15.8%	15.8%	65.8%	65.8%	18.3%	18.3%	18.3%
Yellow Time (s)	4.4	4.4	4.8	3.6	3.6	4.8	4.8	5.2	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.4	5.8		4.6	5.8	5.8	6.2	6.2	6.2
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	None	None	Max	None	None	Max	Max	Max	Max	Max
Act Effect Green (s)		13.1	85.9		13.9	73.2	73.2	15.8	15.8	15.8
Actuated g/C Ratio		0.11	0.72		0.12	0.61	0.61	0.13	0.13	0.13
v/c Ratio		0.86	0.71		0.29	0.88	0.24	0.01	0.82	0.36
Control Delay		94.9	10.8		48.1	31.4	11.1	45.7	76.8	12.3
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		94.9	10.8		48.1	31.4	11.1	45.7	76.8	12.3
LOS		F	B		D	C	B	D	E	B
Approach Delay		22.5			48.1		26.8		54.2	
Approach LOS		C			D		C		D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 119.5

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 28.9

Intersection LOS: C

Intersection Capacity Utilization 88.4%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 7: Collier Av. (SR-74)/Collier Av. & Riverside Dr. (SR-74)/Riverside Dr.

↰ Ø2	↰ Ø6	↰ Ø4
79 s	22 s	19 s
		↰ Ø8
		19 s

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	116	12	803	21	18	7	920	244	20	3	194	104
Future Volume (veh/h)	116	12	803	21	18	7	920	244	20	3	194	104
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	121	12	788	22	19	1	958	254	20	3	202	35
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	174	12	1145	45	27	1	1079	1035	82	233	245	207
Arrive On Green	0.12	0.12	0.12	0.12	0.12	0.12	0.61	0.61	0.61	0.13	0.13	0.13
Sat Flow, veh/h	979	97	1548	0	228	6	1781	1708	135	1781	1870	1585
Grp Volume(v), veh/h	133	0	788	42	0	0	958	0	274	3	202	35
Grp Sat Flow(s),veh/h/ln	1076	0	1548	234	0	0	1781	0	1843	1781	1870	1585
Q Serve(g_s), s	0.0	0.0	14.4	0.0	0.0	0.0	55.4	0.0	8.3	0.2	12.7	2.4
Cycle Q Clear(g_c), s	14.4	0.0	14.4	14.4	0.0	0.0	55.4	0.0	8.3	0.2	12.7	2.4
Prop In Lane	0.91		1.00	0.52		0.02	1.00		0.07	1.00		1.00
Lane Grp Cap(c), veh/h	185	0	1145	73	0	0	1079	0	1117	233	245	207
V/C Ratio(X)	0.72	0.00	0.69	0.57	0.00	0.00	0.89	0.00	0.25	0.01	0.83	0.17
Avail Cap(c_a), veh/h	185	0	1145	73	0	0	1079	0	1117	233	245	207
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.5	0.0	6.5	51.4	0.0	0.0	20.3	0.0	11.0	45.7	51.2	46.7
Incr Delay (d2), s/veh	12.6	0.0	1.8	10.3	0.0	0.0	10.8	0.0	0.5	0.1	26.1	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.6	0.0	24.3	1.5	0.0	0.0	23.3	0.0	3.3	0.1	7.5	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.0	0.0	8.3	61.8	0.0	0.0	31.1	0.0	11.5	45.8	77.3	48.4
LnGrp LOS	E	A	A	E	A	A	C	A	B	D	E	D
Approach Vol, veh/h		921			42			1232			240	
Approach Delay, s/veh		16.6			61.8			26.8			72.7	
Approach LOS		B			E			C			E	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		79.0		19.8		22.0		19.8				
Change Period (Y+Rc), s		5.8		5.4		6.2		* 5.4				
Max Green Setting (Gmax), s		73.2		13.6		15.8		* 14				
Max Q Clear Time (g_c+I1), s		57.4		16.4		14.7		16.4				
Green Ext Time (p_c), s		5.0		0.0		0.1		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			28.1									
HCM 6th LOS			C									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Timings

S. Nichols Mixed-Use Development (JN 10878)

8: Collier Av./Collier Av. (SR-74) & Central Av./Central Av. (SR-74)

05/21/2018

											
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 	 		 			 	 	 	
Traffic Volume (vph)	202	334	215	203	756	52	128	357	957	143	36
Future Volume (vph)	202	334	215	203	756	52	128	357	957	143	36
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	7	4	3	8	1	5	2	3	1	6	
Permitted Phases					8			2			6
Detector Phase	7	4	3	8	1	5	2	3	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	5.0	10.0	5.0	5.0	10.0	10.0
Minimum Split (s)	9.6	14.7	9.6	42.8	9.6	9.6	15.8	9.6	9.6	29.8	29.8
Total Split (s)	14.0	28.8	28.0	42.8	43.0	13.6	20.2	28.0	43.0	49.6	49.6
Total Split (%)	11.7%	24.0%	23.3%	35.7%	35.8%	11.3%	16.8%	23.3%	35.8%	41.3%	41.3%
Yellow Time (s)	3.6	3.7	3.6	4.8	3.6	3.6	4.8	3.6	3.6	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.7	4.6	5.8	4.6	4.6	5.8	4.6	4.6	5.8	5.8
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	None	None	Max	Max
Act Effect Green (s)	9.1	17.1	11.8	18.8	52.7	7.2	16.8	29.8	32.8	44.7	44.7
Actuated g/C Ratio	0.09	0.17	0.12	0.19	0.53	0.07	0.17	0.30	0.33	0.45	0.45
v/c Ratio	0.66	0.65	0.54	0.59	0.48	0.42	0.42	0.67	0.87	0.09	0.05
Control Delay	56.6	42.9	47.1	43.4	7.4	57.7	45.8	27.0	40.8	18.9	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.6	42.9	47.1	43.4	7.4	57.7	45.8	27.0	40.8	18.9	0.1
LOS	E	D	D	D	A	E	D	C	D	B	A
Approach Delay		47.6		20.9			34.5			36.7	
Approach LOS		D		C			C			D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 98.6

Natural Cycle: 105

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 32.8

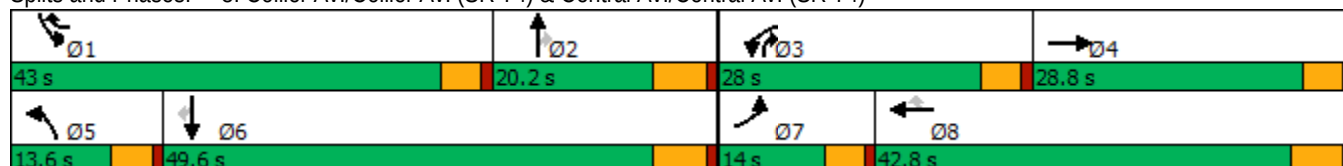
Intersection LOS: C

Intersection Capacity Utilization 72.5%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 8: Collier Av./Collier Av. (SR-74) & Central Av./Central Av. (SR-74)



HCM 6th Signalized Intersection Summary S. Nichols Mixed-Use Development (JN 10878)
 8: Collier Av./Collier Av. (SR-74) & Central Av./Central Av. (SR-74) 05/21/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	202	334	53	215	203	756	52	128	357	957	143	36
Future Volume (veh/h)	202	334	53	215	203	756	52	128	357	957	143	36
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	208	344	51	222	209	256	54	132	140	987	147	24
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	281	496	73	304	310	1335	73	390	465	1089	1715	754
Arrive On Green	0.08	0.16	0.16	0.09	0.17	0.17	0.04	0.21	0.21	0.32	0.48	0.48
Sat Flow, veh/h	3456	3108	457	3456	1870	2748	1781	1870	1561	3456	3554	1563
Grp Volume(v), veh/h	208	195	200	222	209	256	54	132	140	987	147	24
Grp Sat Flow(s),veh/h/ln	1728	1777	1788	1728	1870	1374	1781	1870	1561	1728	1777	1563
Q Serve(g_s), s	5.3	9.4	9.6	5.7	9.5	4.8	2.7	5.5	6.3	24.9	2.0	0.7
Cycle Q Clear(g_c), s	5.3	9.4	9.6	5.7	9.5	4.8	2.7	5.5	6.3	24.9	2.0	0.7
Prop In Lane	1.00		0.26	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	281	283	285	304	310	1335	73	390	465	1089	1715	754
V/C Ratio(X)	0.74	0.69	0.70	0.73	0.67	0.19	0.74	0.34	0.30	0.91	0.09	0.03
Avail Cap(c_a), veh/h	358	472	475	891	762	1999	177	390	465	1462	1715	754
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.8	36.0	36.1	40.3	35.5	13.5	43.0	30.6	24.7	29.8	12.7	12.3
Incr Delay (d2), s/veh	4.0	3.0	3.1	1.3	2.5	0.1	5.4	2.3	1.7	5.7	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	4.3	4.4	2.4	4.3	1.4	1.3	2.6	2.4	10.3	0.7	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.8	39.0	39.2	41.6	38.1	13.5	48.4	32.9	26.3	35.5	12.8	12.4
LnGrp LOS	D	D	D	D	D	B	D	C	C	D	B	B
Approach Vol, veh/h		603			687			326			1158	
Approach Delay, s/veh		41.1			30.1			32.7			32.1	
Approach LOS		D			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	33.2	24.7	12.6	20.3	8.3	49.6	12.0	20.9				
Change Period (Y+Rc), s	4.6	5.8	4.6	* 5.8	4.6	5.8	4.6	5.8				
Max Green Setting (Gmax), s	38.4	14.4	23.4	* 24	9.0	43.8	9.4	37.0				
Max Q Clear Time (g_c+l1), s	26.9	8.3	7.7	11.6	4.7	4.0	7.3	11.5				
Green Ext Time (p_c), s	1.7	0.5	0.3	1.8	0.0	0.9	0.1	2.1				
Intersection Summary												
HCM 6th Ctrl Delay			33.6									
HCM 6th LOS			C									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Intersection

Intersection Delay, s/veh 16.4

Intersection LOS C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗	↖	↑						↕	
Traffic Vol, veh/h	0	281	284	46	376	0	0	0	0	115	2	140
Future Vol, veh/h	0	281	284	46	376	0	0	0	0	115	2	140
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	0	3	3	25	3	0	0	0	0	8	67	13
Mvmt Flow	0	299	302	49	400	0	0	0	0	122	2	149
Number of Lanes	0	1	1	1	1	0	0	0	0	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	2
HCM Control Delay	13.8	20.9	14.7
HCM LOS	B	C	B

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	100%	0%	45%
Vol Thru, %	100%	0%	0%	100%	1%
Vol Right, %	0%	100%	0%	0%	54%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	281	284	46	376	257
LT Vol	0	0	46	0	115
Through Vol	281	0	0	376	2
RT Vol	0	284	0	0	140
Lane Flow Rate	299	302	49	400	273
Geometry Grp	7	7	7	7	2
Degree of Util (X)	0.508	0.454	0.097	0.694	0.471
Departure Headway (Hd)	6.121	5.409	7.135	6.245	6.197
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	586	665	501	576	580
Service Time	3.878	3.165	4.893	4.004	4.254
HCM Lane V/C Ratio	0.51	0.454	0.098	0.694	0.471
HCM Control Delay	15.1	12.6	10.7	22.1	14.7
HCM Lane LOS	C	B	B	C	B
HCM 95th-tile Q	2.9	2.4	0.3	5.4	2.5

Intersection												
Int Delay, s/veh	24.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	149	246	0	0	154	60	267	1	64	0	0	0
Future Vol, veh/h	149	246	0	0	154	60	267	1	64	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	230	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	155	256	0	0	160	63	278	1	67	0	0	0

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	223	0	- - - 0 758 789 256
Stage 1	-	-	- - - 566 566 -
Stage 2	-	-	- - - 192 223 -
Critical Hdwy	4.15	-	- - - 6.44 6.5 6.26
Critical Hdwy Stg 1	-	-	- - - 5.44 5.5 -
Critical Hdwy Stg 2	-	-	- - - 5.44 5.5 -
Follow-up Hdwy	2.245	-	- - - 3.536 4 3.354
Pot Cap-1 Maneuver	1328	-	0 0 - - 372 325 773
Stage 1	-	-	0 0 - - 564 511 -
Stage 2	-	-	0 0 - - 836 723 -
Platoon blocked, %	-	-	- -
Mov Cap-1 Maneuver	1328	-	- - - 328 0 773
Mov Cap-2 Maneuver	-	-	- - - 328 0 -
Stage 1	-	-	- - - 498 0 -
Stage 2	-	-	- - - 836 0 -

Approach	EB	WB	NB
HCM Control Delay, s	3	0	66.3
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR
Capacity (veh/h)	369	1328	-	-	-
HCM Lane V/C Ratio	0.937	0.117	-	-	-
HCM Control Delay (s)	66.3	8.1	-	-	-
HCM Lane LOS	F	A	-	-	-
HCM 95th %tile Q(veh)	10	0.4	-	-	-

Intersection	
Intersection Delay, s/veh	13.3
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	149	246	0	0	154	60	267	1	64	0	0	0
Future Vol, veh/h	149	246	0	0	154	60	267	1	64	0	0	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	155	256	0	0	160	63	278	1	67	0	0	0
Number of Lanes	1	1	0	0	1	0	0	1	0	0	0	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	12.5	11.8	15.2
HCM LOS	B	B	C

Lane	NBLn1	EBLn1	EBLn2	WBLn1
Vol Left, %	80%	100%	0%	0%
Vol Thru, %	0%	0%	100%	72%
Vol Right, %	19%	0%	0%	28%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	332	149	246	214
LT Vol	267	149	0	0
Through Vol	1	0	246	154
RT Vol	64	0	0	60
Lane Flow Rate	346	155	256	223
Geometry Grp	2	7	7	5
Degree of Util (X)	0.543	0.279	0.424	0.352
Departure Headway (Hd)	5.656	6.465	5.958	5.684
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	636	556	605	633
Service Time	3.691	4.199	3.692	3.72
HCM Lane V/C Ratio	0.544	0.279	0.423	0.352
HCM Control Delay	15.2	11.7	13	11.8
HCM Lane LOS	C	B	B	B
HCM 95th-tile Q	3.3	1.1	2.1	1.6

Intersection						
Int Delay, s/veh	0.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	278	32	0	195	19	0
Future Vol, veh/h	278	32	0	195	19	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	200	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	302	35	0	212	21	0
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	337	0	532	320
Stage 1	-	-	-	-	320	-
Stage 2	-	-	-	-	212	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1222	-	508	721
Stage 1	-	-	-	-	736	-
Stage 2	-	-	-	-	823	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1222	-	508	721
Mov Cap-2 Maneuver	-	-	-	-	508	-
Stage 1	-	-	-	-	736	-
Stage 2	-	-	-	-	823	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		12.4	
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	508	-	-	1222	-	
HCM Lane V/C Ratio	0.041	-	-	-	-	
HCM Control Delay (s)	12.4	-	-	0	-	
HCM Lane LOS	B	-	-	A	-	
HCM 95th %tile O(veh)	0.1	-	-	0	-	

Intersection						
Int Delay, s/veh	2.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	123	155	0	84	111	0
Future Vol, veh/h	123	155	0	84	111	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	200	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	134	168	0	91	121	0
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	302	0	309	218
Stage 1	-	-	-	-	218	-
Stage 2	-	-	-	-	91	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1259	-	683	822
Stage 1	-	-	-	-	818	-
Stage 2	-	-	-	-	933	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1259	-	683	822
Mov Cap-2 Maneuver	-	-	-	-	683	-
Stage 1	-	-	-	-	818	-
Stage 2	-	-	-	-	933	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		11.4	
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1		EBT	EBR	WBL	WBT
Capacity (veh/h)	683		-	-	1259	-
HCM Lane V/C Ratio	0.177		-	-	-	-
HCM Control Delay (s)	11.4		-	-	0	-
HCM Lane LOS	B		-	-	A	-
HCM 95th %tile O(veh)	0.6		-	-	0	-

Intersection												
Int Delay, s/veh	1.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	25	0	3	1	0	4	4	82	1	6	107	41
Future Vol, veh/h	25	0	3	1	0	4	4	82	1	6	107	41
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	27	0	3	1	0	4	4	89	1	7	116	45
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	253	251	139	252	273	90	161	0	0	90	0	0
Stage 1	153	153	-	98	98	-	-	-	-	-	-	-
Stage 2	100	98	-	154	175	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	700	652	909	701	634	968	1418	-	-	1505	-	-
Stage 1	849	771	-	908	814	-	-	-	-	-	-	-
Stage 2	906	814	-	848	754	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	692	647	909	694	629	968	1418	-	-	1505	-	-
Mov Cap-2 Maneuver	692	647	-	694	629	-	-	-	-	-	-	-
Stage 1	846	767	-	905	812	-	-	-	-	-	-	-
Stage 2	899	812	-	841	750	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	10.3		9		0.3		0.3					
HCM LOS	B		A									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1418	-	-	710	897	1505	-	-				
HCM Lane V/C Ratio	0.003	-	-	0.043	0.006	0.004	-	-				
HCM Control Delay (s)	7.5	0	-	10.3	9	7.4	0	-				
HCM Lane LOS	A	A	-	B	A	A	A	-				
HCM 95th %tile O(veh)	0	-	-	0.1	0	0	-	-				

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	88	111	0
Future Vol, veh/h	0	0	0	88	111	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	0	96	121	0
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	217	121	121	0	-	0
Stage 1	121	-	-	-	-	-
Stage 2	96	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	771	930	1467	-	-	-
Stage 1	904	-	-	-	-	-
Stage 2	928	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	771	930	1467	-	-	-
Mov Cap-2 Maneuver	771	-	-	-	-	-
Stage 1	904	-	-	-	-	-
Stage 2	928	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	0	0		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1467	-	-	-	-	
HCM Lane V/C Ratio	-	-	-	-	-	
HCM Control Delay (s)	0	-	0	-	-	
HCM Lane LOS	A	-	A	-	-	
HCM 95th %tile Q(veh)	0	-	-	-	-	

Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	100	81	11	6	6
Future Vol, veh/h	10	100	81	11	6	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	109	88	12	7	7
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	100	0	-	0	225	94
Stage 1	-	-	-	-	94	-
Stage 2	-	-	-	-	131	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1493	-	-	-	763	963
Stage 1	-	-	-	-	930	-
Stage 2	-	-	-	-	895	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1493	-	-	-	757	963
Mov Cap-2 Maneuver	-	-	-	-	757	-
Stage 1	-	-	-	-	923	-
Stage 2	-	-	-	-	895	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.7	0		9.3		
HCM LOS				A		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1493	-	-	-	848	
HCM Lane V/C Ratio	0.007	-	-	-	0.015	
HCM Control Delay (s)	7.4	0	-	-	9.3	
HCM Lane LOS	A	A	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	0	

Intersection						
Int Delay, s/veh	4.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	106	92	76	114	0
Future Vol, veh/h	0	106	92	76	114	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	115	100	83	124	0
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	407	124	124	0	-	0
Stage 1	124	-	-	-	-	-
Stage 2	283	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	600	927	1463	-	-	-
Stage 1	902	-	-	-	-	-
Stage 2	765	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	557	927	1463	-	-	-
Mov Cap-2 Maneuver	557	-	-	-	-	-
Stage 1	837	-	-	-	-	-
Stage 2	765	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	9.4	4.2		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1463	-	927	-	-	
HCM Lane V/C Ratio	0.068	-	0.124	-	-	
HCM Control Delay (s)	7.6	0	9.4	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0.2	-	0.4	-	-	

Intersection						
Int Delay, s/veh	1.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	13	18	150	25	51	168
Future Vol, veh/h	13	18	150	25	51	168
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	14	20	163	27	55	183
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	470	177	0	0	190	0
Stage 1	177	-	-	-	-	-
Stage 2	293	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	552	866	-	-	1384	-
Stage 1	854	-	-	-	-	-
Stage 2	757	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	528	866	-	-	1384	-
Mov Cap-2 Maneuver	528	-	-	-	-	-
Stage 1	816	-	-	-	-	-
Stage 2	757	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	10.5	0	1.8			
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	683	1384	-	
HCM Lane V/C Ratio	-	-	0.049	0.04	-	
HCM Control Delay (s)	-	-	10.5	7.7	0	
HCM Lane LOS	-	-	B	A	A	
HCM 95th %tile Q(veh)	-	-	0.2	0.1	-	

Intersection												
Int Delay, s/veh	1.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	15	0	31	5	0	1	14	159	4	6	164	11
Future Vol, veh/h	15	0	31	5	0	1	14	159	4	6	164	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	3
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	18	0	37	6	0	1	17	189	5	7	195	13
Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	445	447	205	460	451	192	211	0	0	194	0	0
Stage 1	219	219	-	226	226	-	-	-	-	-	-	-
Stage 2	226	228	-	234	225	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	523	506	836	512	504	850	1360	-	-	1379	-	-
Stage 1	783	722	-	777	717	-	-	-	-	-	-	-
Stage 2	777	715	-	769	718	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	513	494	834	482	492	850	1356	-	-	1379	-	-
Mov Cap-2 Maneuver	513	494	-	482	492	-	-	-	-	-	-	-
Stage 1	770	716	-	766	707	-	-	-	-	-	-	-
Stage 2	765	705	-	731	712	-	-	-	-	-	-	-
Approach	EB		WB			NB			SB			
HCM Control Delay, s	10.6		12			0.6			0.3			
HCM LOS	B		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1356	-	-	693	519	1379	-	-				
HCM Lane V/C Ratio	0.012	-	-	0.079	0.014	0.005	-	-				
HCM Control Delay (s)	7.7	0	-	10.6	12	7.6	0	-				
HCM Lane LOS	A	A	-	B	B	A	A	-				
HCM 95th %tile O(veh)	0	-	-	0.3	0	0	-	-				

Timings
19: Dexter Av. & Central Av. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

05/21/2018

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations		  			  						
Traffic Volume (vph)	359	1716	171	166	1180	74	126	140	73	98	334
Future Volume (vph)	359	1716	171	166	1180	74	126	140	73	98	334
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2	1	6	7
Permitted Phases			4			8					6
Detector Phase	7	4	4	3	8	8	5	2	1	6	7
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0	5.0
Minimum Split (s)	9.6	26.8	26.8	9.6	26.8	26.8	9.6	42.4	9.6	15.8	9.6
Total Split (s)	33.3	47.0	47.0	18.0	31.7	31.7	20.3	44.0	11.0	34.7	33.3
Total Split (%)	27.8%	39.2%	39.2%	15.0%	26.4%	26.4%	16.9%	36.7%	9.2%	28.9%	27.8%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	4.8	3.6	4.4	3.6	4.8	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	5.8	4.6	5.8	5.8	4.6	5.4	4.6	5.8	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	None	Max	None
Act Effect Green (s)	26.9	41.2	41.2	13.0	27.3	27.3	12.5	38.6	6.4	32.1	60.2
Actuated g/C Ratio	0.22	0.34	0.34	0.11	0.23	0.23	0.10	0.32	0.05	0.27	0.50
v/c Ratio	0.92	1.00	0.28	0.88	0.82	0.15	0.70	0.56	0.79	0.20	0.40
Control Delay	74.3	60.8	7.5	93.5	49.9	0.6	71.0	31.7	103.4	36.5	12.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	74.3	60.8	7.5	93.5	49.9	0.6	71.0	31.7	103.4	36.5	12.2
LOS	E	E	A	F	D	A	E	C	F	D	B
Approach Delay		58.9			52.4			42.9		30.0	
Approach LOS		E			D			D		C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 119.6

Natural Cycle: 110

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.00

Intersection Signal Delay: 52.2

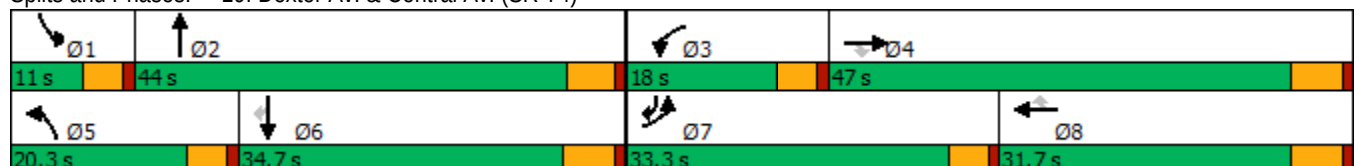
Intersection LOS: D

Intersection Capacity Utilization 94.4%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 19: Dexter Av. & Central Av. (SR-74)



HCM 6th Signalized Intersection Summary
19: Dexter Av. & Central Av. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

05/21/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  							
Traffic Volume (veh/h)	359	1716	171	166	1180	74	126	140	178	73	98	334
Future Volume (veh/h)	359	1716	171	166	1180	74	126	140	178	73	98	334
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	366	1751	132	169	1204	52	129	143	122	74	100	278
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	391	1751	530	195	1498	363	155	297	253	94	537	797
Arrive On Green	0.22	0.34	0.34	0.11	0.23	0.23	0.09	0.32	0.32	0.05	0.29	0.29
Sat Flow, veh/h	1781	5106	1545	1781	6434	1560	1781	924	789	1781	1870	1565
Grp Volume(v), veh/h	366	1751	132	169	1204	52	129	0	265	74	100	278
Grp Sat Flow(s),veh/h/ln	1781	1702	1545	1781	1609	1560	1781	0	1713	1781	1870	1565
Q Serve(g_s), s	24.2	41.2	7.4	11.2	21.2	3.2	8.6	0.0	14.9	4.9	4.8	12.8
Cycle Q Clear(g_c), s	24.2	41.2	7.4	11.2	21.2	3.2	8.6	0.0	14.9	4.9	4.8	12.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.46	1.00		1.00
Lane Grp Cap(c), veh/h	391	1751	530	195	1498	363	155	0	550	94	537	797
V/C Ratio(X)	0.93	1.00	0.25	0.87	0.80	0.14	0.83	0.00	0.48	0.79	0.19	0.35
Avail Cap(c_a), veh/h	426	1751	530	199	1498	363	233	0	550	95	537	797
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.0	39.5	28.3	52.6	43.5	36.6	53.9	0.0	32.7	56.2	32.3	17.8
Incr Delay (d2), s/veh	26.0	21.4	0.2	29.0	3.3	0.2	9.1	0.0	3.0	31.6	0.8	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	13.2	19.8	2.7	6.5	8.5	1.2	4.2	0.0	6.5	3.0	2.3	4.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	72.0	60.9	28.6	81.6	46.8	36.7	63.0	0.0	35.7	87.8	33.0	19.0
LnGrp LOS	E	E	C	F	D	D	E	A	D	F	C	B
Approach Vol, veh/h		2249			1425			394			452	
Approach Delay, s/veh		60.8			50.5			44.7			33.3	
Approach LOS		E			D			D			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.9	44.4	17.8	47.0	15.1	40.3	31.0	33.8				
Change Period (Y+Rc), s	4.6	* 5.8	4.6	5.8	4.6	5.8	4.6	5.8				
Max Green Setting (Gmax), s	6.4	* 39	13.4	41.2	15.7	28.9	28.7	25.9				
Max Q Clear Time (g_c+I1), s	6.9	16.9	13.2	43.2	10.6	14.8	26.2	23.2				
Green Ext Time (p_c), s	0.0	1.4	0.0	0.0	0.1	1.2	0.2	1.8				
Intersection Summary												
HCM 6th Ctrl Delay			53.4									
HCM 6th LOS			D									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Timings

S. Nichols Mixed-Use Development (JN 10878)

20: Cambern Av./Cambern Av & Central Av. (SR-74)

05/21/2018



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT	SBR	Ø3
Lane Configurations	↰↰	↰↰	↰↰	↰	↰	↰		↰	↰	
Traffic Volume (vph)	267	1844	1190	152	1	3	244	3	88	
Future Volume (vph)	267	1844	1190	152	1	3	244	3	88	
Turn Type	Prot	NA	NA	Perm	Perm	NA	Perm	NA	Perm	
Protected Phases	7	4	8			2		6		3
Permitted Phases				8	2		6		6	
Detector Phase	7	4	8	8	2	2	6	6	6	
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	5.0
Minimum Split (s)	9.6	24.8	25.5	25.5	34.7	34.7	14.7	14.7	14.7	9.6
Total Split (s)	19.8	74.0	63.8	63.8	36.4	36.4	36.4	36.4	36.4	9.6
Total Split (%)	16.5%	61.7%	53.2%	53.2%	30.3%	30.3%	30.3%	30.3%	30.3%	8%
Yellow Time (s)	3.6	4.8	5.5	5.5	3.7	3.7	3.7	3.7	3.7	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.6	5.8	6.5	6.5	4.7	4.7		4.7	4.7	
Lead/Lag	Lead	Lag	Lag	Lag						Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes						Yes
Recall Mode	Max	None	None	None	Max	Max	Max	Max	Max	None
Act Effect Green (s)	15.2	72.1	51.6	51.6	31.8	31.8		31.8	31.8	
Actuated g/C Ratio	0.13	0.63	0.45	0.45	0.28	0.28		0.28	0.28	
v/c Ratio	0.61	0.86	0.78	0.20	0.00	0.01		0.69	0.18	
Control Delay	53.9	22.1	30.4	3.3	33.0	29.5		48.7	4.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	53.9	22.1	30.4	3.3	33.0	29.5		48.7	4.4	
LOS	D	C	C	A	C	C		D	A	
Approach Delay		26.1	27.4			30.2		37.0		
Approach LOS		C	C			C		D		

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 114.4

Natural Cycle: 110

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 27.5

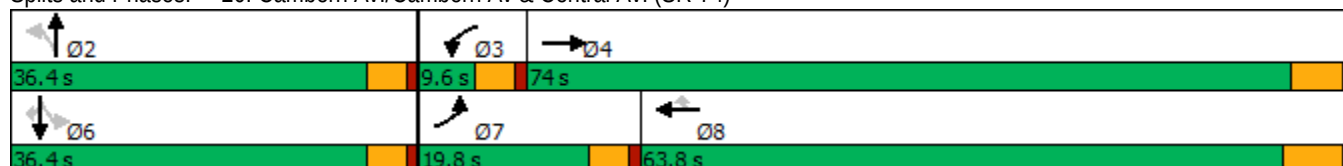
Intersection LOS: C

Intersection Capacity Utilization 88.1%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 20: Cambern Av./Cambern Av & Central Av. (SR-74)



HCM 6th Signalized Intersection Summary S. Nichols Mixed-Use Development (JN 10878)
 20: Cambern Av./Cambern Av & Central Av. (SR-74) 05/21/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	267	1844	1	0	1190	152	1	3	1	244	3	88
Future Volume (veh/h)	267	1844	1	0	1190	152	1	3	1	244	3	88
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	278	1921	1	0	1240	106	1	3	1	254	3	39
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	477	2225	1	2	1530	672	240	386	129	466	5	450
Arrive On Green	0.14	0.61	0.61	0.00	0.43	0.43	0.29	0.29	0.29	0.29	0.29	0.29
Sat Flow, veh/h	3456	3645	2	1781	3554	1561	1365	1342	447	1392	16	1565
Grp Volume(v), veh/h	278	936	986	0	1240	106	1	0	4	257	0	39
Grp Sat Flow(s),veh/h/ln	1728	1777	1870	1781	1777	1561	1365	0	1790	1409	0	1565
Q Serve(g_s), s	8.3	47.8	47.8	0.0	33.6	4.6	0.1	0.0	0.2	17.4	0.0	2.0
Cycle Q Clear(g_c), s	8.3	47.8	47.8	0.0	33.6	4.6	17.7	0.0	0.2	17.6	0.0	2.0
Prop In Lane	1.00		0.00	1.00		1.00	1.00		0.25	0.99		1.00
Lane Grp Cap(c), veh/h	477	1085	1141	2	1530	672	240	0	515	471	0	450
V/C Ratio(X)	0.58	0.86	0.86	0.00	0.81	0.16	0.00	0.00	0.01	0.55	0.00	0.09
Avail Cap(c_a), veh/h	477	1101	1158	81	1849	813	240	0	515	471	0	450
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	44.5	17.7	17.7	0.0	27.4	19.2	41.9	0.0	28.0	34.3	0.0	28.6
Incr Delay (d2), s/veh	5.1	7.4	7.1	0.0	2.7	0.2	0.0	0.0	0.0	4.5	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	18.8	19.6	0.0	13.3	1.6	0.0	0.0	0.1	6.5	0.0	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.6	25.1	24.8	0.0	30.1	19.3	41.9	0.0	28.0	38.8	0.0	29.0
LnGrp LOS	D	C	C	A	C	B	D	A	C	D	A	C
Approach Vol, veh/h		2200			1346			5			296	
Approach Delay, s/veh		28.0			29.2			30.8			37.5	
Approach LOS		C			C			C			D	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		36.4	0.0	73.7		36.4	19.8	53.9				
Change Period (Y+Rc), s		* 4.7	4.6	* 6.5		* 4.7	4.6	6.5				
Max Green Setting (Gmax), s		* 32	5.0	* 68		* 32	15.2	57.3				
Max Q Clear Time (g_c+I1), s		19.7	0.0	49.8		19.6	10.3	35.6				
Green Ext Time (p_c), s		0.0	0.0	15.3		1.2	0.2	11.8				
Intersection Summary												
HCM 6th Ctrl Delay			29.2									
HCM 6th LOS			C									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

APPENDIX 7.3:

EA (2021) CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

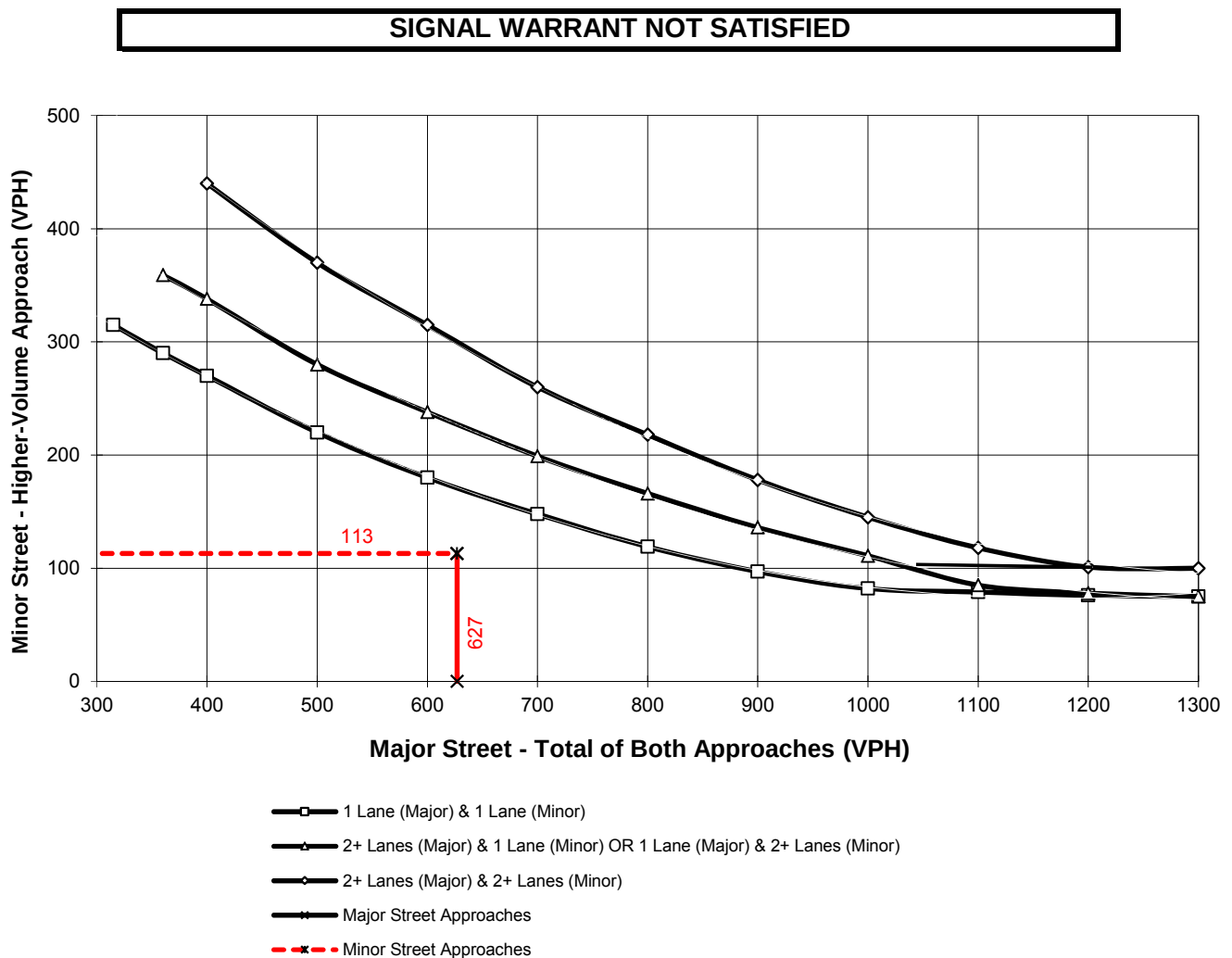
Traffic Conditions = **EA (2021) Conditions - Weekday AM Peak Hour**

Major Street Name = **Nichols Rd.**

Total of Both Approaches (VPH) = **627**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Alberhill Ranch Rd.**

High Volume Approach (VPH) = **113**
Number of Approach Lanes Minor Street = **1**



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes
and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-3. Warrant 3, Peak Hour

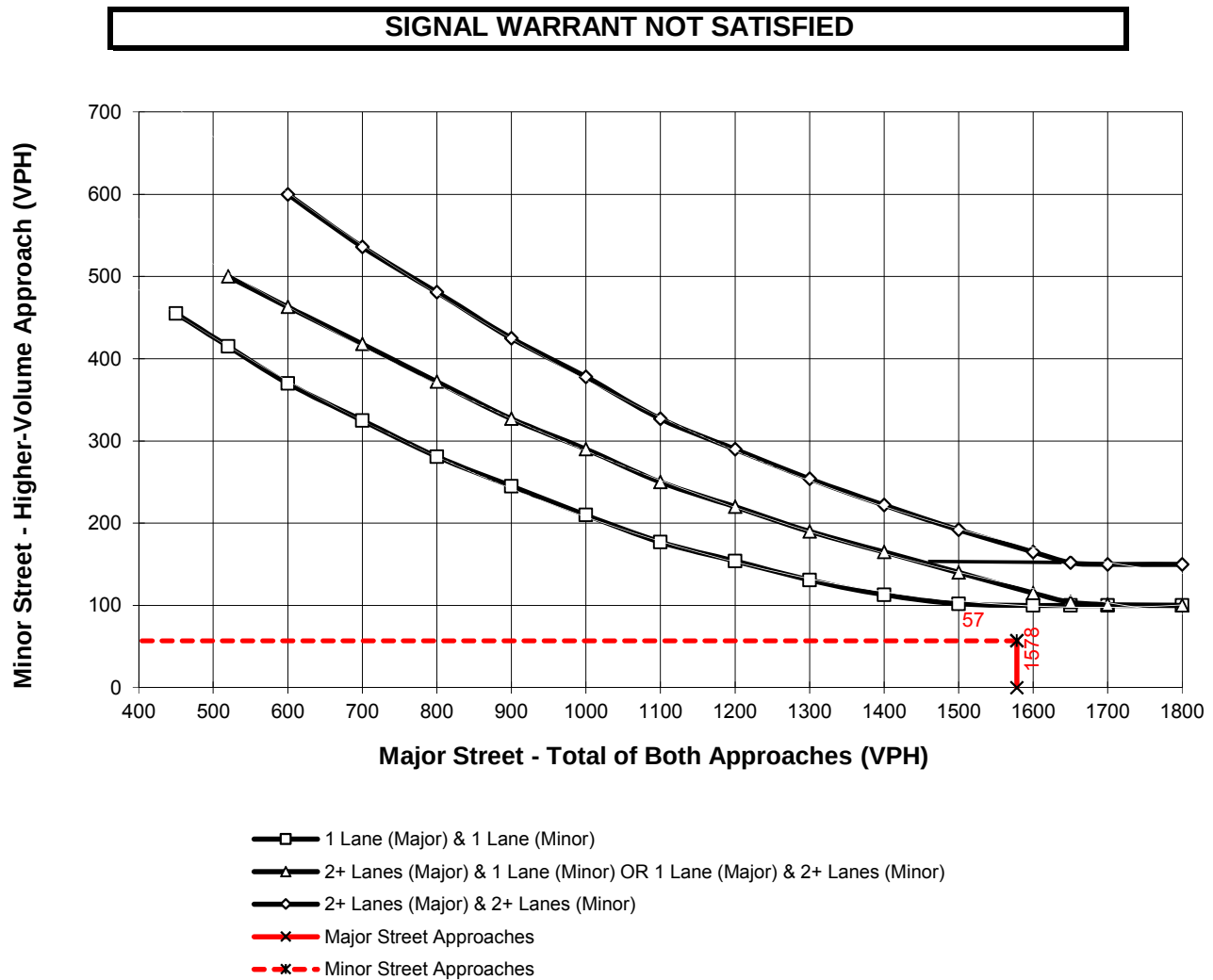
Traffic Conditions = **EA (2021) Conditions - Weekday AM Peak Hour**

Major Street Name = **Gunnerson St.**

Total of Both Approaches (VPH) = **1578**
Number of Approach Lanes on Major Street = **1**

Minor Street Name = **Strickland Av./Riverside Dr.**

High Volume Approach (VPH) = **57**
Number of Approach Lanes On Minor Street = **1**



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes
and 100 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-3. Warrant 3, Peak Hour

Traffic Conditions = **EA (2021) Conditions - Weekday AM Peak Hour**

Major Street Name = **El Toro Rd.**

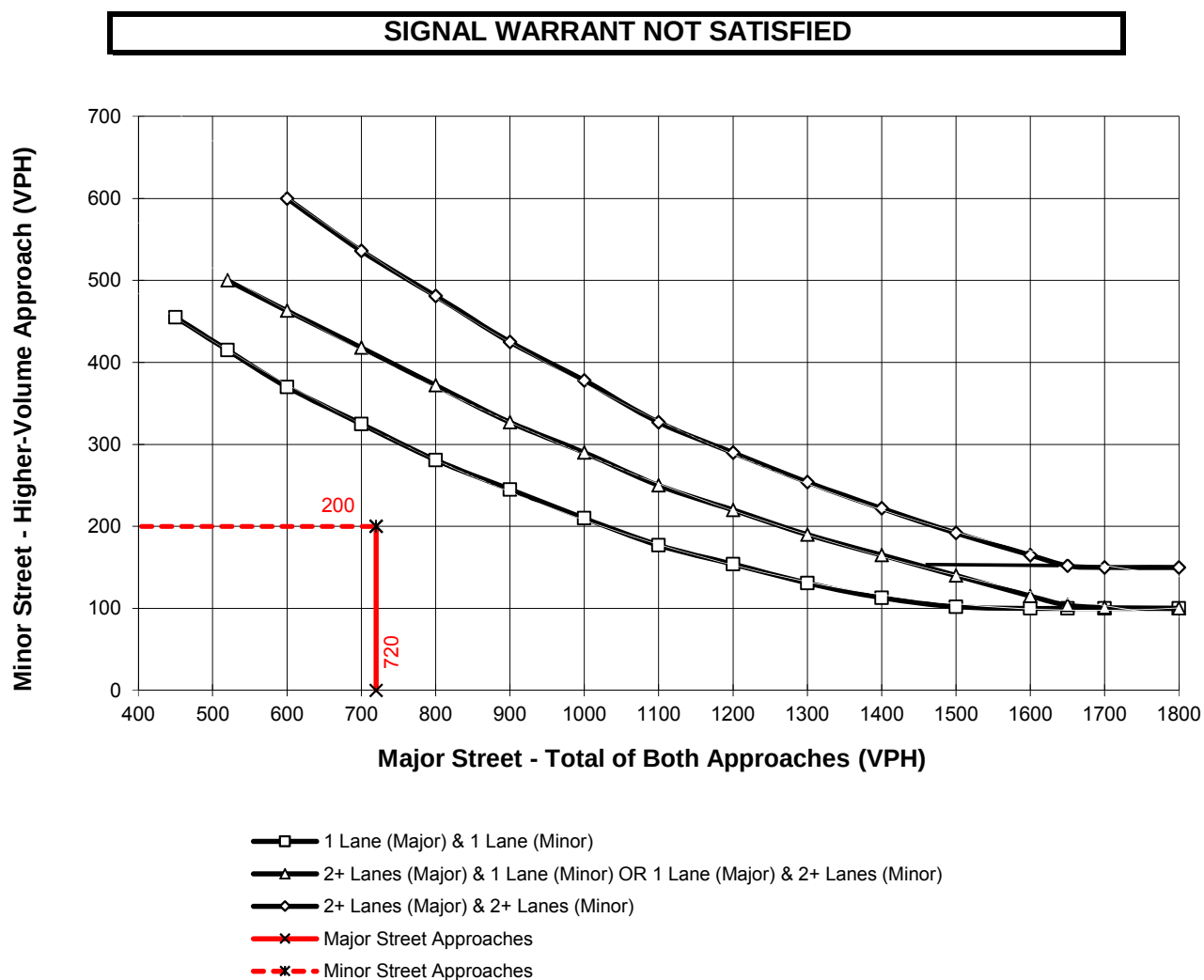
Total of Both Approaches (VPH) = **720**

Number of Approach Lanes on Major Street = **1**

Minor Street Name = **Tereticornis Av.**

High Volume Approach (VPH) = **200**

Number of Approach Lanes On Minor Street = **1**



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes
and 100 vph applies as the lower threshold for a minor-street approach with one lane

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APPENDIX 7.4:

EAP (2021) CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

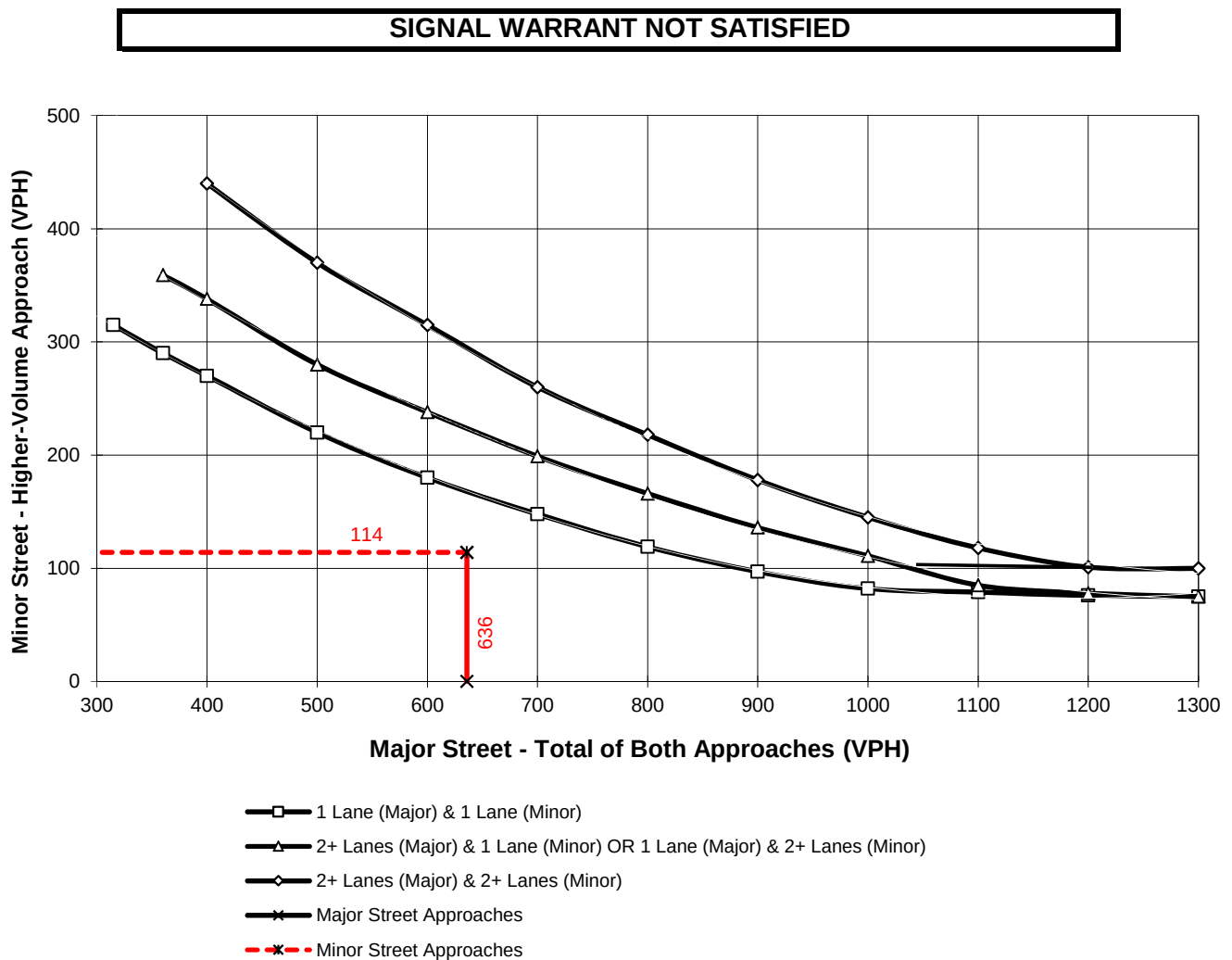
Traffic Conditions = **EAP (2021) Conditions - Weekday AM Peak Hour**

Major Street Name = **Nichols Rd.**

Total of Both Approaches (VPH) = **636**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Alberhill Ranch Rd.**

High Volume Approach (VPH) = **114**
Number of Approach Lanes Minor Street = **1**



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes
and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-3. Warrant 3, Peak Hour

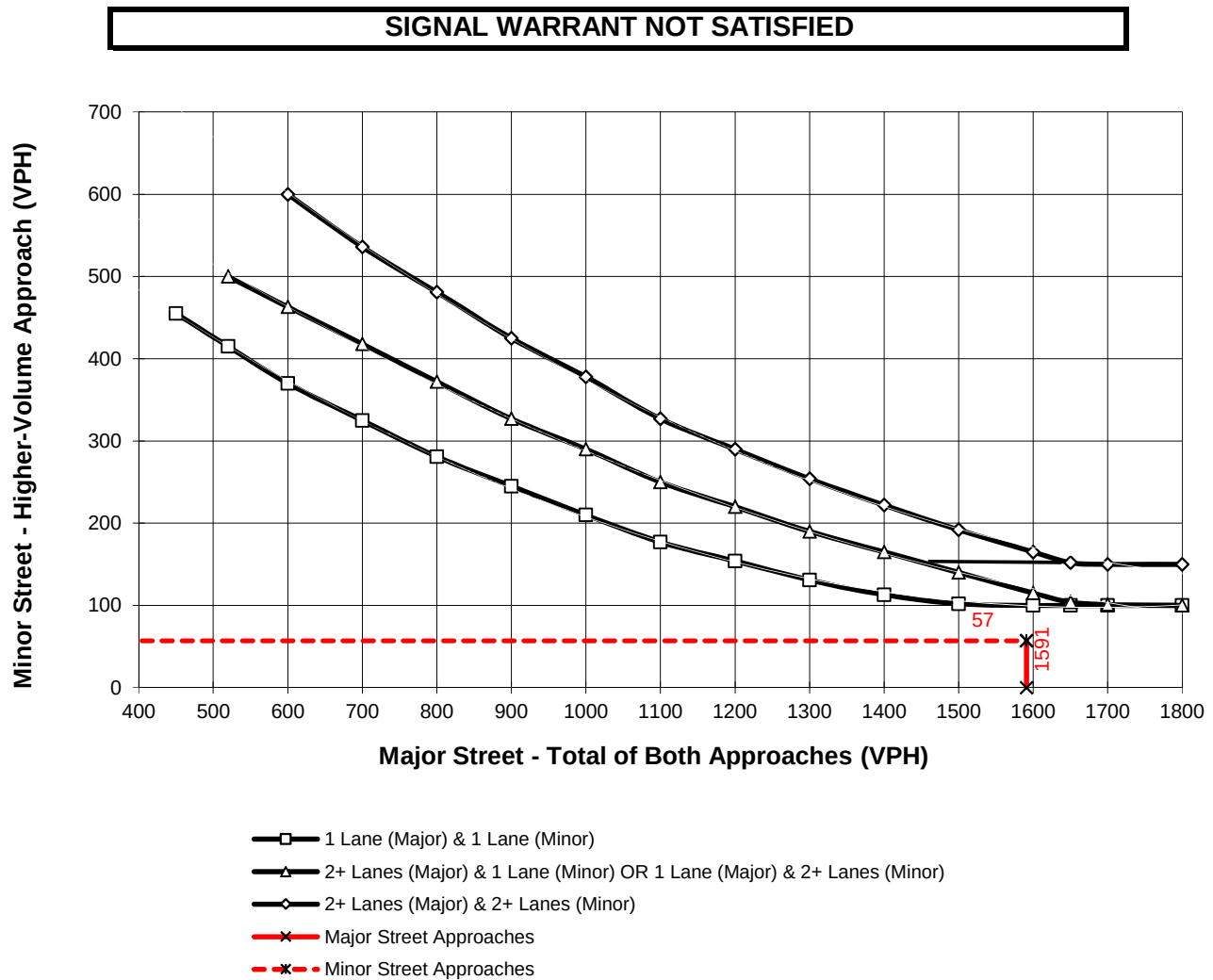
Traffic Conditions = **EAP (2021) Conditions - Weekday AM Peak Hour**

Major Street Name = **Gunnerson St.**

Total of Both Approaches (VPH) = **1591**
Number of Approach Lanes on Major Street = **1**

Minor Street Name = **Strickland Av./Riverside Dr.**

High Volume Approach (VPH) = **57**
Number of Approach Lanes On Minor Street = **1**



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes
and 100 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet (Average Traffic Estimate Form)

DIST	CO	RTE	PM	CALC	TRAFFIC CONDITIONS	EAP (2021)
Jurisdiction: <u>City of Lake Elsinore</u>				CHK <u>CH</u>		DATE <u>05/01/18</u>
Major Street: <u>Nichols Rd.</u>					Critical Approach Speed (Major)	<u>50</u> mph
Minor Street: <u>A St.</u>					Critical Approach Speed (Minor)	<u>25</u> mph
Major Street Approach Lanes = <u>1</u> lane				Minor Street Approach Lanes: <u>1</u> lane		
Major Street Future ADT = <u>6,079</u> vpd				Minor Street Future ADT = <u>239</u> vpd		
Speed limit or critical speed on major street traffic > 64 km/h (40 mph);						☒
						or
In built up area of isolated community of < 10,000 population						☐

RURAL (R)

(Based on Estimated Average Daily Traffic - See Note)

URBAN		RURAL		Minimum Requirements EADT			
CONDITION A - Minimum Vehicular Volume Satisfied		XX Not Satisfied		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Major Street	Minor Street	Urban	Rural	Urban	Rural	Urban	Rural
1 6,079	1 239	8,000	5,600 *	2,400	1,680		
2 +	1	9,600	6,720	2,400	1,680		
2 +	2 +	9,600	6,720	3,200	2,240		
1	2 +	8,000	5,600	3,200	2,240		
CONDITION B - Interruption of Continuous Traffic Satisfied		XX Not Satisfied		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Major Street	Minor Street	Urban	Rural	Urban	Rural	Urban	Rural
1 6,079	1 239	12,000	8,400	1,200	850		
2 +	1	14,400	10,080	1,200	850		
2 +	2 +	14,400	10,080	1,600	1,120		
1	2 +	12,000	8,400	1,600	1,120		
Combination of CONDITIONS A + B Satisfied		XX Not Satisfied		2 CONDITIONS 80%		2 CONDITIONS 80%	
No one condition satisfied, but following conditions fulfilled 80% of more							
		A 14% B 28%					

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet (Average Traffic Estimate Form)

DIST	CO	RTE	PM	CALC	TRAFFIC CONDITIONS	EAP (2021)
Jurisdiction: <u>City of Lake Elsinore</u>				CHK <u>CH</u>	DATE <u>05/01/18</u>	DATE <u>05/01/18</u>
Major Street: <u>Nichols Rd.</u>					Critical Approach Speed (Major) <u>50</u> mph	
Minor Street: <u>B St.</u>					Critical Approach Speed (Minor) <u>25</u> mph	
Major Street Approach Lanes = <u>1</u> lane				Minor Street Approach Lanes: <u>1</u> lane		
Major Street Future ADT = <u>4,524</u> vpd				Minor Street Future ADT = <u>2,263</u> vpd		
Speed limit or critical speed on major street traffic > 64 km/h (40 mph);					☒	RURAL (R)
In built up area of isolated community of < 10,000 population					☐	

(Based on Estimated Average Daily Traffic - See Note)

<u>URBAN</u>		<u>RURAL</u>		Minimum Requirements			
CONDITION A - Minimum Vehicular Volume		XX		EADT			
<u>Satisfied</u>		<u>Not Satisfied</u>		Vehicles Per Day on Major Street		Vehicles Per Day on Higher-Volume Minor Street Approach	
				(Total of Both Approaches)		(One Direction Only)	
<u>Major Street</u>		<u>Minor Street</u>		<u>Urban</u>	<u>Rural</u>	<u>Urban</u>	<u>Rural</u>
1 4,524		1 2,263		8,000	5,600	2,400	1,680 *
2 +		1		9,600	6,720	2,400	1,680
2 +		2 +		9,600	6,720	3,200	2,240
1		2 +		8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic				Vehicles Per Day on Major Street		Vehicles Per Day on Higher-Volume Minor Street Approach	
<u>Satisfied</u>		<u>Not Satisfied</u>		(Total of Both Approaches)		(One Direction Only)	
<u>Major Street</u>		<u>Minor Street</u>		<u>Urban</u>	<u>Rural</u>	<u>Urban</u>	<u>Rural</u>
1 4,524		1 2,263		12,000	8,400	1,200	850 *
2 +		1		14,400	10,080	1,200	850
2 +		2 +		14,400	10,080	1,600	1,120
1		2 +		12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B				2 CONDITIONS		2 CONDITIONS	
<u>Satisfied</u>		<u>Not Satisfied</u>		80%		80%	
No one condition satisfied, but following conditions fulfilled 80% of more							

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet (Average Traffic Estimate Form)

DIST	CO	RTE	PM	CALC	TRAFFIC CONDITIONS	EAP (2021)
Jurisdiction: <u>City of Lake Elsinore</u>				CHK <u>CH</u>		DATE <u>05/01/18</u>
Major Street: <u>B St.</u>					Critical Approach Speed (Major)	<u>50</u> mph
Minor Street: <u>F St.</u>					Critical Approach Speed (Minor)	<u>25</u> mph
Major Street Approach Lanes = <u>1</u> lane				Minor Street Approach Lanes: <u>1</u> lane		
Major Street Future ADT = <u>2,433</u> vpd				Minor Street Future ADT = <u>343</u> vpd		
Speed limit or critical speed on major street traffic > 64 km/h (40 mph);						☒
						or
In built up area of isolated community of < 10,000 population						☐

RURAL (R)

(Based on Estimated Average Daily Traffic - See Note)

URBAN		RURAL		Minimum Requirements EADT			
CONDITION A - Minimum Vehicular Volume Satisfied		XX Not Satisfied		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Major Street	Minor Street	Major Street	Minor Street	Urban	Rural	Urban	Rural
1 2,433	1 343			8,000	5,600	2,400	1,680
2 +	1			9,600	6,720	2,400	1,680
2 +	2 +			9,600	6,720	3,200	2,240
1	2 +			8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic Satisfied		XX Not Satisfied		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Major Street	Minor Street	Major Street	Minor Street	Urban	Rural	Urban	Rural
1 2,433	1 343			12,000	8,400	1,200	850
2 +	1			14,400	10,080	1,200	850
2 +	2 +			14,400	10,080	1,600	1,120
1	2 +			12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B Satisfied		XX Not Satisfied		2 CONDITIONS 80%		2 CONDITIONS 80%	
No one condition satisfied, but following conditions fulfilled 80% of more							

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet (Average Traffic Estimate Form)

DIST	CO	RTE	PM	CALC	TRAFFIC CONDITIONS	EAP (2021)
Jurisdiction: <u>City of Lake Elsinore</u>				CHK <u>CH</u>		DATE <u>05/01/18</u>
Major Street: <u>H St.</u>					Critical Approach Speed (Major)	<u>25</u> mph
Minor Street: <u>B St.</u>					Critical Approach Speed (Minor)	<u>25</u> mph
Major Street Approach Lanes = <u>1</u> lane				Minor Street Approach Lanes: <u>1</u> lane		
Major Street Future ADT = <u>2,112</u> vpd				Minor Street Future ADT = <u>0</u> vpd		
Speed limit or critical speed on major street traffic > 64 km/h (40 mph);						
						or
In built up area of isolated community of < 10,000 population						
URBAN (U)						

(Based on Estimated Average Daily Traffic - See Note)

<u>URBAN</u> XX		<u>RURAL</u>		Minimum Requirements EADT			
CONDITION A - Minimum Vehicular Volume							
<u>Satisfied</u>	<u>Not Satisfied</u> XX			Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
<u>Major Street</u>	<u>Minor Street</u>	<u>Urban</u>	<u>Rural</u>	<u>Urban</u>	<u>Rural</u>	<u>Urban</u>	<u>Rural</u>
1 2,112	1 0	8,000	5,600	2,400	1,680		
2 +	1	9,600	6,720	2,400	1,680		
2 +	2 +	9,600	6,720	3,200	2,240		
1	2 +	8,000	5,600	3,200	2,240		
CONDITION B - Interruption of Continuous Traffic							
<u>Satisfied</u>	<u>Not Satisfied</u> XX			Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
<u>Major Street</u>	<u>Minor Street</u>	<u>Urban</u>	<u>Rural</u>	<u>Urban</u>	<u>Rural</u>	<u>Urban</u>	<u>Rural</u>
1 2,112	1 0	12,000	8,400	1,200	850		
2 +	1	14,400	10,080	1,200	850		
2 +	2 +	14,400	10,080	1,600	1,120		
1	2 +	12,000	8,400	1,600	1,120		
Combination of CONDITIONS A + B							
<u>Satisfied</u>	<u>Not Satisfied</u> XX			2 CONDITIONS 80%		2 CONDITIONS 80%	
No one condition satisfied, but following conditions fulfilled 80% of more							
	<u>A</u> 26%	<u>B</u> 18%					

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet (Average Traffic Estimate Form)

DIST	CO	RTE	PM	CALC	TRAFFIC CONDITIONS	EAP (2021)
Jurisdiction: <u>City of Lake Elsinore</u>				CHK <u>CH</u>		DATE <u>05/01/18</u>
Major Street: <u>G St.</u>					Critical Approach Speed (Major)	<u>25</u> mph
Minor Street: <u>B St.</u>					Critical Approach Speed (Minor)	<u>25</u> mph
Major Street Approach Lanes = <u>1</u> lane				Minor Street Approach Lanes: <u>1</u> lane		
Major Street Future ADT = <u>2,115</u> vpd				Minor Street Future ADT = <u>159</u> vpd		
Speed limit or critical speed on major street traffic > 64 km/h (40 mph);						
						or
In built up area of isolated community of < 10,000 population						
URBAN (U)						

(Based on Estimated Average Daily Traffic - See Note)

URBAN XX		RURAL		Minimum Requirements EADT			
CONDITION A - Minimum Vehicular Volume				Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
<u>Satisfied</u>		<u>Not Satisfied</u>					
		XX					
Number of lanes for moving traffic on each approach				<u>Urban</u>	<u>Rural</u>	<u>Urban</u>	<u>Rural</u>
<u>Major Street</u>		<u>Minor Street</u>					
<u>1</u> 2,115		<u>1</u> 159		8,000	5,600	2,400	1,680
2 +		1		9,600	6,720	2,400	1,680
2 +		2 +		9,600	6,720	3,200	2,240
1		2 +		8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic				Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
<u>Satisfied</u>		<u>Not Satisfied</u>					
		XX					
Number of lanes for moving traffic on each approach				<u>Urban</u>	<u>Rural</u>	<u>Urban</u>	<u>Rural</u>
<u>Major Street</u>		<u>Minor Street</u>					
<u>1</u> 2,115		<u>1</u> 159		12,000	8,400	1,200	850
2 +		1		14,400	10,080	1,200	850
2 +		2 +		14,400	10,080	1,600	1,120
1		2 +		12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B				2 CONDITIONS 80%		2 CONDITIONS 80%	
<u>Satisfied</u>		<u>Not Satisfied</u>					
		XX					
No one condition satisfied, but following conditions fulfilled 80% of more		A	B				
		7%	13%				

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

**Figure 4C-103 (CA). Traffic Signal Warrants Worksheet
(Average Traffic Estimate Form)**

DIST				CO		RTE		PM		CALC		CHK		TRAFFIC CONDITIONS		EAP (2021)	
Jurisdiction:				City of Lake Elsinore						DATE		05/01/18					
Major Street:				El Toro Rd.						DATE		05/01/18					
Minor Street:				B St.						Critical Approach Speed (Major)		25		mph			
										Critical Approach Speed (Minor)		25		mph			
Major Street Approach Lanes =				1		lane		Minor Street Approach Lanes:				1		lane			
Major Street Future ADT =				2,642		vpd		Minor Street Future ADT =				1,116		vpd			
Speed limit or critical speed on major street traffic > 64 km/h (40 mph);														or		URBAN (U)	
In built up area of isolated community of < 10,000 population																	

(Based on Estimated Average Daily Traffic - See Note)

URBAN RURAL XX CONDITION A - Minimum Vehicular Volume Satisfied Not Satisfied XX		Minimum Requirements			
		EADT			
		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
		Urban	Rural	Urban	Rural
Number of lanes for moving traffic on each approach					
Major Street	Minor Street				
1 2,642	1 1,116	8,000	5,600	2,400	1,680
2 +	1	9,600	6,720	2,400	1,680
2 +	2 +	9,600	6,720	3,200	2,240
1	2 +	8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic Satisfied Not Satisfied XX		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Number of lanes for moving traffic on each approach					
Major Street	Minor Street	Urban	Rural	Urban	Rural
1 2,642	1 1,116	12,000	8,400	1,200	850
2 +	1	14,400	10,080	1,200	850
2 +	2 +	14,400	10,080	1,600	1,120
1	2 +	12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B Satisfied Not Satisfied XX No one condition satisfied, but following conditions fulfilled 80% of more A B 33% 22%		2 CONDITIONS 80%		2 CONDITIONS 80%	

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-3. Warrant 3, Peak Hour

Traffic Conditions = **EAP (2021) Conditions - Weekday AM Peak Hour**

Major Street Name = **El Toro Rd.**

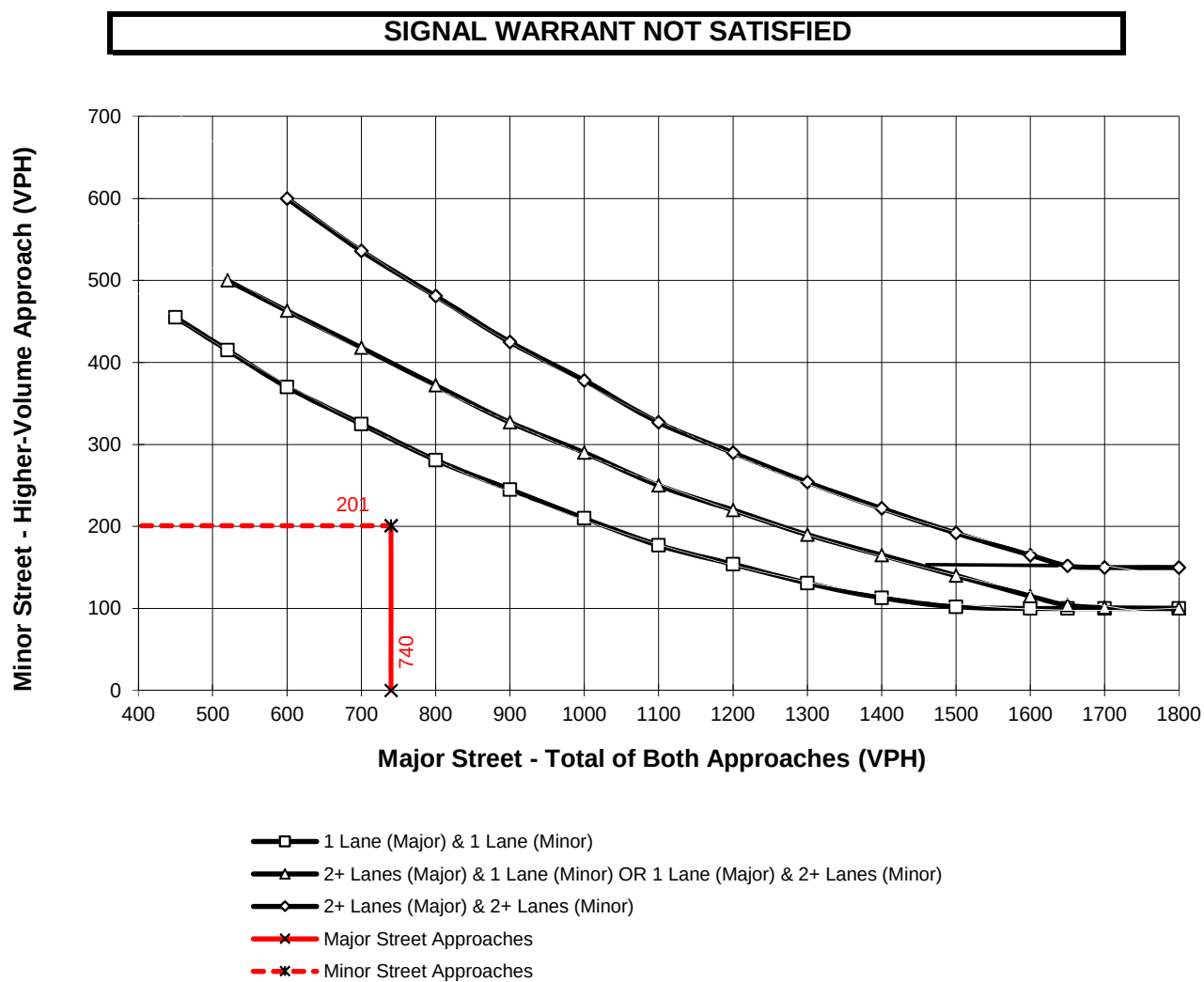
Total of Both Approaches (VPH) = **740**

Number of Approach Lanes on Major Street = **1**

Minor Street Name = **Tereticornis Av.**

High Volume Approach (VPH) = **201**

Number of Approach Lanes On Minor Street = **1**



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes
and 100 vph applies as the lower threshold for a minor-street approach with one lane

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APPENDIX 7.5:

EA (2021) CONDITIONS OFF-RAMP QUEUEING ANALYSIS WORKSHEETS

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Intersection

Intersection Delay, s/veh16.9

Intersection LOS C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗	↖	↑						↕	
Traffic Vol, veh/h	0	242	283	59	228	0	0	0	0	174	6	66
Future Vol, veh/h	0	242	283	59	228	0	0	0	0	174	6	66
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles, %	0	3	3	25	3	0	0	0	0	8	67	13
Mvmt Flow	0	323	377	79	304	0	0	0	0	232	8	88
Number of Lanes	0	1	1	1	1	0	0	0	0	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	2
HCM Control Delay	16.6	16.5	18.2
HCM LOS	C	C	C

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	100%	0%	71%
Vol Thru, %	100%	0%	0%	100%	2%
Vol Right, %	0%	100%	0%	0%	27%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	242	283	59	228	246
LT Vol	0	0	59	0	174
Through Vol	242	0	0	228	6
RT Vol	0	283	0	0	66
Lane Flow Rate	323	377	79	304	328
Geometry Grp	7	7	7	7	2
Degree of Util (X)	0.567	0.588	0.165	0.561	0.585
Departure Headway (Hd)	6.323	5.609	7.537	6.644	6.423
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	568	641	474	541	561
Service Time	4.089	3.375	5.312	4.419	4.481
HCM Lane V/C Ratio	0.569	0.588	0.167	0.562	0.585
HCM Control Delay	17.1	16.1	11.8	17.7	18.2
HCM Lane LOS	C	C	B	C	C
HCM 95th-tile Q	3.5	3.8	0.6	3.4	3.7

Intersection												
Int Delay, s/veh	83.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	79	337	0	0	139	94	149	3	115	0	0	0
Future Vol, veh/h	79	337	0	0	139	94	149	3	115	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	230	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	62	62	62	62	62	62	62	62	62	62	62	62
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	127	544	0	0	224	152	240	5	185	0	0	0

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	376	0	- - - 0 1098 1174 544
Stage 1	-	-	- - - 798 798 -
Stage 2	-	-	- - - 300 376 -
Critical Hdwy	4.15	-	- - - 6.44 6.5 6.26
Critical Hdwy Stg 1	-	-	- - - 5.44 5.5 -
Critical Hdwy Stg 2	-	-	- - - 5.44 5.5 -
Follow-up Hdwy	2.245	-	- - - 3.536 4 3.354
Pot Cap-1 Maneuver	1166	-	0 0 - - ~ 233 193 531
Stage 1	-	-	0 0 - - 440 401 -
Stage 2	-	-	0 0 - - 747 620 -
Platoon blocked, %	-	-	- -
Mov Cap-1 Maneuver	1166	-	- - - ~ 208 0 531
Mov Cap-2 Maneuver	-	-	- - - ~ 208 0 -
Stage 1	-	-	- - - 392 0 -
Stage 2	-	-	- - - 747 0 -

Approach	EB	WB	NB
HCM Control Delay, s	1.6	0	285.1
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR
Capacity (veh/h)	283	1166	-	-	-
HCM Lane V/C Ratio	1.522	0.109	-	-	-
HCM Control Delay (s)	285.1	8.5	-	-	-
HCM Lane LOS	F	A	-	-	-
HCM 95th %tile Q(veh)	24.9	0.4	-	-	-

Notes			
~: Volume exceeds capacity	\$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Intersection Delay, s/veh	43.8
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	79	337	0	0	139	94	149	3	115	0	0	0
Future Vol, veh/h	79	337	0	0	139	94	149	3	115	0	0	0
Peak Hour Factor	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	127	544	0	0	224	152	240	5	185	0	0	0
Number of Lanes	1	1	0	0	1	0	0	1	0	0	0	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	64.5	23	29.8
HCM LOS	F	C	D

Lane	NBLn1	EBLn1	EBLn2	WBLn1
Vol Left, %	56%	100%	0%	0%
Vol Thru, %	1%	0%	100%	60%
Vol Right, %	43%	0%	0%	40%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	267	79	337	233
LT Vol	149	79	0	0
Through Vol	3	0	337	139
RT Vol	115	0	0	94
Lane Flow Rate	431	127	544	376
Geometry Grp	2	7	7	5
Degree of Util (X)	0.784	0.262	1.042	0.685
Departure Headway (Hd)	6.682	7.414	6.902	6.71
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	547	488	527	541
Service Time	4.682	5.114	4.602	4.71
HCM Lane V/C Ratio	0.788	0.26	1.032	0.695
HCM Control Delay	29.8	12.7	76.7	23
HCM Lane LOS	D	B	F	C
HCM 95th-tile Q	7.3	1	15.7	5.2

Intersection

Intersection Delay, s/veh14.5

Intersection LOS B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗	↖	↑						↕	
Traffic Vol, veh/h	0	254	284	27	360	0	0	0	0	83	2	140
Future Vol, veh/h	0	254	284	27	360	0	0	0	0	83	2	140
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	0	3	3	25	3	0	0	0	0	8	67	13
Mvmt Flow	0	270	302	29	383	0	0	0	0	88	2	149
Number of Lanes	0	1	1	1	1	0	0	0	0	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	2
HCM Control Delay	12.5	18.3	12.9
HCM LOS	B	C	B

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	100%	0%	37%
Vol Thru, %	100%	0%	0%	100%	1%
Vol Right, %	0%	100%	0%	0%	62%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	254	284	27	360	225
LT Vol	0	0	27	0	83
Through Vol	254	0	0	360	2
RT Vol	0	284	0	0	140
Lane Flow Rate	270	302	29	383	239
Geometry Grp	7	7	7	7	2
Degree of Util (X)	0.441	0.434	0.055	0.64	0.398
Departure Headway (Hd)	5.879	5.169	6.908	6.02	5.979
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	613	695	518	601	601
Service Time	3.618	2.908	4.651	3.763	4.024
HCM Lane V/C Ratio	0.44	0.435	0.056	0.637	0.398
HCM Control Delay	13.2	11.8	10.1	18.9	12.9
HCM Lane LOS	B	B	B	C	B
HCM 95th-tile Q	2.2	2.2	0.2	4.6	1.9

Intersection												
Int Delay, s/veh	15.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	149	188	0	0	119	41	267	1	32	0	0	0
Future Vol, veh/h	149	188	0	0	119	41	267	1	32	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	230	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	155	196	0	0	124	43	278	1	33	0	0	0

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	167	0	- - - 0 652 673 196
Stage 1	-	-	- - - 506 506 -
Stage 2	-	-	- - - 146 167 -
Critical Hdwy	4.15	-	- - - 6.44 6.5 6.26
Critical Hdwy Stg 1	-	-	- - - 5.44 5.5 -
Critical Hdwy Stg 2	-	-	- - - 5.44 5.5 -
Follow-up Hdwy	2.245	-	- - - 3.536 4 3.354
Pot Cap-1 Maneuver	1393	-	0 0 - - 429 379 835
Stage 1	-	-	0 0 - - 601 543 -
Stage 2	-	-	0 0 - - 876 764 -
Platoon blocked, %	-	-	- -
Mov Cap-1 Maneuver	1393	-	- - - 381 0 835
Mov Cap-2 Maneuver	-	-	- - - 381 0 -
Stage 1	-	-	- - - 534 0 -
Stage 2	-	-	- - - 876 0 -

Approach	EB	WB	NB
HCM Control Delay, s	3.5	0	38.2
HCM LOS	E		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR
Capacity (veh/h)	405	1393	-	-	-
HCM Lane V/C Ratio	0.772	0.111	-	-	-
HCM Control Delay (s)	38.2	7.9	-	-	-
HCM Lane LOS	E	A	-	-	-
HCM 95th %tile Q(veh)	6.5	0.4	-	-	-

Intersection	
Intersection Delay, s/veh	11.7
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	149	188	0	0	119	41	267	1	32	0	0	0
Future Vol, veh/h	149	188	0	0	119	41	267	1	32	0	0	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	155	196	0	0	124	43	278	1	33	0	0	0
Number of Lanes	1	1	0	0	1	0	0	1	0	0	0	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	11.1	10.3	13.2
HCM LOS	B	B	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1
Vol Left, %	89%	100%	0%	0%
Vol Thru, %	0%	0%	100%	74%
Vol Right, %	11%	0%	0%	26%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	300	149	188	160
LT Vol	267	149	0	0
Through Vol	1	0	188	119
RT Vol	32	0	0	41
Lane Flow Rate	312	155	196	167
Geometry Grp	2	7	7	5
Degree of Util (X)	0.473	0.269	0.311	0.253
Departure Headway (Hd)	5.449	6.229	5.724	5.459
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	666	577	629	658
Service Time	3.449	3.954	3.448	3.486
HCM Lane V/C Ratio	0.468	0.269	0.312	0.254
HCM Control Delay	13.2	11.2	11	10.3
HCM Lane LOS	B	B	B	B
HCM 95th-tile Q	2.5	1.1	1.3	1

APPENDIX 7.6:

EAP (2021) CONDITIONS OFF-RAMP QUEUEING ANALYSIS WORKSHEETS

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Intersection

Intersection Delay, s/veh 18.7

Intersection LOS C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗	↘	↑						↕	
Traffic Vol, veh/h	0	250	283	88	252	0	0	0	0	184	6	66
Future Vol, veh/h	0	250	283	88	252	0	0	0	0	184	6	66
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles, %	0	3	3	25	3	0	0	0	0	8	67	13
Mvmt Flow	0	333	377	117	336	0	0	0	0	245	8	88
Number of Lanes	0	1	1	1	1	0	0	0	0	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	2
HCM Control Delay	18.1	18.6	20.1
HCM LOS	C	C	C

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	100%	0%	72%
Vol Thru, %	100%	0%	0%	100%	2%
Vol Right, %	0%	100%	0%	0%	26%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	250	283	88	252	256
LT Vol	0	0	88	0	184
Through Vol	250	0	0	252	6
RT Vol	0	283	0	0	66
Lane Flow Rate	333	377	117	336	341
Geometry Grp	7	7	7	7	2
Degree of Util (X)	0.605	0.61	0.25	0.632	0.625
Departure Headway (Hd)	6.531	5.816	7.663	6.769	6.589
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	550	615	466	531	546
Service Time	4.312	3.596	5.45	4.555	4.654
HCM Lane V/C Ratio	0.605	0.613	0.251	0.633	0.625
HCM Control Delay	18.9	17.4	13	20.6	20.1
HCM Lane LOS	C	C	B	C	C
HCM 95th-tile Q	4	4.1	1	4.4	4.3

Intersection												
Int Delay, s/veh	116.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	79	355	0	0	191	123	149	3	125	0	0	0
Future Vol, veh/h	79	355	0	0	191	123	149	3	125	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	230	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	62	62	62	62	62	62	62	62	62	62	62	62
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	127	573	0	0	308	198	240	5	202	0	0	0
Major/Minor	Major1		Major2			Minor1						
Conflicting Flow All	506	0	-	-	-	0	1234	1333	573			
Stage 1	-	-	-	-	-	-	827	827	-			
Stage 2	-	-	-	-	-	-	407	506	-			
Critical Hdwy	4.15	-	-	-	-	-	6.44	6.5	6.26			
Critical Hdwy Stg 1	-	-	-	-	-	-	5.44	5.5	-			
Critical Hdwy Stg 2	-	-	-	-	-	-	5.44	5.5	-			
Follow-up Hdwy	2.245	-	-	-	-	-	3.536	4	3.354			
Pot Cap-1 Maneuver	1043	-	0	0	-	-	~ 193	155	511			
Stage 1	-	-	0	0	-	-	426	389	-			
Stage 2	-	-	0	0	-	-	668	543	-			
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	1043	-	-	-	-	-	~ 169	0	511			
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 169	0	-			
Stage 1	-	-	-	-	-	-	374	0	-			
Stage 2	-	-	-	-	-	-	668	0	-			
Approach	EB		WB			NB						
HCM Control Delay, s	1.6			0			\$ 427.3					
HCM LOS							F					
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR							
Capacity (veh/h)	243	1043	-	-	-							
HCM Lane V/C Ratio	1.839	0.122	-	-	-							
HCM Control Delay (s)	\$ 427.3	8.9	-	-	-							
HCM Lane LOS	F	A	-	-	-							
HCM 95th %tile Q(veh)	30.9	0.4	-	-	-							
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s			+: Computation Not Defined				*: All major volume in platoon			

Intersection	
Intersection Delay, s/veh	68.6
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	79	355	0	0	191	123	149	3	125	0	0	0
Future Vol, veh/h	79	355	0	0	191	123	149	3	125	0	0	0
Peak Hour Factor	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	127	573	0	0	308	198	240	5	202	0	0	0
Number of Lanes	1	1	0	0	1	0	0	1	0	0	0	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	100.8	51.6	37.5
HCM LOS	F	F	E

Lane	NBLn1	EBLn1	EBLn2	WBLn1
Vol Left, %	54%	100%	0%	0%
Vol Thru, %	1%	0%	100%	61%
Vol Right, %	45%	0%	0%	39%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	277	79	355	314
LT Vol	149	79	0	0
Through Vol	3	0	355	191
RT Vol	125	0	0	123
Lane Flow Rate	447	127	573	506
Geometry Grp	2	7	7	5
Degree of Util (X)	0.842	0.278	1.167	0.936
Departure Headway (Hd)	7.105	7.85	7.336	6.966
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	514	460	498	527
Service Time	5.105	5.55	5.036	4.966
HCM Lane V/C Ratio	0.87	0.276	1.151	0.96
HCM Control Delay	37.5	13.5	120.2	51.6
HCM Lane LOS	E	B	F	F
HCM 95th-tile Q	8.6	1.1	20.6	11.6

Intersection

Intersection Delay, s/veh 16.4

Intersection LOS C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗	↖	↑						↕	
Traffic Vol, veh/h	0	281	284	46	376	0	0	0	0	115	2	140
Future Vol, veh/h	0	281	284	46	376	0	0	0	0	115	2	140
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	0	3	3	25	3	0	0	0	0	8	67	13
Mvmt Flow	0	299	302	49	400	0	0	0	0	122	2	149
Number of Lanes	0	1	1	1	1	0	0	0	0	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	2
HCM Control Delay	13.8	20.9	14.7
HCM LOS	B	C	B

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	100%	0%	45%
Vol Thru, %	100%	0%	0%	100%	1%
Vol Right, %	0%	100%	0%	0%	54%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	281	284	46	376	257
LT Vol	0	0	46	0	115
Through Vol	281	0	0	376	2
RT Vol	0	284	0	0	140
Lane Flow Rate	299	302	49	400	273
Geometry Grp	7	7	7	7	2
Degree of Util (X)	0.508	0.454	0.097	0.694	0.471
Departure Headway (Hd)	6.121	5.409	7.135	6.245	6.197
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	586	665	501	576	580
Service Time	3.878	3.165	4.893	4.004	4.254
HCM Lane V/C Ratio	0.51	0.454	0.098	0.694	0.471
HCM Control Delay	15.1	12.6	10.7	22.1	14.7
HCM Lane LOS	C	B	B	C	B
HCM 95th-tile Q	2.9	2.4	0.3	5.4	2.5

Intersection												
Int Delay, s/veh	24.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	149	246	0	0	154	60	267	1	64	0	0	0
Future Vol, veh/h	149	246	0	0	154	60	267	1	64	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	230	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	155	256	0	0	160	63	278	1	67	0	0	0

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	223	0	- - - 0 758 789 256
Stage 1	-	-	- - - 566 566 -
Stage 2	-	-	- - - 192 223 -
Critical Hdwy	4.15	-	- - - 6.44 6.5 6.26
Critical Hdwy Stg 1	-	-	- - - 5.44 5.5 -
Critical Hdwy Stg 2	-	-	- - - 5.44 5.5 -
Follow-up Hdwy	2.245	-	- - - 3.536 4 3.354
Pot Cap-1 Maneuver	1328	-	0 0 - - 372 325 773
Stage 1	-	-	0 0 - - 564 511 -
Stage 2	-	-	0 0 - - 836 723 -
Platoon blocked, %	-	-	- -
Mov Cap-1 Maneuver	1328	-	- - - 328 0 773
Mov Cap-2 Maneuver	-	-	- - - 328 0 -
Stage 1	-	-	- - - 498 0 -
Stage 2	-	-	- - - 836 0 -

Approach	EB	WB	NB
HCM Control Delay, s	3	0	66.3
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR
Capacity (veh/h)	369	1328	-	-	-
HCM Lane V/C Ratio	0.937	0.117	-	-	-
HCM Control Delay (s)	66.3	8.1	-	-	-
HCM Lane LOS	F	A	-	-	-
HCM 95th %tile Q(veh)	10	0.4	-	-	-

Intersection	
Intersection Delay, s/veh	13.3
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	149	246	0	0	154	60	267	1	64	0	0	0
Future Vol, veh/h	149	246	0	0	154	60	267	1	64	0	0	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	155	256	0	0	160	63	278	1	67	0	0	0
Number of Lanes	1	1	0	0	1	0	0	1	0	0	0	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	12.5	11.8	15.2
HCM LOS	B	B	C

Lane	NBLn1	EBLn1	EBLn2	WBLn1
Vol Left, %	80%	100%	0%	0%
Vol Thru, %	0%	0%	100%	72%
Vol Right, %	19%	0%	0%	28%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	332	149	246	214
LT Vol	267	149	0	0
Through Vol	1	0	246	154
RT Vol	64	0	0	60
Lane Flow Rate	346	155	256	223
Geometry Grp	2	7	7	5
Degree of Util (X)	0.543	0.279	0.424	0.352
Departure Headway (Hd)	5.656	6.465	5.958	5.684
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	636	556	605	633
Service Time	3.691	4.199	3.692	3.72
HCM Lane V/C Ratio	0.544	0.279	0.423	0.352
HCM Control Delay	15.2	11.7	13	11.8
HCM Lane LOS	C	B	B	B
HCM 95th-tile Q	3.3	1.1	2.1	1.6

APPENDIX 7.7:

EA (2021) CONDITIONS BASIC FREEWAY SEGMENT ANALYSIS WORKSHEETS

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HCS7 Basic Freeway Report

Project Information

Analyst	CHS	Date	8/9/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EA 2021
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - N of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	4980	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1876
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.78
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	64.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	29.0
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CHS	Date	8/9/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EA 2021
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - S of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	5083	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1914
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.80
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	64.1
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	29.9
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CHS	Date	8/9/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EA 2021
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - N of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	4331	Heavy Vehicle Adjustment Factor (f_{HV})	0.980
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1601
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.67
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	68.1
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	23.5
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CHS	Date	8/9/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EA 2021
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - S of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	4421	Heavy Vehicle Adjustment Factor (f_{HV})	0.980
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1635
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.68
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	67.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	24.1
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CHS	Date	8/9/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EA 2021
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - N of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	5682	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	2140
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.89
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	59.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	35.8
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CHS	Date	8/9/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EA 2021
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - S of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	5770	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	2173
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.91
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	59.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	36.8
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CHS	Date	8/9/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EA 2021
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - N of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	3359	Heavy Vehicle Adjustment Factor (f_{HV})	0.980
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1242
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.52
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	70.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	17.7
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CHS	Date	8/9/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EA 2021
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - S of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	3469	Heavy Vehicle Adjustment Factor (f_{HV})	0.990
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1270
Total Trucks, %	1.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.53
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	69.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	18.2
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

APPENDIX 7.8:

EAP (2021) CONDITIONS BASIC FREEWAY SEGMENT ANALYSIS WORKSHEETS

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HCS7 Basic Freeway Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAP 2021
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - N of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	4990	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1879
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.78
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	64.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	29.0
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAP 2021
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - S of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	5112	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1925
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.80
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	63.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	30.1
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAP 2021
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - N of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	4360	Heavy Vehicle Adjustment Factor (f_{HV})	0.980
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1612
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.67
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	68.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	23.7
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAP 2021
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - S of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	4431	Heavy Vehicle Adjustment Factor (f_{HV})	0.980
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1638
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.68
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	67.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	24.2
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAP 2021
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - N of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	5714	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	2152
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.90
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	59.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	36.2
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

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Project Information

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Agency	Urban Crossroads, Inc.	Analysis Year	EAP 2021
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - S of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	5789	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	2180
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.91
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	37.0
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

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Project Description	Nichols Ranch (JN:10878) - I-15 NB - N of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	3378	Heavy Vehicle Adjustment Factor (f_{HV})	0.980
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1249
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.52
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	70.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	17.8
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAP 2021
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - S of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	3501	Heavy Vehicle Adjustment Factor (f_{HV})	0.990
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1281
Total Trucks, %	1.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.53
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	69.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	18.3
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

APPENDIX 7.9:

EA (2021) CONDITIONS FREEWAY MERGE/DIVERGE ANALYSIS WORKSHEETS

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HCS7 Freeway Diverge Report

Project Information

Analyst	CHS	Date	8/9/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EA 2021
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - Off-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Deceleration Length (L _D), ft	1500	230
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V _i), veh/h	4980	246
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	4.00	11.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.962	0.901
Flow Rate (v _i), pc/h	5627	297
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.78	0.14

Speed and Density

Upstream Equilibrium Distance (L _{EQ}), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	32.5
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (D _s)	0.325
Downstream Equilibrium Distance (L _{EQ}), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	2100
Distance to Downstream Ramp (L _{DOWN}), ft	-	Off-Ramp Influence Area Speed (S _R), mi/h	60.9
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FD})	0.606	Outer Lanes Freeway Speed (S _O), mi/h	72.5
Flow in Lanes 1 and 2 (v ₁₂), pc/h	3527	Ramp Junction Speed (S), mi/h	64.8
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	-	Average Density (D), pc/mi/ln	28.9
Level of Service (LOS)	D	7.9-1	

HCS7 Freeway Merge Report

Project Information

Analyst	CHS	Date	8/9/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EA 2021
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - On-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Acceleration Length (LA), ft	1500	690
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi), veh/h	4734	349
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	4.00	8.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.962	0.926
Flow Rate (vi), pc/h	5349	410
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.80	0.20

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	29.1
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (M _s)	0.402
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	2156
Distance to Downstream Ramp (L _{DOWN}), ft	-	On-Ramp Influence Area Speed (S _R), mi/h	58.7
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FM})	0.597	Outer Lanes Freeway Speed (S _O), mi/h	64.0
Flow in Lanes 1 and 2 (v ₁₂), pc/h	3193	Ramp Junction Speed (S), mi/h	60.6
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	3603	Average Density (D), pc/mi/ln	31.7
Level of Service (LOS)	D	7.9-2	

HCS7 Freeway Merge Report

Project Information

Analyst	CHS	Date	8/9/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EA 2021
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - On-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Acceleration Length (LA), ft	1500	760
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V _i), veh/h	4155	176
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	6.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.980	0.943
Flow Rate (v _i), pc/h	4608	203
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.67	0.10

Speed and Density

Upstream Equilibrium Distance (L _{EQ}), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	23.8
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (M _s)	0.328
Downstream Equilibrium Distance (L _{EQ}), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	1848
Distance to Downstream Ramp (L _{DOWN}), ft	-	On-Ramp Influence Area Speed (S _R), mi/h	60.8
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FM})	0.599	Outer Lanes Freeway Speed (S _O), mi/h	65.1
Flow in Lanes 1 and 2 (v ₁₂), pc/h	2760	Ramp Junction Speed (S), mi/h	62.4
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	2963	Average Density (D), pc/mi/ln	25.7
Level of Service (LOS)	C	7.9-3	

HCS7 Freeway Diverge Report

Project Information

Analyst	CHS	Date	8/9/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EA 2021
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - Off-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Deceleration Length (L _D), ft	1500	260
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V _i), veh/h	4421	266
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	5.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.980	0.952
Flow Rate (v _i), pc/h	4904	304
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.68	0.14

Speed and Density

Upstream Equilibrium Distance (L _{EQ}), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	29.2
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (D _s)	0.325
Downstream Equilibrium Distance (L _{EQ}), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	1734
Distance to Downstream Ramp (L _{DOWN}), ft	-	Off-Ramp Influence Area Speed (S _R), mi/h	60.9
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FD})	0.623	Outer Lanes Freeway Speed (S _O), mi/h	73.9
Flow in Lanes 1 and 2 (v ₁₂), pc/h	3170	Ramp Junction Speed (S), mi/h	64.9
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	-	Average Density (D), pc/mi/ln	25.2
Level of Service (LOS)	D	7.4	

HCS7 Freeway Diverge Report

Project Information

Analyst	CHS	Date	8/9/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EA 2021
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - Off-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Deceleration Length (L _D), ft	1500	230
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V _i), veh/h	5682	225
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	4.00	4.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.962	0.962
Flow Rate (v _i), pc/h	6420	254
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.89	0.12

Speed and Density

Upstream Equilibrium Distance (L _{EQ}), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	35.6
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (D _S)	0.321
Downstream Equilibrium Distance (L _{EQ}), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	2540
Distance to Downstream Ramp (L _{DOWN}), ft	-	Off-Ramp Influence Area Speed (S _R), mi/h	61.0
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FD})	0.588	Outer Lanes Freeway Speed (S _O), mi/h	70.8
Flow in Lanes 1 and 2 (v ₁₂), pc/h	3880	Ramp Junction Speed (S), mi/h	64.5
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	-	Average Density (D), pc/mi/ln	33.2
Level of Service (LOS)	E	7.9-5	

HCS7 Freeway Merge Report

Project Information

Analyst	CHS	Date	8/9/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EA 2021
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - On-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Acceleration Length (LA), ft	1500	690
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi), veh/h	5350	307
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	4.00	5.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.962	0.952
Flow Rate (vi), pc/h	6045	351
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.89	0.17

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	31.9
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (M _s)	0.463
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	2436
Distance to Downstream Ramp (L _{DOWN}), ft	-	On-Ramp Influence Area Speed (S _R), mi/h	57.0
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FM})	0.597	Outer Lanes Freeway Speed (S _O), mi/h	62.7
Flow in Lanes 1 and 2 (v ₁₂), pc/h	3609	Ramp Junction Speed (S), mi/h	59.0
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	3960	Average Density (D), pc/mi/ln	36.1
Level of Service (LOS)	D	7.9-6	

HCS7 Freeway Merge Report

Project Information

Analyst	CHS	Date	8/9/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EA 2021
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - On-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Acceleration Length (LA), ft	1500	760
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V _i), veh/h	3168	191
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	15.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.980	0.870
Flow Rate (v _i), pc/h	3514	239
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.52	0.11

Speed and Density

Upstream Equilibrium Distance (L _{EQ}), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	19.0
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (M _s)	0.293
Downstream Equilibrium Distance (L _{EQ}), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	1409
Distance to Downstream Ramp (L _{DOWN}), ft	-	On-Ramp Influence Area Speed (S _R), mi/h	61.8
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FM})	0.599	Outer Lanes Freeway Speed (S _O), mi/h	66.7
Flow in Lanes 1 and 2 (v ₁₂), pc/h	2105	Ramp Junction Speed (S), mi/h	63.6
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	2344	Average Density (D), pc/mi/ln	19.7
Level of Service (LOS)	B	7.9-7	

HCS7 Freeway Diverge Report

Project Information

Analyst	CHS	Date	8/9/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EA 2021
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - Off-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Deceleration Length (L _D), ft	1500	260
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V _i), veh/h	3469	300
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	1.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.990	0.990
Flow Rate (v _i), pc/h	3809	329
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.53	0.16

Speed and Density

Upstream Equilibrium Distance (L _{EQ}), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	24.2
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (D _S)	0.328
Downstream Equilibrium Distance (L _{EQ}), ft	-	Flow Outer Lanes (V _{OA}), pc/h/ln	1218
Distance to Downstream Ramp (L _{DOWN}), ft	-	Off-Ramp Influence Area Speed (S _R), mi/h	60.8
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FD})	0.650	Outer Lanes Freeway Speed (S _O), mi/h	75.9
Flow in Lanes 1 and 2 (v ₁₂), pc/h	2591	Ramp Junction Speed (S), mi/h	64.9
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	-	Average Density (D), pc/mi/ln	19.6
Level of Service (LOS)	C	7.9-8	

APPENDIX 7.10:

EAP (2021) CONDITIONS FREEWAY MERGE/DIVERGE ANALYSIS WORKSHEETS

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HCS7 Freeway Diverge Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAP 2021
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - Off-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Deceleration Length (L _D), ft	1500	230
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V _i), veh/h	4990	256
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	4.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.962	0.909
Flow Rate (v _i), pc/h	5638	306
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.78	0.15

Speed and Density

Upstream Equilibrium Distance (L _{EQ}), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	32.6
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (D _s)	0.326
Downstream Equilibrium Distance (L _{EQ}), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	2106
Distance to Downstream Ramp (L _{DOWN}), ft	-	Off-Ramp Influence Area Speed (S _R), mi/h	60.9
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FD})	0.605	Outer Lanes Freeway Speed (S _O), mi/h	72.5
Flow in Lanes 1 and 2 (v ₁₂), pc/h	3532	Ramp Junction Speed (S), mi/h	64.8
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	-	Average Density (D), pc/mi/ln	29.0
Level of Service (LOS)	D	6.14-1	

HCS7 Freeway Merge Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAP 2021
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - On-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Acceleration Length (LA), ft	1500	690
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V _i), veh/h	4734	378
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	4.00	7.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.962	0.935
Flow Rate (v _i), pc/h	5349	439
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.80	0.21

Speed and Density

Upstream Equilibrium Distance (L _{EQ}), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	29.3
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (M _s)	0.406
Downstream Equilibrium Distance (L _{EQ}), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	2156
Distance to Downstream Ramp (L _{DOWN}), ft	-	On-Ramp Influence Area Speed (S _R), mi/h	58.6
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FM})	0.597	Outer Lanes Freeway Speed (S _O), mi/h	64.0
Flow in Lanes 1 and 2 (v ₁₂), pc/h	3193	Ramp Junction Speed (S), mi/h	60.5
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	3632	Average Density (D), pc/mi/ln	31.9
Level of Service (LOS)	D	6.14-2	

HCS7 Freeway Merge Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAP 2021
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - On-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Acceleration Length (LA), ft	1500	760
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V _i), veh/h	4155	205
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	5.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.980	0.952
Flow Rate (v _i), pc/h	4608	234
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.67	0.11

Speed and Density

Upstream Equilibrium Distance (L _{EQ}), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	24.0
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (M _s)	0.330
Downstream Equilibrium Distance (L _{EQ}), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	1848
Distance to Downstream Ramp (L _{DOWN}), ft	-	On-Ramp Influence Area Speed (S _R), mi/h	60.8
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FM})	0.599	Outer Lanes Freeway Speed (S _O), mi/h	65.1
Flow in Lanes 1 and 2 (v ₁₂), pc/h	2760	Ramp Junction Speed (S), mi/h	62.4
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	2994	Average Density (D), pc/mi/ln	25.9
Level of Service (LOS)	C	6.14-3	

HCS7 Freeway Diverge Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAP 2021
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - Off-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Deceleration Length (L _D), ft	1500	260
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V _i), veh/h	4431	276
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	5.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.980	0.952
Flow Rate (v _i), pc/h	4915	315
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.68	0.15

Speed and Density

Upstream Equilibrium Distance (L _{EQ}), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	29.3
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (D _s)	0.326
Downstream Equilibrium Distance (L _{EQ}), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	1734
Distance to Downstream Ramp (L _{DOWN}), ft	-	Off-Ramp Influence Area Speed (S _R), mi/h	60.9
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FD})	0.623	Outer Lanes Freeway Speed (S _O), mi/h	73.9
Flow in Lanes 1 and 2 (v ₁₂), pc/h	3181	Ramp Junction Speed (S), mi/h	64.9
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	-	Average Density (D), pc/mi/ln	25.2
Level of Service (LOS)	D	6.14-4	

HCS7 Freeway Diverge Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAP 2021
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - Off-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Deceleration Length (L _D), ft	1500	230
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V _i), veh/h	5714	257
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	4.00	4.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.962	0.962
Flow Rate (v _i), pc/h	6456	290
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.90	0.14

Speed and Density

Upstream Equilibrium Distance (L _{EQ}), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	35.7
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (D _S)	0.324
Downstream Equilibrium Distance (L _{EQ}), ft	-	Flow Outer Lanes (V _{OA}), pc/h/ln	2559
Distance to Downstream Ramp (L _{DOWN}), ft	-	Off-Ramp Influence Area Speed (S _R), mi/h	60.9
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FD})	0.585	Outer Lanes Freeway Speed (S _O), mi/h	70.7
Flow in Lanes 1 and 2 (v ₁₂), pc/h	3897	Ramp Junction Speed (S), mi/h	64.4
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	-	Average Density (D), pc/mi/ln	33.4
Level of Service (LOS)	E	6.14-5	

HCS7 Freeway Merge Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAP 2021
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - On-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Acceleration Length (LA), ft	1500	690
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V _i), veh/h	5457	332
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	4.00	4.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.962	0.962
Flow Rate (v _i), pc/h	6166	375
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.91	0.18

Speed and Density

Upstream Equilibrium Distance (L _{EQ}), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	32.7
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (M _s)	0.484
Downstream Equilibrium Distance (L _{EQ}), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	2485
Distance to Downstream Ramp (L _{DOWN}), ft	-	On-Ramp Influence Area Speed (S _R), mi/h	56.4
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FM})	0.597	Outer Lanes Freeway Speed (S _O), mi/h	62.4
Flow in Lanes 1 and 2 (v ₁₂), pc/h	3681	Ramp Junction Speed (S), mi/h	58.5
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	4056	Average Density (D), pc/mi/ln	37.3
Level of Service (LOS)	D	6.14-6	

HCS7 Freeway Merge Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAP 2021
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - On-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Acceleration Length (LA), ft	1500	760
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V _i), veh/h	3168	210
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	14.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.980	0.877
Flow Rate (v _i), pc/h	3514	260
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.52	0.12

Speed and Density

Upstream Equilibrium Distance (L _{EQ}), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	19.1
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (M _s)	0.294
Downstream Equilibrium Distance (L _{EQ}), ft	-	Flow Outer Lanes (V _{OA}), pc/h/ln	1409
Distance to Downstream Ramp (L _{DOWN}), ft	-	On-Ramp Influence Area Speed (S _R), mi/h	61.8
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FM})	0.599	Outer Lanes Freeway Speed (S _O), mi/h	66.7
Flow in Lanes 1 and 2 (v ₁₂), pc/h	2105	Ramp Junction Speed (S), mi/h	63.5
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	2365	Average Density (D), pc/mi/ln	19.8
Level of Service (LOS)	B	6.14-7	

HCS7 Freeway Diverge Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAP 2021
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - Off-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Deceleration Length (L _D), ft	1500	260
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V _i), veh/h	3501	332
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	1.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.990	0.990
Flow Rate (v _i), pc/h	3844	365
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.53	0.17

Speed and Density

Upstream Equilibrium Distance (L _{EQ}), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	24.4
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (D _s)	0.331
Downstream Equilibrium Distance (L _{EQ}), ft	-	Flow Outer Lanes (V _{OA}), pc/h/ln	1228
Distance to Downstream Ramp (L _{DOWN}), ft	-	Off-Ramp Influence Area Speed (S _R), mi/h	60.7
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FD})	0.647	Outer Lanes Freeway Speed (S _O), mi/h	75.9
Flow in Lanes 1 and 2 (v ₁₂), pc/h	2616	Ramp Junction Speed (S), mi/h	64.8
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	-	Average Density (D), pc/mi/ln	19.8
Level of Service (LOS)	C	6.14-8	

APPENDIX 7.11:

**EA (2021) CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS WITH
IMPROVEMENTS**

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Timings

S. Nichols Mixed-Use Development (JN 10878)

5: Strickland Av./Gunnerson St. & Riverside Dr. (SR-74)

08/09/2018



Lane Group	EBT	WBL	WBT	NBT	NBR	SBL	SBT	SBR
Lane Configurations	EBT	WBL	WBT	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	878	2	658	2	12	49	3	5
Future Volume (vph)	878	2	658	2	12	49	3	5
Turn Type	NA	Perm	NA	NA	Perm	Perm	NA	Perm
Protected Phases	4		8	2			6	
Permitted Phases		8			2	6		6
Detector Phase	4	8	8	2	2	6	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	22.4	22.4	22.4	21.6	21.6	22.4	22.4	22.4
Total Split (s)	93.0	93.0	93.0	27.0	27.0	27.0	27.0	27.0
Total Split (%)	77.5%	77.5%	77.5%	22.5%	22.5%	22.5%	22.5%	22.5%
Yellow Time (s)	4.4	4.4	4.4	3.6	3.6	4.4	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.4	5.4	5.4	4.6	4.6		5.4	5.4
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	Min	Min	Min	Min	Min
Act Effect Green (s)	32.9	32.9	32.9	12.4	12.4		11.5	11.5
Actuated g/C Ratio	0.59	0.59	0.59	0.22	0.22		0.21	0.21
v/c Ratio	0.83	0.01	0.66	0.00	0.03		0.19	0.01
Control Delay	16.4	4.5	10.6	22.5	7.3		24.4	1.2
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay	16.4	4.5	10.6	22.5	7.3		24.4	1.2
LOS	B	A	B	C	A		C	A
Approach Delay	16.4		10.5	9.5			22.5	
Approach LOS	B		B	A			C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 55.9

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 14.1

Intersection LOS: B

Intersection Capacity Utilization 75.9%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 5: Strickland Av./Gunnerson St. & Riverside Dr. (SR-74)



HCM 6th Signalized Intersection Summary S. Nichols Mixed-Use Development (JN 10878)
 5: Strickland Av./Gunnerson St. & Riverside Dr. (SR-74) 08/09/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	878	3	2	658	37	0	2	12	49	3	5
Future Volume (veh/h)	0	878	3	2	658	37	0	2	12	49	3	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	905	3	2	678	38	0	2	0	51	3	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	141	1102	4	268	1038	58	0	367		400	20	
Arrive On Green	0.00	0.59	0.59	0.59	0.59	0.59	0.00	0.20	0.00	0.20	0.20	0.00
Sat Flow, veh/h	735	1863	6	614	1754	98	0	1870	1585	1339	101	1585
Grp Volume(v), veh/h	0	0	908	2	0	716	0	2	0	54	0	0
Grp Sat Flow(s),veh/h/ln	735	0	1869	614	0	1853	0	1870	1585	1440	0	1585
Q Serve(g_s), s	0.0	0.0	19.6	0.1	0.0	13.1	0.0	0.0	0.0	1.4	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	19.6	19.8	0.0	13.1	0.0	0.0	0.0	1.6	0.0	0.0
Prop In Lane	1.00		0.00	1.00		0.05	0.00		1.00	0.94		1.00
Lane Grp Cap(c), veh/h	141	0	1106	268	0	1096	0	367		420	0	
V/C Ratio(X)	0.00	0.00	0.82	0.01	0.00	0.65	0.00	0.01		0.13	0.00	
Avail Cap(c_a), veh/h	971	0	3216	961	0	3187	0	823		747	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	8.3	16.1	0.0	6.9	0.0	16.5	0.0	17.1	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	1.6	0.0	0.0	0.7	0.0	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	4.8	0.0	0.0	3.1	0.0	0.0	0.0	0.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	9.8	16.1	0.0	7.6	0.0	16.5	0.0	17.2	0.0	0.0
LnGrp LOS	A	A	A	B	A	A	A	B		B	A	
Approach Vol, veh/h	908			718			2			54		
Approach Delay, s/veh	9.8			7.6			16.5			17.2		
Approach LOS	A			A			B			B		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	15.4			35.5			15.4			35.5		
Change Period (Y+Rc), s	* 5.4			5.4			5.4			5.4		
Max Green Setting (Gmax), s	* 22			87.6			21.6			87.6		
Max Q Clear Time (g_c+I1), s	2.0			21.6			3.6			21.8		
Green Ext Time (p_c), s	0.0			8.5			0.2			5.6		

Intersection Summary

HCM 6th Ctrl Delay	9.1
HCM 6th LOS	A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Timings
10: I-15 NB Ramps & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

08/09/2018

					
Lane Group	EBL	EBT	WBT	NBT	NBR
Lane Configurations					
Traffic Volume (vph)	79	337	139	3	115
Future Volume (vph)	79	337	139	3	115
Turn Type	Prot	NA	NA	NA	Perm
Protected Phases	7	4	8	2	
Permitted Phases					2
Detector Phase	7	4	8	2	2
Switch Phase					
Minimum Initial (s)	5.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	22.8	22.8	22.8	22.8
Total Split (s)	21.0	77.0	56.0	53.8	53.8
Total Split (%)	16.1%	58.9%	42.8%	41.1%	41.1%
Yellow Time (s)	3.6	4.8	4.8	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	5.8	5.8	5.8
Lead/Lag	Lead		Lag		
Lead-Lag Optimize?	Yes		Yes		
Recall Mode	None	None	None	Min	Min
Act Effect Green (s)	11.3	33.2	21.0	16.5	16.5
Actuated g/C Ratio	0.18	0.53	0.34	0.26	0.26
v/c Ratio	0.41	0.57	0.66	0.53	0.35
Control Delay	31.9	12.2	24.8	27.6	6.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	31.9	12.2	24.8	27.6	6.2
LOS	C	B	C	C	A
Approach Delay		15.9	24.8	18.4	
Approach LOS		B	C	B	

Intersection Summary

Cycle Length: 130.8

Actuated Cycle Length: 62.6

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.66

Intersection Signal Delay: 18.9

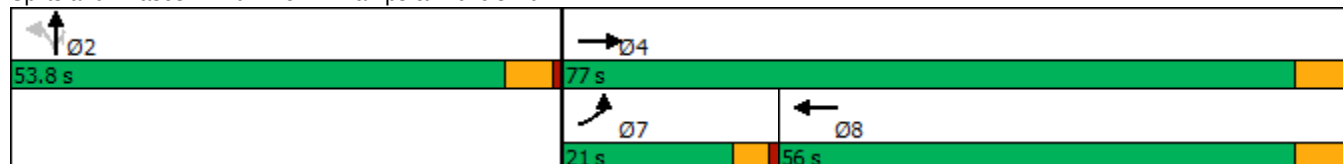
Intersection LOS: B

Intersection Capacity Utilization 44.8%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 10: I-15 NB Ramps & Nichols Rd.



HCM 6th Signalized Intersection Summary 10: I-15 NB Ramps & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

08/09/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	79	337	0	0	139	94	149	3	115	0	0	0
Future Volume (veh/h)	79	337	0	0	139	94	149	3	115	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach	No				No				No			
Adj Sat Flow, veh/h/ln	1826	1826	0	0	1737	1737	1811	1900	1811			
Adj Flow Rate, veh/h	127	544	0	0	224	152	240	5	185			
Peak Hour Factor	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62			
Percent Heavy Veh, %	5	5	0	0	11	11	6	0	6			
Cap, veh/h	166	929	0	0	297	202	404	8	342			
Arrive On Green	0.10	0.51	0.00	0.00	0.31	0.31	0.23	0.23	0.23			
Sat Flow, veh/h	1739	1826	0	0	965	655	1774	37	1502			
Grp Volume(v), veh/h	127	544	0	0	0	376	245	0	185			
Grp Sat Flow(s),veh/h/ln	1739	1826	0	0	0	1619	1811	0	1502			
Q Serve(g_s), s	3.1	9.2	0.0	0.0	0.0	9.2	5.3	0.0	4.8			
Cycle Q Clear(g_c), s	3.1	9.2	0.0	0.0	0.0	9.2	5.3	0.0	4.8			
Prop In Lane	1.00		0.00	0.00		0.40	0.98		1.00			
Lane Grp Cap(c), veh/h	166	929	0	0	0	499	412	0	342			
V/C Ratio(X)	0.76	0.59	0.00	0.00	0.00	0.75	0.59	0.00	0.54			
Avail Cap(c_a), veh/h	649	2957	0	0	0	1849	1978	0	1640			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	0.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	19.4	7.6	0.0	0.0	0.0	13.7	15.2	0.0	15.0			
Incr Delay (d2), s/veh	7.1	0.6	0.0	0.0	0.0	2.3	1.4	0.0	1.3			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.3	2.0	0.0	0.0	0.0	2.7	1.8	0.0	1.4			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.4	8.1	0.0	0.0	0.0	16.0	16.5	0.0	16.3			
LnGrp LOS	C	A	A	A	A	B	B	A	B			
Approach Vol, veh/h	671				376				430			
Approach Delay, s/veh	11.6				16.0				16.4			
Approach LOS	B				B				B			
Timer - Assigned Phs	2				4				7 8			
Phs Duration (G+Y+Rc), s	15.8				28.2				8.8 19.4			
Change Period (Y+Rc), s	5.8				5.8				4.6 5.8			
Max Green Setting (Gmax), s	48.0				71.2				16.4 50.2			
Max Q Clear Time (g_c+l1), s	7.3				11.2				5.1 11.2			
Green Ext Time (p_c), s	2.0				3.6				0.2 2.4			
Intersection Summary												
HCM 6th Ctrl Delay	14.1											
HCM 6th LOS	B											

Intersection

Intersection Delay, s/veh	53.4
Intersection LOS	F

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	176	24	194	69	19	438
Future Vol, veh/h	176	24	194	69	19	438
Peak Hour Factor	0.66	0.66	0.66	0.66	0.66	0.66
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	267	36	294	105	29	664
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	18.6	19.5	88.1
HCM LOS	C	C	F

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	88%	4%
Vol Thru, %	74%	0%	96%
Vol Right, %	26%	12%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	263	200	457
LT Vol	0	176	19
Through Vol	194	0	438
RT Vol	69	24	0
Lane Flow Rate	398	303	692
Geometry Grp	1	1	1
Degree of Util (X)	0.647	0.563	1.097
Departure Headway (Hd)	6.061	6.963	5.706
Convergence, Y/N	Yes	Yes	Yes
Cap	602	521	637
Service Time	4.061	4.963	3.748
HCM Lane V/C Ratio	0.661	0.582	1.086
HCM Control Delay	19.5	18.6	88.1
HCM Lane LOS	C	C	F
HCM 95th-tile Q	4.7	3.4	20.3

Intersection

Intersection Delay, s/veh	15.4
Intersection LOS	C

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	176	24	194	69	19	438
Future Vol, veh/h	176	24	194	69	19	438
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	191	26	211	75	21	476
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	12.3	11.7	18.9
HCM LOS	B	B	C

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	88%	4%
Vol Thru, %	74%	0%	96%
Vol Right, %	26%	12%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	263	200	457
LT Vol	0	176	19
Through Vol	194	0	438
RT Vol	69	24	0
Lane Flow Rate	286	217	497
Geometry Grp	1	1	1
Degree of Util (X)	0.408	0.36	0.698
Departure Headway (Hd)	5.135	5.961	5.055
Convergence, Y/N	Yes	Yes	Yes
Cap	700	602	720
Service Time	3.173	4.006	3.055
HCM Lane V/C Ratio	0.409	0.36	0.69
HCM Control Delay	11.7	12.3	18.9
HCM Lane LOS	B	B	C
HCM 95th-tile Q	2	1.6	5.7

Intersection

Intersection Delay, s/veh 77.5

Intersection LOS F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	↕
Traffic Vol, veh/h	137	0	279	6	0	16	176	110	6	8	364	242
Future Vol, veh/h	137	0	279	6	0	16	176	110	6	8	364	242
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	199	0	404	9	0	23	255	159	9	12	528	351
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	1
Conflicting Approach Left SB		NB	EB	WB
Conflicting Lanes Left	2	1	1	1
Conflicting Approach Right NB		SB	WB	EB
Conflicting Lanes Right	1	2	1	1
HCM Control Delay	102.2	13.3	45.2	78.5
HCM LOS	F	B	E	F

Lane	NBLn1	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	60%	33%	27%	2%	0%
Vol Thru, %	38%	0%	0%	98%	0%
Vol Right, %	2%	67%	73%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	292	416	22	372	242
LT Vol	176	137	6	8	0
Through Vol	110	0	0	364	0
RT Vol	6	279	16	0	242
Lane Flow Rate	423	603	32	539	351
Geometry Grp	5	2	2	7	7
Degree of Util (X)	0.873	1.121	0.079	1.14	0.672
Departure Headway (Hd)	7.973	6.916	9.53	8.107	7.371
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	457	531	378	453	495
Service Time	5.973	4.916	7.53	5.807	5.071
HCM Lane V/C Ratio	0.926	1.136	0.085	1.19	0.709
HCM Control Delay	45.2	102.2	13.3	114.1	23.9
HCM Lane LOS	E	F	B	F	C
HCM 95th-tile Q	9.1	19.2	0.3	18.2	4.9

Intersection

Intersection Delay, s/veh 23.2

Intersection LOS C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	↕
Traffic Vol, veh/h	137	0	279	6	0	16	176	110	6	8	364	242
Future Vol, veh/h	137	0	279	6	0	16	176	110	6	8	364	242
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	149	0	303	7	0	17	191	120	7	9	396	263
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	1	1
HCM Control Delay	27.5	11	19.4	22.5
HCM LOS	D	B	C	C

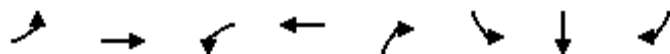
Lane	NBLn1	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	60%	33%	27%	2%	0%
Vol Thru, %	38%	0%	0%	98%	0%
Vol Right, %	2%	67%	73%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	292	416	22	372	242
LT Vol	176	137	6	8	0
Through Vol	110	0	0	364	0
RT Vol	6	279	16	0	242
Lane Flow Rate	317	452	24	404	263
Geometry Grp	5	2	2	7	7
Degree of Util (X)	0.597	0.778	0.05	0.763	0.443
Departure Headway (Hd)	6.773	6.191	7.509	6.789	6.063
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	533	588	475	534	592
Service Time	4.825	4.191	5.586	4.541	3.814
HCM Lane V/C Ratio	0.595	0.769	0.051	0.757	0.444
HCM Control Delay	19.4	27.5	11	28.3	13.6
HCM Lane LOS	C	D	B	D	B
HCM 95th-tile Q	3.9	7.3	0.2	6.7	2.3

Timings

S. Nichols Mixed-Use Development (JN 10878)

5: Strickland Av./Gunnerson St. & Riverside Dr. (SR-74)

08/09/2018



Lane Group	EBL	EBT	WBL	WBT	NBR	SBL	SBT	SBR
Lane Configurations								
Traffic Volume (vph)	2	884	6	907	6	30	1	2
Future Volume (vph)	2	884	6	907	6	30	1	2
Turn Type	Perm	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		8			6	
Permitted Phases	4		8		2	6		6
Detector Phase	4	4	8	8	2	6	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	22.4	22.4	22.4	22.4	21.6	22.4	22.4	22.4
Total Split (s)	93.0	93.0	93.0	93.0	27.0	27.0	27.0	27.0
Total Split (%)	77.5%	77.5%	77.5%	77.5%	22.5%	22.5%	22.5%	22.5%
Yellow Time (s)	4.4	4.4	4.4	4.4	3.6	4.4	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.4	5.4	5.4	5.4	4.6		5.4	5.4
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	Min	Min	Min	Min
Act Effect Green (s)	45.7	45.7	45.7	45.7	12.6		11.8	11.8
Actuated g/C Ratio	0.66	0.66	0.66	0.66	0.18		0.17	0.17
v/c Ratio	0.01	0.75	0.02	0.88	0.01		0.13	0.01
Control Delay	3.5	11.5	3.7	17.9	0.0		33.4	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay	3.5	11.5	3.7	17.9	0.0		33.4	0.0
LOS	A	B	A	B	A		C	A
Approach Delay		11.5		17.8			31.5	
Approach LOS		B		B			C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 69.2

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 15.1

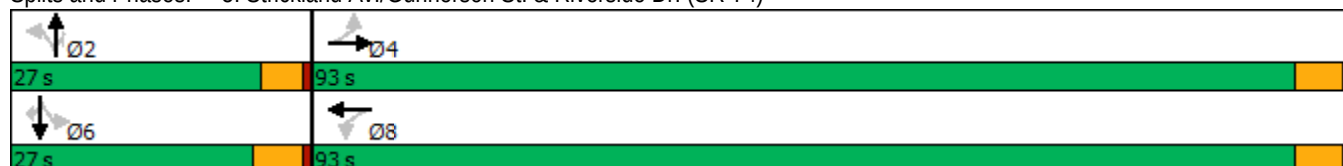
Intersection LOS: B

Intersection Capacity Utilization 76.3%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 5: Strickland Av./Gunnerson St. & Riverside Dr. (SR-74)



HCM 6th Signalized Intersection Summary S. Nichols Mixed-Use Development (JN 10878)
 5: Strickland Av./Gunnerson St. & Riverside Dr. (SR-74) 08/09/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	884	4	6	907	122	0	0	6	30	1	2
Future Volume (veh/h)	2	884	4	6	907	122	0	0	6	30	1	2
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	2	911	4	6	935	126	0	0	0	31	1	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	231	1252	5	332	1086	146	0	294		328	9	
Arrive On Green	0.67	0.67	0.67	0.67	0.67	0.67	0.00	0.00	0.00	0.16	0.16	0.00
Sat Flow, veh/h	532	1861	8	610	1614	217	0	1870	1585	1375	56	1585
Grp Volume(v), veh/h	2	0	915	6	0	1061	0	0	0	32	0	0
Grp Sat Flow(s),veh/h/ln	532	0	1869	610	0	1831	0	1870	1585	1431	0	1585
Q Serve(g_s), s	0.2	0.0	20.0	0.4	0.0	28.7	0.0	0.0	0.0	1.1	0.0	0.0
Cycle Q Clear(g_c), s	28.8	0.0	20.0	20.4	0.0	28.7	0.0	0.0	0.0	1.2	0.0	0.0
Prop In Lane	1.00		0.00	1.00		0.12	0.00		1.00	0.97		1.00
Lane Grp Cap(c), veh/h	231	0	1257	332	0	1232	0	294		337	0	
V/C Ratio(X)	0.01	0.00	0.73	0.02	0.00	0.86	0.00	0.00		0.10	0.00	
Avail Cap(c_a), veh/h	606	0	2575	763	0	2524	0	659		597	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	19.3	0.0	6.7	13.2	0.0	8.1	0.0	0.0	0.0	23.1	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.8	0.0	0.0	1.9	0.0	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	4.7	0.1	0.0	6.9	0.0	0.0	0.0	0.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.3	0.0	7.5	13.2	0.0	10.0	0.0	0.0	0.0	23.2	0.0	0.0
LnGrp LOS	B	A	A	B	A	A	A	A		C	A	
Approach Vol, veh/h	917			1067			0			A	32	A
Approach Delay, s/veh	7.5			10.0			0.0				23.2	
Approach LOS	A			B							C	
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	15.4			48.2			15.4			48.2		
Change Period (Y+Rc), s	* 5.4			5.4			5.4			5.4		
Max Green Setting (Gmax), s	* 22			87.6			21.6			87.6		
Max Q Clear Time (g_c+I1), s	0.0			30.8			3.2			30.7		
Green Ext Time (p_c), s	0.0			8.6			0.1			12.1		

Intersection Summary

HCM 6th Ctrl Delay	9.1
HCM 6th LOS	A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Timings
10: I-15 NB Ramps & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

08/09/2018

					
Lane Group	EBL	EBT	WBT	NBT	NBR
Lane Configurations					
Traffic Volume (vph)	149	188	119	1	32
Future Volume (vph)	149	188	119	1	32
Turn Type	Prot	NA	NA	NA	Perm
Protected Phases	7	4	8	2	
Permitted Phases					2
Detector Phase	7	4	8	2	2
Switch Phase					
Minimum Initial (s)	5.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	22.8	22.8	22.8	22.8
Total Split (s)	21.0	77.0	56.0	53.8	53.8
Total Split (%)	16.1%	58.9%	42.8%	41.1%	41.1%
Yellow Time (s)	3.6	4.8	4.8	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	5.8	5.8	5.8
Lead/Lag	Lead		Lag		
Lead-Lag Optimize?	Yes		Yes		
Recall Mode	None	None	None	Min	Min
Act Effect Green (s)	16.9	39.4	17.8	24.4	24.4
Actuated g/C Ratio	0.22	0.52	0.23	0.32	0.32
v/c Ratio	0.63	0.32	0.64	0.77	0.10
Control Delay	39.4	12.8	33.5	33.9	4.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	39.4	12.8	33.5	33.9	4.8
LOS	D	B	C	C	A
Approach Delay		24.6	33.5	30.8	
Approach LOS		C	C	C	

Intersection Summary

Cycle Length: 130.8

Actuated Cycle Length: 75.8

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.77

Intersection Signal Delay: 28.7

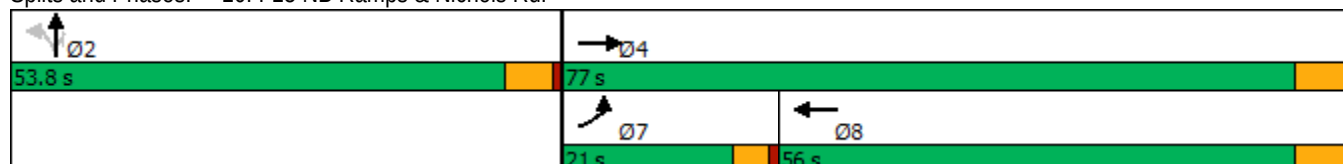
Intersection LOS: C

Intersection Capacity Utilization 45.4%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 10: I-15 NB Ramps & Nichols Rd.



HCM 6th Signalized Intersection Summary
10: I-15 NB Ramps & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

08/09/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	149	188	0	0	119	41	267	1	32	0	0	0
Future Volume (veh/h)	149	188	0	0	119	41	267	1	32	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1826	1826	0	0	1737	1737	1811	1900	1811			
Adj Flow Rate, veh/h	240	303	0	0	192	66	431	2	52			
Peak Hour Factor	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62			
Percent Heavy Veh, %	5	5	0	0	11	11	6	0	6			
Cap, veh/h	300	860	0	0	261	90	557	3	464			
Arrive On Green	0.17	0.47	0.00	0.00	0.21	0.21	0.31	0.31	0.31			
Sat Flow, veh/h	1739	1826	0	0	1236	425	1802	8	1502			
Grp Volume(v), veh/h	240	303	0	0	0	258	433	0	52			
Grp Sat Flow(s),veh/h/ln	1739	1826	0	0	0	1661	1810	0	1502			
Q Serve(g_s), s	7.0	5.6	0.0	0.0	0.0	7.7	11.5	0.0	1.3			
Cycle Q Clear(g_c), s	7.0	5.6	0.0	0.0	0.0	7.7	11.5	0.0	1.3			
Prop In Lane	1.00		0.00	0.00		0.26	1.00		1.00			
Lane Grp Cap(c), veh/h	300	860	0	0	0	351	559	0	464			
V/C Ratio(X)	0.80	0.35	0.00	0.00	0.00	0.74	0.77	0.00	0.11			
Avail Cap(c_a), veh/h	541	2466	0	0	0	1581	1648	0	1368			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	0.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	20.9	8.8	0.0	0.0	0.0	19.4	16.5	0.0	13.0			
Incr Delay (d2), s/veh	4.9	0.2	0.0	0.0	0.0	3.0	2.3	0.0	0.1			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	2.8	1.6	0.0	0.0	0.0	2.7	4.1	0.0	0.4			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.9	9.1	0.0	0.0	0.0	22.4	18.9	0.0	13.1			
LnGrp LOS	C	A	A	A	A	C	B	A	B			
Approach Vol, veh/h	543			258			485					
Approach Delay, s/veh	16.5			22.4			18.3					
Approach LOS	B			C			B					
Timer - Assigned Phs	2			4			7			8		
Phs Duration (G+Y+Rc), s	22.1			30.6			13.7			16.9		
Change Period (Y+Rc), s	5.8			5.8			4.6			5.8		
Max Green Setting (Gmax), s	48.0			71.2			16.4			50.2		
Max Q Clear Time (g_c+I1), s	13.5			7.6			9.0			9.7		
Green Ext Time (p_c), s	2.8			1.7			0.4			1.5		
Intersection Summary												
HCM 6th Ctrl Delay	18.4											
HCM 6th LOS	B											

Intersection

Intersection Delay, s/veh	9.5
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	13	18	134	25	51	159
Future Vol, veh/h	13	18	134	25	51	159
Peak Hour Factor	0.66	0.66	0.66	0.66	0.66	0.66
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	20	27	203	38	77	241
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	8.2	9	10.1
HCM LOS	A	A	B

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	42%	24%
Vol Thru, %	84%	0%	76%
Vol Right, %	16%	58%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	159	31	210
LT Vol	0	13	51
Through Vol	134	0	159
RT Vol	25	18	0
Lane Flow Rate	241	47	318
Geometry Grp	1	1	1
Degree of Util (X)	0.286	0.064	0.385
Departure Headway (Hd)	4.279	4.873	4.355
Convergence, Y/N	Yes	Yes	Yes
Cap	841	735	830
Service Time	2.297	2.902	2.355
HCM Lane V/C Ratio	0.287	0.064	0.383
HCM Control Delay	9	8.2	10.1
HCM Lane LOS	A	A	B
HCM 95th-tile Q	1.2	0.2	1.8

Intersection

Intersection Delay, s/veh 9.4

Intersection LOS A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	↕
Traffic Vol, veh/h	15	0	31	5	0	1	14	143	4	6	155	11
Future Vol, veh/h	15	0	31	5	0	1	14	143	4	6	155	11
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	22	0	45	7	0	1	20	207	6	9	225	16
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	1	1
HCM Control Delay	8.2	8.3	9.4	9.7
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	9%	33%	83%	4%	0%
Vol Thru, %	89%	0%	0%	96%	0%
Vol Right, %	2%	67%	17%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	161	46	6	161	11
LT Vol	14	15	5	6	0
Through Vol	143	0	0	155	0
RT Vol	4	31	1	0	11
Lane Flow Rate	233	67	9	233	16
Geometry Grp	5	2	2	7	7
Degree of Util (X)	0.292	0.087	0.013	0.318	0.019
Departure Headway (Hd)	4.499	4.721	5.213	4.907	4.206
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	800	759	686	735	856
Service Time	2.52	2.751	3.25	2.628	1.906
HCM Lane V/C Ratio	0.291	0.088	0.013	0.317	0.019
HCM Control Delay	9.4	8.2	8.3	9.9	7
HCM Lane LOS	A	A	A	A	A
HCM 95th-tile Q	1.2	0.3	0	1.4	0.1

APPENDIX 7.12:

**EAP (2021) CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS WITH
IMPROVEMENTS**

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Timings

S. Nichols Mixed-Use Development (JN 10878)

5: Strickland Av./Gunnerson St. & Riverside Dr. (SR-74)

05/24/2018



Lane Group	EBT	WBL	WBT	NBT	NBR	SBL	SBT	SBR
Lane Configurations	EB	WB	WB	EB	EB	SB	EB	EB
Traffic Volume (vph)	881	2	668	2	12	49	3	5
Future Volume (vph)	881	2	668	2	12	49	3	5
Turn Type	NA	Perm	NA	NA	Perm	Perm	NA	Perm
Protected Phases	4		8	2			6	
Permitted Phases		8			2	6		6
Detector Phase	4	8	8	2	2	6	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	22.4	22.4	22.4	21.6	21.6	22.4	22.4	22.4
Total Split (s)	93.0	93.0	93.0	27.0	27.0	27.0	27.0	27.0
Total Split (%)	77.5%	77.5%	77.5%	22.5%	22.5%	22.5%	22.5%	22.5%
Yellow Time (s)	4.4	4.4	4.4	3.6	3.6	4.4	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.4	5.4	5.4	4.6	4.6		5.4	5.4
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	Min	Min	Min	Min	Min
Act Effect Green (s)	33.0	33.0	33.0	12.4	12.4		11.5	11.5
Actuated g/C Ratio	0.59	0.59	0.59	0.22	0.22		0.21	0.21
v/c Ratio	0.83	0.01	0.67	0.00	0.03		0.19	0.01
Control Delay	16.5	4.5	10.7	23.0	7.4		24.5	1.4
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay	16.5	4.5	10.7	23.0	7.4		24.5	1.4
LOS	B	A	B	C	A		C	A
Approach Delay	16.5		10.7	9.6			22.6	
Approach LOS	B		B	A			C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 56

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 14.2

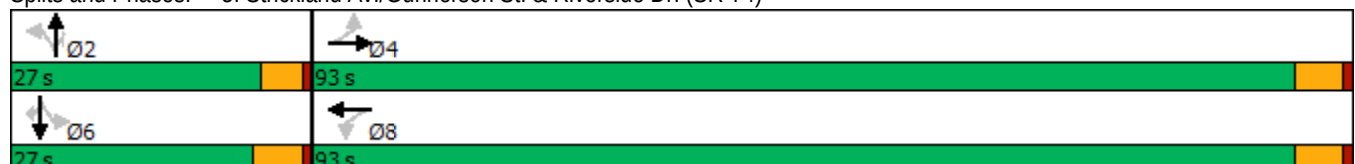
Intersection LOS: B

Intersection Capacity Utilization 76.1%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 5: Strickland Av./Gunnerson St. & Riverside Dr. (SR-74)



													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (veh/h)	0	881	3	2	668	37	0	2	12	49	3	5	
Future Volume (veh/h)	0	881	3	2	668	37	0	2	12	49	3	5	
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach	No			No			No			No			
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	
Adj Flow Rate, veh/h	0	908	3	2	689	38	0	2	0	51	3	0	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2	
Cap, veh/h	141	1105	4	267	1041	57	0	366		399	20		
Arrive On Green	0.00	0.59	0.59	0.59	0.59	0.59	0.00	0.20	0.00	0.20	0.20	0.00	
Sat Flow, veh/h	728	1863	6	613	1756	97	0	1870	1585	1339	101	1585	
Grp Volume(v), veh/h	0	0	911	2	0	727	0	2	0	54	0	0	
Grp Sat Flow(s),veh/h/ln	728	0	1869	613	0	1853	0	1870	1585	1440	0	1585	
Q Serve(g_s), s	0.0	0.0	19.8	0.1	0.0	13.4	0.0	0.0	0.0	1.5	0.0	0.0	
Cycle Q Clear(g_c), s	0.0	0.0	19.8	19.9	0.0	13.4	0.0	0.0	0.0	1.6	0.0	0.0	
Prop In Lane	1.00		0.00	1.00		0.05	0.00		1.00	0.94		1.00	
Lane Grp Cap(c), veh/h	141	0	1108	267	0	1099	0	366		419	0		
V/C Ratio(X)	0.00	0.00	0.82	0.01	0.00	0.66	0.00	0.01		0.13	0.00		
Avail Cap(c_a), veh/h	957	0	3204	954	0	3176	0	820		744	0		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	
Uniform Delay (d), s/veh	0.0	0.0	8.3	16.2	0.0	7.0	0.0	16.5	0.0	17.1	0.0	0.0	
Incr Delay (d2), s/veh	0.0	0.0	1.6	0.0	0.0	0.7	0.0	0.0	0.0	0.1	0.0	0.0	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	0.0	0.0	4.8	0.0	0.0	3.1	0.0	0.0	0.0	0.5	0.0	0.0	
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	0.0	0.0	9.8	16.2	0.0	7.7	0.0	16.6	0.0	17.3	0.0	0.0	
LnGrp LOS	A	A	A	B	A	A	A	B		B	A		
Approach Vol, veh/h	911		729			2		A		54			A
Approach Delay, s/veh	9.8		7.7			16.6				17.3			
Approach LOS	A		A			B				B			
Timer - Assigned Phs	2		4		6		8						
Phs Duration (G+Y+Rc), s	15.4		35.7		15.4		35.7						
Change Period (Y+Rc), s	* 5.4		5.4		5.4		5.4						
Max Green Setting (Gmax), s	* 22		87.6		21.6		87.6						
Max Q Clear Time (g_c+I1), s	2.0		21.8		3.6		21.9						
Green Ext Time (p_c), s	0.0		8.5		0.2		5.8						
Intersection Summary													
HCM 6th Ctrl Delay			9.2										
HCM 6th LOS			A										
Notes													
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.													
Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.													

Intersection	
Intersection Delay, s/veh	18
Intersection LOS	C

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	430	34	116	202	39	103
Future Vol, veh/h	430	34	116	202	39	103
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	494	39	133	232	45	118
Number of Lanes	1	0	1	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	2	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	2
HCM Control Delay	24.9	11.2	10.4
HCM LOS	C	B	B

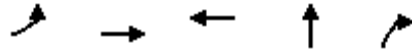
Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2
Vol Left, %	100%	0%	0%	100%	0%
Vol Thru, %	0%	0%	93%	0%	100%
Vol Right, %	0%	100%	7%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	39	103	464	116	202
LT Vol	39	0	0	116	0
Through Vol	0	0	430	0	202
RT Vol	0	103	34	0	0
Lane Flow Rate	45	118	533	133	232
Geometry Grp	7	7	4	7	7
Degree of Util (X)	0.091	0.199	0.786	0.227	0.363
Departure Headway (Hd)	7.286	6.064	5.307	6.138	5.632
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	492	592	688	587	641
Service Time	5.024	3.802	3.307	3.864	3.357
HCM Lane V/C Ratio	0.091	0.199	0.775	0.227	0.362
HCM Control Delay	10.8	10.3	24.9	10.7	11.5
HCM Lane LOS	B	B	C	B	B
HCM 95th-tile Q	0.3	0.7	7.7	0.9	1.7

Timings

S. Nichols Mixed-Use Development (JN 10878)

10: I-15 NB Ramps & Nichols Rd.

06/28/2018



Lane Group	EBL	EBT	WBT	NBT	NBR
Lane Configurations					
Traffic Volume (vph)	79	355	191	3	125
Future Volume (vph)	79	355	191	3	125
Turn Type	Prot	NA	NA	NA	Perm
Protected Phases	7	4	8	2	
Permitted Phases					2
Detector Phase	7	4	8	2	2
Switch Phase					
Minimum Initial (s)	5.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	22.8	22.8	22.8	22.8
Total Split (s)	21.0	77.0	56.0	53.8	53.8
Total Split (%)	16.1%	58.9%	42.8%	41.1%	41.1%
Yellow Time (s)	3.6	4.8	4.8	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	5.8	5.8	5.8
Lead/Lag	Lead		Lag		
Lead-Lag Optimize?	Yes		Yes		
Recall Mode	None	None	None	Min	Min
Act Effect Green (s)	11.8	45.6	28.8	18.0	18.0
Actuated g/C Ratio	0.16	0.60	0.38	0.24	0.24
v/c Ratio	0.48	0.53	0.79	0.60	0.40
Control Delay	40.5	11.2	30.3	34.9	7.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	40.5	11.2	30.3	34.9	7.2
LOS	D	B	C	C	A
Approach Delay		16.6	30.3	22.4	
Approach LOS		B	C	C	

Intersection Summary

Cycle Length: 130.8

Actuated Cycle Length: 76

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.79

Intersection Signal Delay: 22.3

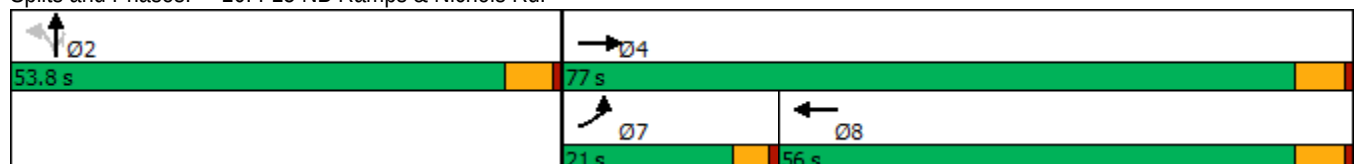
Intersection LOS: C

Intersection Capacity Utilization 46.9%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 10: I-15 NB Ramps & Nichols Rd.



HCM 6th Signalized Intersection Summary
10: I-15 NB Ramps & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

06/28/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	79	355	0	0	191	123	149	3	125	0	0	0
Future Volume (veh/h)	79	355	0	0	191	123	149	3	125	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1826	1826	0	0	1737	1737	1811	1900	1811			
Adj Flow Rate, veh/h	127	573	0	0	308	198	240	5	202			
Peak Hour Factor	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62			
Percent Heavy Veh, %	5	5	0	0	11	11	6	0	6			
Cap, veh/h	166	1039	0	0	379	244	363	8	307			
Arrive On Green	0.10	0.57	0.00	0.00	0.38	0.38	0.20	0.20	0.20			
Sat Flow, veh/h	1739	1826	0	0	988	635	1774	37	1501			
Grp Volume(v), veh/h	127	573	0	0	0	506	245	0	202			
Grp Sat Flow(s),veh/h/ln	1739	1826	0	0	0	1623	1811	0	1501			
Q Serve(g_s), s	3.6	10.1	0.0	0.0	0.0	14.3	6.4	0.0	6.3			
Cycle Q Clear(g_c), s	3.6	10.1	0.0	0.0	0.0	14.3	6.4	0.0	6.3			
Prop In Lane	1.00		0.00	0.00		0.39	0.98		1.00			
Lane Grp Cap(c), veh/h	166	1039	0	0	0	623	370	0	307			
V/C Ratio(X)	0.76	0.55	0.00	0.00	0.00	0.81	0.66	0.00	0.66			
Avail Cap(c_a), veh/h	557	2539	0	0	0	1591	1698	0	1407			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	0.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	22.6	6.9	0.0	0.0	0.0	14.1	18.7	0.0	18.7			
Incr Delay (d2), s/veh	7.1	0.5	0.0	0.0	0.0	2.6	2.0	0.0	2.4			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.6	2.3	0.0	0.0	0.0	4.3	2.4	0.0	2.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.7	7.4	0.0	0.0	0.0	16.7	20.8	0.0	21.1			
LnGrp LOS	C	A	A	A	A	B	C	A	C			
Approach Vol, veh/h	700			506			447					
Approach Delay, s/veh	11.4			16.7			20.9					
Approach LOS	B			B			C					
Timer - Assigned Phs	2			4			7			8		
Phs Duration (G+Y+Rc), s	16.3			34.9			9.5			25.5		
Change Period (Y+Rc), s	5.8			5.8			4.6			5.8		
Max Green Setting (Gmax), s	48.0			71.2			16.4			50.2		
Max Q Clear Time (g_c+l1), s	8.4			12.1			5.6			16.3		
Green Ext Time (p_c), s	2.1			3.8			0.2			3.4		
Intersection Summary												
HCM 6th Ctrl Delay	15.6											
HCM 6th LOS	B											

Intersection	
Intersection Delay, s/veh	61
Intersection LOS	F

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	176	24	199	69	19	452
Future Vol, veh/h	176	24	199	69	19	452
Peak Hour Factor	0.66	0.66	0.66	0.66	0.66	0.66
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	267	36	302	105	29	685
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	18.8	20.3	102.1
HCM LOS	C	C	F

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	88%	4%
Vol Thru, %	74%	0%	96%
Vol Right, %	26%	12%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	268	200	471
LT Vol	0	176	19
Through Vol	199	0	452
RT Vol	69	24	0
Lane Flow Rate	406	303	714
Geometry Grp	1	1	1
Degree of Util (X)	0.662	0.566	1.137
Departure Headway (Hd)	6.114	7.041	5.736
Convergence, Y/N	Yes	Yes	Yes
Cap	597	515	635
Service Time	4.114	5.041	3.77
HCM Lane V/C Ratio	0.68	0.588	1.124
HCM Control Delay	20.3	18.8	102.1
HCM Lane LOS	C	C	F
HCM 95th-tile Q	4.9	3.5	22.5

Intersection

Intersection Delay, s/veh	16
Intersection LOS	C

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	176	24	199	69	19	452
Future Vol, veh/h	176	24	199	69	19	452
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	191	26	216	75	21	491
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	12.5	11.9	19.8
HCM LOS	B	B	C

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	88%	4%
Vol Thru, %	74%	0%	96%
Vol Right, %	26%	12%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	268	200	471
LT Vol	0	176	19
Through Vol	199	0	452
RT Vol	69	24	0
Lane Flow Rate	291	217	512
Geometry Grp	1	1	1
Degree of Util (X)	0.418	0.363	0.717
Departure Headway (Hd)	5.166	6.013	5.042
Convergence, Y/N	Yes	Yes	Yes
Cap	696	598	717
Service Time	3.202	4.052	3.071
HCM Lane V/C Ratio	0.418	0.363	0.714
HCM Control Delay	11.9	12.5	19.8
HCM Lane LOS	B	B	C
HCM 95th-tile Q	2.1	1.7	6.1

Intersection	
Intersection Delay, s/veh	83.7
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	↕
Traffic Vol, veh/h	137	0	279	6	0	16	176	115	6	8	378	242
Future Vol, veh/h	137	0	279	6	0	16	176	115	6	8	378	242
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	199	0	404	9	0	23	255	167	9	12	548	351
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	1	1
HCM Control Delay	103.8	13.4	47.7	89.9
HCM LOS	F	B	E	F

Lane	NBLn1	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	59%	33%	27%	2%	0%
Vol Thru, %	39%	0%	0%	98%	0%
Vol Right, %	2%	67%	73%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	297	416	22	386	242
LT Vol	176	137	6	8	0
Through Vol	115	0	0	378	0
RT Vol	6	279	16	0	242
Lane Flow Rate	430	603	32	559	351
Geometry Grp	5	2	2	7	7
Degree of Util (X)	0.888	1.125	0.079	1.187	0.675
Departure Headway (Hd)	8.002	6.958	9.625	8.138	7.403
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	456	525	375	453	491
Service Time	6.002	4.958	7.625	5.838	5.103
HCM Lane V/C Ratio	0.943	1.149	0.085	1.234	0.715
HCM Control Delay	47.7	103.8	13.4	131.1	24.1
HCM Lane LOS	E	F	B	F	C
HCM 95th-tile Q	9.5	19.4	0.3	20.1	5

Intersection

Intersection Delay, s/veh	24.4
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	↕
Traffic Vol, veh/h	137	0	279	6	0	16	176	115	6	8	378	242
Future Vol, veh/h	137	0	279	6	0	16	176	115	6	8	378	242
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	149	0	303	7	0	17	191	125	7	9	411	263
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	1	1
HCM Control Delay	28.2	11.1	20	24.5
HCM LOS	D	B	C	C

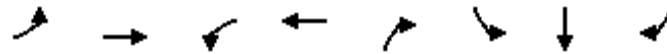
Lane	NBLn1	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	59%	33%	27%	2%	0%
Vol Thru, %	39%	0%	0%	98%	0%
Vol Right, %	2%	67%	73%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	297	416	22	386	242
LT Vol	176	137	6	8	0
Through Vol	115	0	0	378	0
RT Vol	6	279	16	0	242
Lane Flow Rate	323	452	24	420	263
Geometry Grp	5	2	2	7	7
Degree of Util (X)	0.61	0.784	0.05	0.795	0.445
Departure Headway (Hd)	6.807	6.239	7.593	6.818	6.092
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	529	583	470	529	589
Service Time	4.86	4.239	5.671	4.57	3.843
HCM Lane V/C Ratio	0.611	0.775	0.051	0.794	0.447
HCM Control Delay	20	28.2	11.1	31.2	13.7
HCM Lane LOS	C	D	B	D	B
HCM 95th-tile Q	4.1	7.4	0.2	7.5	2.3

Timings

S. Nichols Mixed-Use Development (JN 10878)

5: Strickland Av./Gunnerson St. & Riverside Dr. (SR-74)

05/24/2018



Lane Group	EBL	EBT	WBL	WBT	NBR	SBL	SBT	SBR
Lane Configurations								
Traffic Volume (vph)	2	895	6	913	6	30	1	2
Future Volume (vph)	2	895	6	913	6	30	1	2
Turn Type	Perm	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		8			6	
Permitted Phases	4		8		2	6		6
Detector Phase	4	4	8	8	2	6	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	22.4	22.4	22.4	22.4	21.6	22.4	22.4	22.4
Total Split (s)	93.0	93.0	93.0	93.0	27.0	27.0	27.0	27.0
Total Split (%)	77.5%	77.5%	77.5%	77.5%	22.5%	22.5%	22.5%	22.5%
Yellow Time (s)	4.4	4.4	4.4	4.4	3.6	4.4	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.4	5.4	5.4	5.4	4.6		5.4	5.4
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	Min	Min	Min	Min
Act Effect Green (s)	46.2	46.2	46.2	46.2	12.6		11.8	11.8
Actuated g/C Ratio	0.66	0.66	0.66	0.66	0.18		0.17	0.17
v/c Ratio	0.01	0.75	0.03	0.88	0.01		0.14	0.01
Control Delay	3.5	11.7	3.7	18.0	0.0		33.8	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay	3.5	11.7	3.7	18.0	0.0		33.8	0.0
LOS	A	B	A	B	A		C	A
Approach Delay		11.6		17.9			31.8	
Approach LOS		B		B			C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 69.7

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 15.2

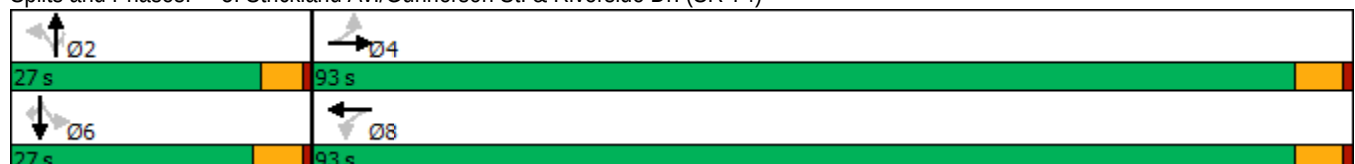
Intersection LOS: B

Intersection Capacity Utilization 76.8%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 5: Strickland Av./Gunnerson St. & Riverside Dr. (SR-74)



												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	895	4	6	913	122	0	0	6	30	1	2
Future Volume (veh/h)	2	895	4	6	913	122	0	0	6	30	1	2
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	2	923	4	6	941	126	0	0	0	31	1	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	230	1257	5	327	1091	146	0	292		325	9	
Arrive On Green	0.68	0.68	0.68	0.68	0.68	0.68	0.00	0.00	0.00	0.16	0.16	0.00
Sat Flow, veh/h	529	1861	8	603	1615	216	0	1870	1585	1375	56	1585
Grp Volume(v), veh/h	2	0	927	6	0	1067	0	0	0	32	0	0
Grp Sat Flow(s),veh/h/ln	529	0	1869	603	0	1831	0	1870	1585	1431	0	1585
Q Serve(g_s), s	0.2	0.0	20.5	0.4	0.0	29.0	0.0	0.0	0.0	1.2	0.0	0.0
Cycle Q Clear(g_c), s	29.2	0.0	20.5	20.9	0.0	29.0	0.0	0.0	0.0	1.2	0.0	0.0
Prop In Lane	1.00		0.00	1.00		0.12	0.00		1.00	0.97		1.00
Lane Grp Cap(c), veh/h	230	0	1262	327	0	1237	0	292		334	0	
V/C Ratio(X)	0.01	0.00	0.73	0.02	0.00	0.86	0.00	0.00		0.10	0.00	
Avail Cap(c_a), veh/h	596	0	2554	744	0	2503	0	654		592	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	19.4	0.0	6.7	13.4	0.0	8.1	0.0	0.0	0.0	23.3	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.8	0.0	0.0	1.9	0.0	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	4.8	0.1	0.0	7.0	0.0	0.0	0.0	0.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.5	0.0	7.5	13.4	0.0	10.0	0.0	0.0	0.0	23.5	0.0	0.0
LnGrp LOS	B	A	A	B	A	A	A	A		C	A	
Approach Vol, veh/h	929				1073				0			
Approach Delay, s/veh	7.6				10.0				0.0			
Approach LOS	A				B				C			
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	15.4			48.7			15.4			48.7		
Change Period (Y+Rc), s	* 5.4			5.4			5.4			5.4		
Max Green Setting (Gmax), s	* 22			87.6			21.6			87.6		
Max Q Clear Time (g_c+I1), s	0.0			31.2			3.2			31.0		
Green Ext Time (p_c), s	0.0			8.8			0.1			12.3		

Intersection Summary

HCM 6th Ctrl Delay 9.1

HCM 6th LOS A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Intersection Delay, s/veh	16.5
Intersection LOS	C

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	205	57	247	268	83	289
Future Vol, veh/h	205	57	247	268	83	289
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	236	66	284	308	95	332
Number of Lanes	1	0	1	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	2	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	2
HCM Control Delay	16.3	17	15.8
HCM LOS	C	C	C

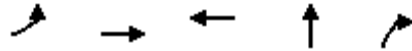
Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2
Vol Left, %	100%	0%	0%	100%	0%
Vol Thru, %	0%	0%	78%	0%	100%
Vol Right, %	0%	100%	22%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	83	289	262	247	268
LT Vol	83	0	0	247	0
Through Vol	0	0	205	0	268
RT Vol	0	289	57	0	0
Lane Flow Rate	95	332	301	284	308
Geometry Grp	7	7	4	7	7
Degree of Util (X)	0.196	0.571	0.529	0.541	0.544
Departure Headway (Hd)	7.414	6.192	6.324	6.865	6.357
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	483	581	569	525	567
Service Time	5.177	3.955	4.383	4.626	4.117
HCM Lane V/C Ratio	0.197	0.571	0.529	0.541	0.543
HCM Control Delay	12	16.9	16.3	17.5	16.5
HCM Lane LOS	B	C	C	C	C
HCM 95th-tile Q	0.7	3.6	3.1	3.2	3.2

Timings

S. Nichols Mixed-Use Development (JN 10878)

10: I-15 NB Ramps & Nichols Rd.

06/28/2018



Lane Group	EBL	EBT	WBT	NBT	NBR
Lane Configurations					
Traffic Volume (vph)	149	246	154	1	64
Future Volume (vph)	149	246	154	1	64
Turn Type	Prot	NA	NA	NA	Perm
Protected Phases	7	4	8	2	
Permitted Phases					2
Detector Phase	7	4	8	2	2
Switch Phase					
Minimum Initial (s)	5.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	22.8	22.8	22.8	22.8
Total Split (s)	21.0	77.0	56.0	53.8	53.8
Total Split (%)	16.1%	58.9%	42.8%	41.1%	41.1%
Yellow Time (s)	3.6	4.8	4.8	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	5.8	5.8	5.8
Lead/Lag	Lead		Lag		
Lead-Lag Optimize?	Yes		Yes		
Recall Mode	None	None	None	Min	Min
Act Effect Green (s)	17.1	45.1	23.3	26.7	26.7
Actuated g/C Ratio	0.20	0.54	0.28	0.32	0.32
v/c Ratio	0.69	0.41	0.73	0.78	0.19
Control Delay	47.0	14.2	36.6	37.4	5.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	47.0	14.2	36.6	37.4	5.6
LOS	D	B	D	D	A
Approach Delay		26.6	36.6	31.3	
Approach LOS		C	D	C	

Intersection Summary

Cycle Length: 130.8

Actuated Cycle Length: 83.9

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 30.5

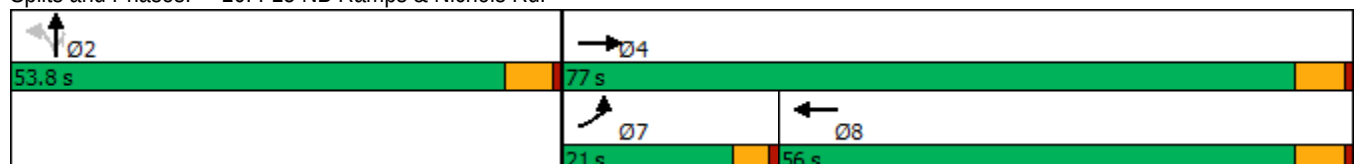
Intersection LOS: C

Intersection Capacity Utilization 48.4%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 10: I-15 NB Ramps & Nichols Rd.



HCM 6th Signalized Intersection Summary
10: I-15 NB Ramps & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

06/28/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	149	246	0	0	154	60	267	1	64	0	0	0
Future Volume (veh/h)	149	246	0	0	154	60	267	1	64	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1826	1826	0	0	1737	1737	1811	1900	1811			
Adj Flow Rate, veh/h	240	397	0	0	248	97	431	2	103			
Peak Hour Factor	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62			
Percent Heavy Veh, %	5	5	0	0	11	11	6	0	6			
Cap, veh/h	294	925	0	0	311	122	544	3	454			
Arrive On Green	0.17	0.51	0.00	0.00	0.26	0.26	0.30	0.30	0.30			
Sat Flow, veh/h	1739	1826	0	0	1188	465	1802	8	1502			
Grp Volume(v), veh/h	240	397	0	0	0	345	433	0	103			
Grp Sat Flow(s),veh/h/ln	1739	1826	0	0	0	1653	1810	0	1502			
Q Serve(g_s), s	8.1	8.3	0.0	0.0	0.0	11.8	13.3	0.0	3.1			
Cycle Q Clear(g_c), s	8.1	8.3	0.0	0.0	0.0	11.8	13.3	0.0	3.1			
Prop In Lane	1.00		0.00	0.00		0.28	1.00		1.00			
Lane Grp Cap(c), veh/h	294	925	0	0	0	433	547	0	454			
V/C Ratio(X)	0.82	0.43	0.00	0.00	0.00	0.80	0.79	0.00	0.23			
Avail Cap(c_a), veh/h	471	2145	0	0	0	1369	1433	0	1190			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	0.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	24.3	9.4	0.0	0.0	0.0	20.9	19.4	0.0	15.8			
Incr Delay (d2), s/veh	5.9	0.3	0.0	0.0	0.0	3.4	2.6	0.0	0.3			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	3.4	2.5	0.0	0.0	0.0	4.3	5.0	0.0	0.9			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.2	9.7	0.0	0.0	0.0	24.3	22.0	0.0	16.1			
LnGrp LOS	C	A	A	A	A	C	C	A	B			
Approach Vol, veh/h	637			345			536					
Approach Delay, s/veh	17.5			24.3			20.9					
Approach LOS	B			C			C					
Timer - Assigned Phs	2			4			7			8		
Phs Duration (G+Y+Rc), s	24.1			36.5			14.8			21.7		
Change Period (Y+Rc), s	5.8			5.8			4.6			5.8		
Max Green Setting (Gmax), s	48.0			71.2			16.4			50.2		
Max Q Clear Time (g_c+l1), s	15.3			10.3			10.1			13.8		
Green Ext Time (p_c), s	3.0			2.4			0.3			2.1		
Intersection Summary												
HCM 6th Ctrl Delay	20.2											
HCM 6th LOS	C											

Intersection

Intersection Delay, s/veh	9.7
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	13	18	150	25	51	168
Future Vol, veh/h	13	18	150	25	51	168
Peak Hour Factor	0.66	0.66	0.66	0.66	0.66	0.66
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	20	27	227	38	77	255
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	8.3	9.3	10.3
HCM LOS	A	A	B

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	42%	23%
Vol Thru, %	86%	0%	77%
Vol Right, %	14%	58%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	175	31	219
LT Vol	0	13	51
Through Vol	150	0	168
RT Vol	25	18	0
Lane Flow Rate	265	47	332
Geometry Grp	1	1	1
Degree of Util (X)	0.317	0.065	0.402
Departure Headway (Hd)	4.306	4.953	4.366
Convergence, Y/N	Yes	Yes	Yes
Cap	838	723	826
Service Time	2.322	2.984	2.382
HCM Lane V/C Ratio	0.316	0.065	0.402
HCM Control Delay	9.3	8.3	10.3
HCM Lane LOS	A	A	B
HCM 95th-tile Q	1.4	0.2	2

Intersection

Intersection Delay, s/veh	9.6
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	0	31	5	0	1	14	159	4	6	164	11
Future Vol, veh/h	15	0	31	5	0	1	14	159	4	6	164	11
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	22	0	45	7	0	1	20	230	6	9	238	16
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	1	1
HCM Control Delay	8.3	8.4	9.7	9.9
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	8%	33%	83%	4%	0%
Vol Thru, %	90%	0%	0%	96%	0%
Vol Right, %	2%	67%	17%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	177	46	6	170	11
LT Vol	14	15	5	6	0
Through Vol	159	0	0	164	0
RT Vol	4	31	1	0	11
Lane Flow Rate	257	67	9	246	16
Geometry Grp	5	2	2	7	7
Degree of Util (X)	0.322	0.089	0.013	0.337	0.019
Departure Headway (Hd)	4.517	4.802	5.298	4.925	4.204
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	798	745	674	732	851
Service Time	2.54	2.835	3.34	2.65	1.929
HCM Lane V/C Ratio	0.322	0.09	0.013	0.336	0.019
HCM Control Delay	9.7	8.3	8.4	10.1	7
HCM Lane LOS	A	A	A	B	A
HCM 95th-tile Q	1.4	0.3	0	1.5	0.1

APPENDIX 8.1:

EA (2024) CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

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Timings
1: Lake St. & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

08/02/2018

									
Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBL	SBT	Ø5
Lane Configurations									
Traffic Volume (vph)	17	5	199	6	759	391	19	306	
Future Volume (vph)	17	5	199	6	759	391	19	306	
Turn Type	Perm	NA	Perm	NA	NA	Perm	Prot	NA	
Protected Phases		4		8	2		1	6	5
Permitted Phases	4		8			2			
Detector Phase	4	4	8	8	2	2	1	6	
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	5.0	10.0	5.0
Minimum Split (s)	14.6	14.6	16.2	16.2	16.2	16.2	9.6	16.2	9.6
Total Split (s)	42.2	42.2	42.2	42.2	42.2	42.2	35.6	42.2	35.6
Total Split (%)	35.2%	35.2%	35.2%	35.2%	35.2%	35.2%	29.7%	35.2%	30%
Yellow Time (s)	3.6	3.6	5.2	5.2	5.2	5.2	3.6	5.2	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		4.6		6.2	6.2	6.2	4.6	6.2	
Lead/Lag					Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	Max	Max	None	Max	None
Act Effect Green (s)		20.3		18.6	36.9	36.9	5.7	40.7	
Actuated g/C Ratio		0.28		0.26	0.51	0.51	0.08	0.57	
v/c Ratio		0.06		0.74	0.86	0.48	0.14	0.32	
Control Delay		19.9		37.0	30.3	11.9	38.0	10.3	
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay		19.9		37.0	30.3	11.9	38.0	10.3	
LOS		B		D	C	B	D	B	
Approach Delay		19.9		37.0	24.1			11.9	
Approach LOS		B		D	C			B	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 72

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 23.5

Intersection LOS: C

Intersection Capacity Utilization 65.8%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 1: Lake St. & Nichols Rd.

		
Ø1	Ø2	Ø4
35.6 s	42.2 s	42.2 s
		
Ø5	Ø6	Ø8
35.6 s	42.2 s	42.2 s

HCM 6th Signalized Intersection Summary

1: Lake St. & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

08/02/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	5	0	199	6	43	0	759	391	19	306	5
Future Volume (veh/h)	17	5	0	199	6	43	0	759	391	19	306	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	18	5	0	214	6	34	0	816	0	20	329	5
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	347	86	0	355	7	41	3	973		41	1120	17
Arrive On Green	0.21	0.21	0.00	0.21	0.21	0.21	0.00	0.52	0.00	0.02	0.61	0.61
Sat Flow, veh/h	1201	405	0	1228	34	195	1781	1870	1585	1781	1837	28
Grp Volume(v), veh/h	23	0	0	254	0	0	0	816	0	20	0	334
Grp Sat Flow(s),veh/h/ln	1606	0	0	1458	0	0	1781	1870	1585	1781	0	1865
Q Serve(g_s), s	0.0	0.0	0.0	10.8	0.0	0.0	0.0	25.7	0.0	0.8	0.0	5.9
Cycle Q Clear(g_c), s	0.7	0.0	0.0	11.5	0.0	0.0	0.0	25.7	0.0	0.8	0.0	5.9
Prop In Lane	0.78		0.00	0.84		0.13	1.00		1.00	1.00		0.01
Lane Grp Cap(c), veh/h	432	0	0	404	0	0	3	973		41	0	1137
V/C Ratio(X)	0.05	0.00	0.00	0.63	0.00	0.00	0.00	0.84		0.49	0.00	0.29
Avail Cap(c_a), veh/h	914	0	0	849	0	0	798	973		798	0	1137
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.8	0.0	0.0	26.0	0.0	0.0	0.0	14.1	0.0	33.4	0.0	6.4
Incr Delay (d2), s/veh	0.1	0.0	0.0	1.6	0.0	0.0	0.0	8.6	0.0	3.3	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.0	3.7	0.0	0.0	0.0	10.2	0.0	0.3	0.0	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.8	0.0	0.0	27.6	0.0	0.0	0.0	22.8	0.0	36.7	0.0	7.1
LnGrp LOS	C	A	A	C	A	A	A	C		D	A	A
Approach Vol, veh/h		23			254			816	A		354	
Approach Delay, s/veh		21.8			27.6			22.8			8.8	
Approach LOS		C			C			C			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.2	42.2		20.8	0.0	48.4		20.8				
Change Period (Y+Rc), s	4.6	6.2		* 6.2	4.6	6.2		6.2				
Max Green Setting (Gmax), s	31.0	36.0		* 38	31.0	36.0		36.0				
Max Q Clear Time (g_c+I1), s	2.8	27.7		2.7	0.0	7.9		13.5				
Green Ext Time (p_c), s	0.0	4.2		0.1	0.0	2.6		1.2				
Intersection Summary												
HCM 6th Ctrl Delay				20.2								
HCM 6th LOS				C								
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.												

Timings
2: Lake St. & Alberhill Ranch Rd.

S. Nichols Mixed-Use Development (JN 10878)

08/02/2018

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	64	53	1141	54	20	466
Future Volume (vph)	64	53	1141	54	20	466
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2		
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	15.1	15.1	16.2	16.2	11.2	16.2
Total Split (s)	15.1	15.1	93.7	93.7	11.2	104.9
Total Split (%)	12.6%	12.6%	78.1%	78.1%	9.3%	87.4%
Yellow Time (s)	4.1	4.1	5.2	5.2	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	6.2	6.2	6.2	6.2
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	Max	Max	None	Max
Act Effect Green (s)	10.0	10.0	98.5	98.5	5.0	103.0
Actuated g/C Ratio	0.08	0.08	0.82	0.82	0.04	0.86
v/c Ratio	0.46	0.31	0.79	0.04	0.29	0.31
Control Delay	63.3	18.2	14.1	1.6	66.0	2.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.3	18.2	14.1	1.6	66.0	2.8
LOS	E	B	B	A	E	A
Approach Delay	42.9		13.6			5.4
Approach LOS	D		B			A

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.79

Intersection Signal Delay: 13.3

Intersection LOS: B

Intersection Capacity Utilization 77.8%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 2: Lake St. & Alberhill Ranch Rd.



HCM 6th Signalized Intersection Summary 2: Lake St. & Alberhill Ranch Rd.

S. Nichols Mixed-Use Development (JN 10878)

08/02/2018

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	64	53	1141	54	20	466
Future Volume (veh/h)	64	53	1141	54	20	466
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	68	32	1214	48	21	496
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	144	128	1407	1190	37	1543
Arrive On Green	0.08	0.08	0.75	0.75	0.02	0.82
Sat Flow, veh/h	1781	1585	1870	1582	1781	1870
Grp Volume(v), veh/h	68	32	1214	48	21	496
Grp Sat Flow(s),veh/h/ln	1781	1585	1870	1582	1781	1870
Q Serve(g_s), s	4.4	2.3	54.8	0.9	1.4	7.6
Cycle Q Clear(g_c), s	4.4	2.3	54.8	0.9	1.4	7.6
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	144	128	1407	1190	37	1543
V/C Ratio(X)	0.47	0.25	0.86	0.04	0.56	0.32
Avail Cap(c_a), veh/h	149	132	1407	1190	74	1543
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.6	51.6	10.5	3.8	58.0	2.5
Incr Delay (d2), s/veh	0.9	0.4	7.2	0.1	4.8	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	0.9	18.2	0.2	0.7	1.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	53.5	52.0	17.7	3.9	62.8	3.0
LnGrp LOS	D	D	B	A	E	A
Approach Vol, veh/h	100		1262			517
Approach Delay, s/veh	53.0		17.2			5.5
Approach LOS	D		B			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	8.7	96.2			104.9	14.7
Change Period (Y+Rc), s	6.2	6.2			6.2	5.1
Max Green Setting (Gmax), s	5.0	87.5			98.7	10.0
Max Q Clear Time (g_c+I1), s	3.4	56.8			9.6	6.4
Green Ext Time (p_c), s	0.0	12.6			3.0	0.0
Intersection Summary						
HCM 6th Ctrl Delay			15.9			
HCM 6th LOS			B			

Intersection

Intersection Delay, s/veh12.8

Intersection LOS B

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	404	18	39	204	43	78
Future Vol, veh/h	404	18	39	204	43	78
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	459	20	44	232	49	89
Number of Lanes	1	0	0	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	1
HCM Control Delay	14.9	10.9	9.6
HCM LOS	B	B	A

Lane	NBLn1	NBLn2	EBLn1	WBLn1
Vol Left, %	100%	0%	0%	16%
Vol Thru, %	0%	0%	96%	84%
Vol Right, %	0%	100%	4%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	43	78	422	243
LT Vol	43	0	0	39
Through Vol	0	0	404	204
RT Vol	0	78	18	0
Lane Flow Rate	49	89	480	276
Geometry Grp	7	7	2	2
Degree of Util (X)	0.091	0.136	0.616	0.375
Departure Headway (Hd)	6.73	5.512	4.621	4.89
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	528	643	777	729
Service Time	4.529	3.311	2.675	2.958
HCM Lane V/C Ratio	0.093	0.138	0.618	0.379
HCM Control Delay	10.2	9.2	14.9	10.9
HCM Lane LOS	B	A	B	B
HCM 95th-tile Q	0.3	0.5	4.3	1.7

Timings
4: Lakeshore Dr. & Riverside Dr. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

08/02/2018

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	21	499	159	145	596	380	300	330	224	193	10
Future Volume (vph)	21	499	159	145	596	380	300	330	224	193	10
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2	1	6	
Permitted Phases			4			8					6
Detector Phase	7	4	4	3	8	8	5	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	32.4	32.4	9.6	33.4	33.4	9.6	34.7	9.6	32.7	32.7
Total Split (s)	9.6	38.6	38.6	19.0	48.0	48.0	28.0	38.4	24.0	34.4	34.4
Total Split (%)	8.0%	32.2%	32.2%	15.8%	40.0%	40.0%	23.3%	32.0%	20.0%	28.7%	28.7%
Yellow Time (s)	3.6	4.4	4.4	3.6	4.4	4.4	3.6	3.7	3.6	3.7	3.7
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.4	5.4	4.6	5.4	5.4	4.6	4.7	4.6	4.7	4.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	None	Max	Max
Act Effect Green (s)	5.0	30.6	30.6	13.1	42.7	42.7	23.4	34.8	18.4	29.8	29.8
Actuated g/C Ratio	0.04	0.26	0.26	0.11	0.37	0.37	0.20	0.30	0.16	0.26	0.26
v/c Ratio	0.32	0.60	0.33	0.82	0.98	0.55	0.94	0.49	0.90	0.24	0.02
Control Delay	66.7	40.7	6.6	81.4	67.3	10.2	82.3	33.1	81.7	35.8	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.7	40.7	6.6	81.4	67.3	10.2	82.3	33.1	81.7	35.8	0.1
LOS	E	D	A	F	E	B	F	C	F	D	A
Approach Delay		33.5			49.8			52.7		59.1	
Approach LOS		C			D			D		E	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 116.2

Natural Cycle: 120

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.98

Intersection Signal Delay: 48.1

Intersection LOS: D

Intersection Capacity Utilization 89.0%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 4: Lakeshore Dr. & Riverside Dr. (SR-74)

			
Ø1	Ø2	Ø3	Ø4
24 s	38.4 s	19 s	38.6 s
			
Ø5	Ø6	Ø7	Ø8
28 s	34.4 s	9.6 s	48 s

HCM 6th Signalized Intersection Summary 4: Lakeshore Dr. & Riverside Dr. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

08/02/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	499	159	145	596	380	300	330	123	224	193	10
Future Volume (veh/h)	21	499	159	145	596	380	300	330	123	224	193	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No				No				No			
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	24	561	116	163	670	48	337	371	73	252	217	8
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	41	989	440	190	677	573	354	873	170	279	897	400
Arrive On Green	0.02	0.28	0.28	0.11	0.36	0.36	0.20	0.29	0.29	0.16	0.25	0.25
Sat Flow, veh/h	1781	3554	1582	1781	1870	1584	1781	2964	577	1781	3554	1585
Grp Volume(v), veh/h	24	561	116	163	670	48	337	221	223	252	217	8
Grp Sat Flow(s),veh/h/ln	1781	1777	1582	1781	1870	1584	1781	1777	1764	1781	1777	1585
Q Serve(g_s), s	1.6	15.9	6.7	10.6	41.9	2.3	22.0	11.8	12.0	16.4	5.7	0.4
Cycle Q Clear(g_c), s	1.6	15.9	6.7	10.6	41.9	2.3	22.0	11.8	12.0	16.4	5.7	0.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.33	1.00		1.00
Lane Grp Cap(c), veh/h	41	989	440	190	677	573	354	524	520	279	897	400
V/C Ratio(X)	0.58	0.57	0.26	0.86	0.99	0.08	0.95	0.42	0.43	0.90	0.24	0.02
Avail Cap(c_a), veh/h	76	1002	446	218	677	573	354	524	520	294	897	400
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.9	36.4	33.1	51.7	37.3	24.7	46.6	33.4	33.5	48.8	35.0	33.1
Incr Delay (d2), s/veh	4.8	0.7	0.3	22.6	31.9	0.1	35.0	2.5	2.6	27.6	0.6	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	6.8	2.6	5.8	24.3	0.9	13.1	5.5	5.5	9.4	2.6	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	61.7	37.1	33.4	74.2	69.3	24.8	81.6	35.9	36.1	76.4	35.7	33.2
LnGrp LOS	E	D	C	E	E	C	F	D	D	E	D	C
Approach Vol, veh/h	701				881				781			
Approach Delay, s/veh	37.4				67.8				55.7			
Approach LOS	D				E				E			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	23.0	39.4	17.2	38.2	28.0	34.4	7.3	48.0				
Change Period (Y+Rc), s	4.6	* 4.7	4.6	5.4	4.6	* 4.7	4.6	5.4				
Max Green Setting (Gmax), s	19.4	* 34	14.4	33.2	23.4	* 30	5.0	42.6				
Max Q Clear Time (g_c+I1), s	18.4	14.0	12.6	17.9	24.0	7.7	3.6	43.9				
Green Ext Time (p_c), s	0.0	2.6	0.0	3.5	0.0	1.3	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			55.2									
HCM 6th LOS			E									
Notes												

Intersection

Int Delay, s/veh 5.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕	↕		↕	↕
Traffic Vol, veh/h	0	931	3	2	698	39	0	2	12	52	3	6
Future Vol, veh/h	0	931	3	2	698	39	0	2	12	52	3	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Stop	-	-	Stop
Storage Length	-	-	-	-	-	-	-	-	75	-	-	75
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	960	3	2	720	40	0	2	12	54	3	6

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	760	0	0	963	0	0	1708	1726	962	1707	1707	740
Stage 1	-	-	-	-	-	-	962	962	-	744	744	-
Stage 2	-	-	-	-	-	-	746	764	-	963	963	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	852	-	-	715	-	-	72	89	310	72	91	417
Stage 1	-	-	-	-	-	-	308	334	-	407	421	-
Stage 2	-	-	-	-	-	-	405	413	-	307	334	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	852	-	-	715	-	-	69	89	310	68	91	417
Mov Cap-2 Maneuver	-	-	-	-	-	-	69	89	-	68	91	-
Stage 1	-	-	-	-	-	-	308	334	-	407	419	-
Stage 2	-	-	-	-	-	-	394	411	-	293	334	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	21.3	147.1
HCM LOS			C	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	89	310	852	-	-	715	-	-	69	417
HCM Lane V/C Ratio	0.023	0.04	-	-	-	0.003	-	-	0.822	0.015
HCM Control Delay (s)	46.4	17.1	0	-	-	10.1	0	-	161.6	13.8
HCM Lane LOS	E	C	A	-	-	B	A	-	F	B
HCM 95th %tile Q(veh)	0.1	0.1	0	-	-	0	-	-	3.9	0

Intersection												
Int Delay, s/veh	5.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	931	3	2	698	39	0	2	12	52	3	6
Future Vol, veh/h	0	931	3	2	698	39	0	2	12	52	3	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Stop	-	-	Stop
Storage Length	100	-	-	100	-	-	-	-	75	-	-	75
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	960	3	2	720	40	0	2	12	54	3	6
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	760	0	0	963	0	0	1708	1726	962	1707	1707	740
Stage 1	-	-	-	-	-	-	962	962	-	744	744	-
Stage 2	-	-	-	-	-	-	746	764	-	963	963	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	852	-	-	715	-	-	72	89	310	72	91	417
Stage 1	-	-	-	-	-	-	308	334	-	407	421	-
Stage 2	-	-	-	-	-	-	405	413	-	307	334	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	852	-	-	715	-	-	69	89	310	68	91	417
Mov Cap-2 Maneuver	-	-	-	-	-	-	69	89	-	68	91	-
Stage 1	-	-	-	-	-	-	308	334	-	407	420	-
Stage 2	-	-	-	-	-	-	395	412	-	293	334	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0			21.3			147.1		
HCM LOS							C			F		
Minor Lane/Major Mvmt	NBLn1 NBLn2		EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2		
Capacity (veh/h)	89	310	852	-	-	715	-	-	69	417		
HCM Lane V/C Ratio	0.023	0.04	-	-	-	0.003	-	-	0.822	0.015		
HCM Control Delay (s)	46.4	17.1	0	-	-	10.1	-	-	161.6	13.8		
HCM Lane LOS	E	C	A	-	-	B	-	-	F	B		
HCM 95th %tile Q(veh)	0.1	0.1	0	-	-	0	-	-	3.9	0		

Intersection

Int Delay, s/veh 3.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	454	36	105	207	42	102
Future Vol, veh/h	454	36	105	207	42	102
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	120	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	522	41	121	238	48	117

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	563
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.12
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.218
Pot Cap-1 Maneuver	-	-	1008
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1008
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	3	16.8
HCM LOS			C

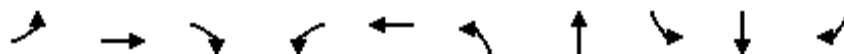
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	230	540	-	-	1008	-
HCM Lane V/C Ratio	0.21	0.217	-	-	0.12	-
HCM Control Delay (s)	24.8	13.5	-	-	9.1	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	0.8	0.8	-	-	0.4	-

Timings

S. Nichols Mixed-Use Development (JN 10878)

7: Collier Av. (SR-74)/Collier Av. & Riverside Dr. (SR-74)/Riverside Dr.

08/02/2018



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations		↰	↱		↰	↱	↰	↱	↰	↱
Traffic Volume (vph)	83	11	901	6	1	688	80	1	59	51
Future Volume (vph)	83	11	901	6	1	688	80	1	59	51
Turn Type	Perm	NA	pm+ov	Perm	NA	Split	NA	Split	NA	Perm
Protected Phases		4	2		8	2	2	6	6	
Permitted Phases	4		4	8						6
Detector Phase	4	4	2	8	8	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	15.4	15.4	15.8	14.6	14.6	15.8	15.8	16.2	16.2	16.2
Total Split (s)	23.0	23.0	79.0	23.0	23.0	79.0	79.0	18.0	18.0	18.0
Total Split (%)	19.2%	19.2%	65.8%	19.2%	19.2%	65.8%	65.8%	15.0%	15.0%	15.0%
Yellow Time (s)	4.4	4.4	4.8	3.6	3.6	4.8	4.8	5.2	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.4	5.8		4.6	5.8	5.8	6.2	6.2	6.2
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	None	None	Max	None	None	Max	Max	Max	Max	Max
Act Effect Green (s)		13.6	92.2		14.4	73.2	73.2	11.8	11.8	11.8
Actuated g/C Ratio		0.12	0.79		0.12	0.63	0.63	0.10	0.10	0.10
v/c Ratio		0.61	0.70		0.05	0.65	0.08	0.01	0.33	0.24
Control Delay		65.0	5.3		39.8	17.3	8.1	49.0	54.6	8.2
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		65.0	5.3		39.8	17.3	8.1	49.0	54.6	8.2
LOS		E	A		D	B	A	D	D	A
Approach Delay		11.0			39.8		16.2		33.1	
Approach LOS		B			D		B		C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 116

Natural Cycle: 70

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.70

Intersection Signal Delay: 14.6

Intersection LOS: B

Intersection Capacity Utilization 86.3%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 7: Collier Av. (SR-74)/Collier Av. & Riverside Dr. (SR-74)/Riverside Dr.

↰ Ø2	↰ Ø6	↰ Ø4
79 s	18 s	23 s
		↰ Ø8
		23 s

HCM 6th Signalized Intersection Summary S. Nichols Mixed-Use Development (JN 10878)
 7: Collier Av. (SR-74)/Collier Av. & Riverside Dr. (SR-74)/Riverside Dr. 08/02/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	83	11	901	6	1	2	688	80	11	1	59	51
Future Volume (veh/h)	83	11	901	6	1	2	688	80	11	1	59	51
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	87	12	882	6	1	0	724	84	11	1	62	14
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	252	31	1199	111	14	0	1087	988	129	175	184	156
Arrive On Green	0.15	0.15	0.15	0.15	0.15	0.00	0.61	0.61	0.61	0.10	0.10	0.10
Sat Flow, veh/h	1332	213	1585	376	98	0	1781	1620	212	1781	1870	1585
Grp Volume(v), veh/h	99	0	882	7	0	0	724	0	95	1	62	14
Grp Sat Flow(s),veh/h/ln	1545	0	1585	474	0	0	1781	0	1832	1781	1870	1585
Q Serve(g_s), s	0.0	0.0	17.6	0.2	0.0	0.0	32.0	0.0	2.6	0.1	3.7	1.0
Cycle Q Clear(g_c), s	6.4	0.0	17.6	6.6	0.0	0.0	32.0	0.0	2.6	0.1	3.7	1.0
Prop In Lane	0.88		1.00	0.86		0.00	1.00		0.12	1.00		1.00
Lane Grp Cap(c), veh/h	283	0	1199	125	0	0	1087	0	1118	175	184	156
V/C Ratio(X)	0.35	0.00	0.74	0.06	0.00	0.00	0.67	0.00	0.09	0.01	0.34	0.09
Avail Cap(c_a), veh/h	283	0	1199	130	0	0	1087	0	1118	175	184	156
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.4	0.0	5.7	44.7	0.0	0.0	15.4	0.0	9.6	48.8	50.5	49.2
Incr Delay (d2), s/veh	0.7	0.0	2.4	0.2	0.0	0.0	3.2	0.0	0.1	0.1	4.9	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	0.0	27.2	0.2	0.0	0.0	12.5	0.0	1.0	0.0	1.9	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.1	0.0	8.1	44.9	0.0	0.0	18.6	0.0	9.8	48.9	55.3	50.4
LnGrp LOS	D	A	A	D	A	A	B	A	A	D	E	D
Approach Vol, veh/h		981			7			819			77	
Approach Delay, s/veh		12.0			44.9			17.6			54.4	
Approach LOS		B			D			B			D	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		79.0		23.0		18.0		23.0				
Change Period (Y+Rc), s		5.8		5.4		6.2		* 5.4				
Max Green Setting (Gmax), s		73.2		17.6		11.8		* 18				
Max Q Clear Time (g_c+I1), s		34.0		19.6		5.7		8.6				
Green Ext Time (p_c), s		3.2		0.0		0.1		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			16.3									
HCM 6th LOS			B									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Timings

S. Nichols Mixed-Use Development (JN 10878)

8: Collier Av./Collier Av. (SR-74) & Central Av./Central Av. (SR-74)

08/02/2018

											
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	37	98	562	310	666	33	60	309	853	64	12
Future Volume (vph)	37	98	562	310	666	33	60	309	853	64	12
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	7	4	3	8	1	5	2	3	1	6	
Permitted Phases					8			2			6
Detector Phase	7	4	3	8	1	5	2	3	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	5.0	10.0	5.0	5.0	10.0	10.0
Minimum Split (s)	9.6	14.7	9.6	42.8	9.6	9.6	15.8	9.6	9.6	29.8	29.8
Total Split (s)	10.0	21.0	34.0	45.0	46.0	12.0	19.0	34.0	46.0	53.0	53.0
Total Split (%)	8.3%	17.5%	28.3%	37.5%	38.3%	10.0%	15.8%	28.3%	38.3%	44.2%	44.2%
Yellow Time (s)	3.6	3.7	3.6	4.8	3.6	3.6	4.8	3.6	3.6	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.7	4.6	5.8	4.6	4.6	5.8	4.6	4.6	5.8	5.8
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	None	None	Max	Max
Act Effect Green (s)	5.3	10.8	21.9	30.7	63.6	6.3	18.0	41.1	31.7	47.8	47.8
Actuated g/C Ratio	0.05	0.11	0.21	0.30	0.62	0.06	0.18	0.40	0.31	0.47	0.47
v/c Ratio	0.22	0.36	0.82	0.59	0.36	0.32	0.20	0.46	0.85	0.04	0.02
Control Delay	53.8	37.4	48.6	37.4	1.0	57.9	43.2	14.1	42.1	18.4	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.8	37.4	48.6	37.4	1.0	57.9	43.2	14.1	42.1	18.4	0.0
LOS	D	D	D	D	A	E	D	B	D	B	A
Approach Delay		41.0		25.7			22.1			39.9	
Approach LOS		D		C			C			D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 102.3

Natural Cycle: 95

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.85

Intersection Signal Delay: 30.4

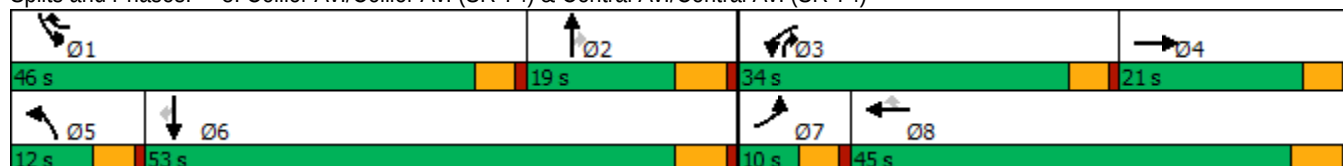
Intersection LOS: C

Intersection Capacity Utilization 68.0%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 8: Collier Av./Collier Av. (SR-74) & Central Av./Central Av. (SR-74)



HCM 6th Signalized Intersection Summary S. Nichols Mixed-Use Development (JN 10878)
 8: Collier Av./Collier Av. (SR-74) & Central Av./Central Av. (SR-74) 08/02/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	37	98	33	562	310	666	33	60	309	853	64	12
Future Volume (veh/h)	37	98	33	562	310	666	33	60	309	853	64	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	39	104	26	598	330	314	35	64	165	907	68	10
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	114	280	68	681	492	1523	55	391	639	999	1660	730
Arrive On Green	0.03	0.10	0.10	0.20	0.26	0.26	0.03	0.21	0.21	0.29	0.47	0.47
Sat Flow, veh/h	3456	2828	683	3456	1870	2725	1781	1870	1563	3456	3554	1562
Grp Volume(v), veh/h	39	64	66	598	330	314	35	64	165	907	68	10
Grp Sat Flow(s),veh/h/ln	1728	1777	1734	1728	1870	1362	1781	1870	1563	1728	1777	1562
Q Serve(g_s), s	1.1	3.4	3.6	17.0	16.0	5.9	2.0	2.8	7.1	25.6	1.1	0.3
Cycle Q Clear(g_c), s	1.1	3.4	3.6	17.0	16.0	5.9	2.0	2.8	7.1	25.6	1.1	0.3
Prop In Lane	1.00		0.39	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	114	176	172	681	492	1523	55	391	639	999	1660	730
V/C Ratio(X)	0.34	0.36	0.38	0.88	0.67	0.21	0.63	0.16	0.26	0.91	0.04	0.01
Avail Cap(c_a), veh/h	185	287	280	1006	726	1864	130	391	639	1416	1660	730
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.8	42.5	42.6	39.4	33.3	11.5	48.4	32.7	19.9	34.6	14.6	14.4
Incr Delay (d2), s/veh	0.7	1.3	1.4	4.5	1.6	0.1	4.4	0.9	1.0	5.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	1.5	1.6	7.3	7.1	1.6	0.9	1.3	2.6	10.8	0.4	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.4	43.8	44.0	43.9	34.9	11.5	52.8	33.6	20.9	39.9	14.7	14.5
LnGrp LOS	D	D	D	D	C	B	D	C	C	D	B	B
Approach Vol, veh/h		169			1242			264			985	
Approach Delay, s/veh		45.0			33.3			28.2			37.9	
Approach LOS		D			C			C			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	33.8	26.9	24.5	15.8	7.7	53.0	7.9	32.4				
Change Period (Y+Rc), s	4.6	5.8	4.6	* 5.8	4.6	5.8	4.6	5.8				
Max Green Setting (Gmax), s	41.4	13.2	29.4	* 16	7.4	47.2	5.4	39.2				
Max Q Clear Time (g_c+I1), s	27.6	9.1	19.0	5.6	4.0	3.1	3.1	18.0				
Green Ext Time (p_c), s	1.6	0.3	0.9	0.4	0.0	0.4	0.0	3.0				
Intersection Summary												
HCM 6th Ctrl Delay			35.3									
HCM 6th LOS			D									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Intersection

Intersection Delay, s/veh19.1

Intersection LOS C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗	↖	↑						↕	
Traffic Vol, veh/h	0	257	301	63	242	0	0	0	0	185	7	70
Future Vol, veh/h	0	257	301	63	242	0	0	0	0	185	7	70
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles, %	0	3	3	25	3	0	0	0	0	8	67	13
Mvmt Flow	0	343	401	84	323	0	0	0	0	247	9	93
Number of Lanes	0	1	1	1	1	0	0	0	0	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	2
HCM Control Delay	18.9	18.3	20.5
HCM LOS	C	C	C

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	100%	0%	71%
Vol Thru, %	100%	0%	0%	100%	3%
Vol Right, %	0%	100%	0%	0%	27%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	257	301	63	242	262
LT Vol	0	0	63	0	185
Through Vol	257	0	0	242	7
RT Vol	0	301	0	0	70
Lane Flow Rate	343	401	84	323	349
Geometry Grp	7	7	7	7	2
Degree of Util (X)	0.618	0.644	0.18	0.612	0.636
Departure Headway (Hd)	6.49	5.775	7.723	6.828	6.55
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	552	622	462	526	548
Service Time	4.269	3.554	5.51	4.614	4.614
HCM Lane V/C Ratio	0.621	0.645	0.182	0.614	0.637
HCM Control Delay	19.3	18.5	12.2	19.9	20.5
HCM Lane LOS	C	C	B	C	C
HCM 95th-tile Q	4.2	4.6	0.6	4.1	4.4

Intersection												
Int Delay, s/veh	114.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	83	358	0	0	148	100	158	3	122	0	0	0
Future Vol, veh/h	83	358	0	0	148	100	158	3	122	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	230	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	62	62	62	62	62	62	62	62	62	62	62	62
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	134	577	0	0	239	161	255	5	197	0	0	0
Major/Minor	Major1		Major2		Minor1							
Conflicting Flow All	400	0	-	-	-	0	1165	1245	577			
Stage 1	-	-	-	-	-	-	845	845	-			
Stage 2	-	-	-	-	-	-	320	400	-			
Critical Hdwy	4.15	-	-	-	-	-	6.44	6.5	6.26			
Critical Hdwy Stg 1	-	-	-	-	-	-	5.44	5.5	-			
Critical Hdwy Stg 2	-	-	-	-	-	-	5.44	5.5	-			
Follow-up Hdwy	2.245	-	-	-	-	-	3.536	4	3.354			
Pot Cap-1 Maneuver	1143	-	0	0	-	-	~ 213	176	509			
Stage 1	-	-	0	0	-	-	418	382	-			
Stage 2	-	-	0	0	-	-	732	605	-			
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	1143	-	-	-	-	-	~ 188	0	509			
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 188	0	-			
Stage 1	-	-	-	-	-	-	369	0	-			
Stage 2	-	-	-	-	-	-	732	0	-			
Approach	EB		WB		NB							
HCM Control Delay, s	1.6		0		\$ 391.5							
HCM LOS	F											
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR							
Capacity (veh/h)	259	1143	-	-	-							
HCM Lane V/C Ratio	1.762	0.117	-	-	-							
HCM Control Delay (s)	\$ 391.5	8.6	-	-	-							
HCM Lane LOS	F	A	-	-	-							
HCM 95th %tile Q(veh)	30.3	0.4	-	-	-							
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s			+: Computation Not Defined				*: All major volume in platoon			

Intersection	
Intersection Delay, s/veh	56.3
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	83	358	0	0	148	100	158	3	122	0	0	0
Future Vol, veh/h	83	358	0	0	148	100	158	3	122	0	0	0
Peak Hour Factor	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	134	577	0	0	239	161	255	5	197	0	0	0
Number of Lanes	1	1	0	0	1	0	0	1	0	0	0	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	86.4	26.8	35.3
HCM LOS	F	D	E

Lane	NBLn1	EBLn1	EBLn2	WBLn1
Vol Left, %	56%	100%	0%	0%
Vol Thru, %	1%	0%	100%	60%
Vol Right, %	43%	0%	0%	40%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	283	83	358	248
LT Vol	158	83	0	0
Through Vol	3	0	358	148
RT Vol	122	0	0	100
Lane Flow Rate	456	134	577	400
Geometry Grp	2	7	7	5
Degree of Util (X)	0.833	0.279	1.123	0.737
Departure Headway (Hd)	6.832	7.514	7.001	6.899
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	534	477	520	528
Service Time	4.832	5.296	4.784	4.899
HCM Lane V/C Ratio	0.854	0.281	1.11	0.758
HCM Control Delay	35.3	13.2	103.4	26.8
HCM Lane LOS	E	B	F	D
HCM 95th-tile Q	8.5	1.1	19	6.2

Intersection						
Int Delay, s/veh	52.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	187	26	206	73	20	465
Future Vol, veh/h	187	26	206	73	20	465
Conflicting Peds, #/hr	0	1	0	3	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	66	66	66	66	66	66
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	283	39	312	111	30	705
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	1136	372	0	0	426	0
Stage 1	371	-	-	-	-	-
Stage 2	765	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	~ 223	674	-	-	1133	-
Stage 1	698	-	-	-	-	-
Stage 2	459	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 213	671	-	-	1130	-
Mov Cap-2 Maneuver	~ 213	-	-	-	-	-
Stage 1	665	-	-	-	-	-
Stage 2	459	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	240.6	0		0.3		
HCM LOS	F					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	-	232	1130	-	
HCM Lane V/C Ratio	-	-	1.391	0.027	-	
HCM Control Delay (s)	-	-	240.6	8.3	0	
HCM Lane LOS	-	-	F	A	A	
HCM 95th %tile Q(veh)	-	-	18	0.1	-	
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

Intersection						
Int Delay, s/veh	11.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	136	209	283	98	77	159
Future Vol, veh/h	136	209	283	98	77	159
Conflicting Peds, #/hr	0	1	0	3	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	148	227	308	107	84	173
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	706	366	0	0	418	0
Stage 1	365	-	-	-	-	-
Stage 2	341	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	402	679	-	-	1141	-
Stage 1	702	-	-	-	-	-
Stage 2	720	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	368	676	-	-	1138	-
Mov Cap-2 Maneuver	368	-	-	-	-	-
Stage 1	642	-	-	-	-	-
Stage 2	720	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	29.5	0		2.7		
HCM LOS	D					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	508	1138	-	
HCM Lane V/C Ratio	-	-	0.738	0.074	-	
HCM Control Delay (s)	-	-	29.5	8.4	0	
HCM Lane LOS	-	-	D	A	A	
HCM 95th %tile O(veh)	-	-	6.2	0.2	-	

Intersection												
Int Delay, s/veh	498.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	145	0	296	7	0	17	187	117	7	9	386	257
Future Vol, veh/h	145	0	296	7	0	17	187	117	7	9	386	257
Conflicting Peds, #/hr	0	0	0	0	0	21	0	0	14	0	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	69	69	69	69	69	69	69	69	69	69	69	69
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	210	0	429	10	0	25	271	170	10	13	559	372
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1523	1508	746	1717	1689	210	932	0	0	194	0	0
Stage 1	772	772	-	731	731	-	-	-	-	-	-	-
Stage 2	751	736	-	986	958	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	~ 97	121	~ 413	71	93	830	734	-	-	1379	-	-
Stage 1	392	409	-	413	427	-	-	-	-	-	-	-
Stage 2	403	425	-	298	336	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 62	69	~ 413	-	53	803	733	-	-	1361	-	-
Mov Cap-2 Maneuver	~ 62	69	-	-	53	-	-	-	-	-	-	-
Stage 1	230	400	-	240	248	-	-	-	-	-	-	-
Stage 2	225	247	-	-	328	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, \$	1608.9				7.7		0.1					
HCM LOS	F		-									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	733	-	-	144	-	1361	-	-				
HCM Lane V/C Ratio	0.37	-	-	4.438	-	0.01	-	-				
HCM Control Delay (s)	12.8	0		\$ 1608.9	-	7.7	0	-				
HCM Lane LOS	B	A	-	F	-	A	A	-				
HCM 95th %tile Q(veh)	1.7	-	-	65.5	-	0	-	-				
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon						

Intersection													
Int Delay, s/veh	0.3												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↕			↕			↕			↕		
Traffic Vol, veh/h	139	1152	1	1	1807	125	3	2	1	142	5	97	
Future Vol, veh/h	139	1152	1	1	1807	125	3	2	1	142	5	97	
Conflicting Peds, #/hr	0	0	0	0	0	21	0	0	14	0	0	1	
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None	
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-	
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-	
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-	
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92	
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	
Mvmt Flow	151	1252	1	1	1964	136	3	2	1	154	5	105	
Major/Minor	Minor2		Minor1			Major1			Major2				
Conflicting Flow All	1447	390	59	1015	442	38	111	0	0	17	0	0	
Stage 1	367	367	-	23	23	-	-	-	-	-	-	-	
Stage 2	1080	23	-	992	419	-	-	-	-	-	-	-	
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-	
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-	
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-	
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-	
Pot Cap-1 Maneuver	~ 109	~ 545	1007	217	~ 510	1034	1479	-	-	1600	-	-	
Stage 1	653	~ 622	-	995	~ 876	-	-	-	-	-	-	-	
Stage 2	264	~ 876	-	296	~ 590	-	-	-	-	-	-	-	
Platoon blocked, %								-	-	-	-	-	
Mov Cap-1 Maneuver	-	~ 480	1006	-	~ 449	1000	1478	-	-	1579	-	-	
Mov Cap-2 Maneuver	-	~ 480	-	-	~ 449	-	-	-	-	-	-	-	
Stage 1	651	~ 556	-	980	~ 863	-	-	-	-	-	-	-	
Stage 2	-	~ 863	-	-	~ 527	-	-	-	-	-	-	-	
Approach	EB		WB			NB			SB				
HCM Control Delay, s							3.7			4.4			
HCM LOS	-		-										
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR						
Capacity (veh/h)	1478	-	-	-	-	1579	-	-					
HCM Lane V/C Ratio	0.002	-	-	-	-	0.098	-	-					
HCM Control Delay (s)	7.4	0	-	-	-	7.5	0	-					
HCM Lane LOS	A	A	-	-	-	A	A	-					
HCM 95th %tile Q(veh)	0	-	-	-	-	0.3	-	-					
Notes													
~: Volume exceeds capacity		\$: Delay exceeds 300s			+: Computation Not Defined				*: All major volume in platoon				

Timings
19: Dexter Av. & Central Av. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

08/02/2018

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	256	998	140	136	1546	209	111	283	77	159	419
Future Volume (vph)	256	998	140	136	1546	209	111	283	77	159	419
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2	1	6	7
Permitted Phases			4			8					6
Detector Phase	7	4	4	3	8	8	5	2	1	6	7
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0	5.0
Minimum Split (s)	9.6	26.8	26.8	9.6	26.8	26.8	9.6	42.4	9.6	15.8	9.6
Total Split (s)	26.0	42.4	42.4	21.1	37.5	37.5	19.5	43.5	13.0	37.0	26.0
Total Split (%)	21.7%	35.3%	35.3%	17.6%	31.3%	31.3%	16.3%	36.3%	10.8%	30.8%	21.7%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	4.8	3.6	4.4	3.6	4.8	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	5.8	4.6	5.8	5.8	4.6	5.4	4.6	5.8	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	None	Max	None
Act Effect Green (s)	20.5	38.7	38.7	13.5	31.7	31.7	11.9	38.1	7.9	33.7	60.0
Actuated g/C Ratio	0.17	0.33	0.33	0.11	0.27	0.27	0.10	0.32	0.07	0.28	0.51
v/c Ratio	0.92	0.66	0.25	0.74	0.99	0.40	0.69	0.72	0.72	0.33	0.54
Control Delay	83.8	37.2	5.9	72.3	63.7	8.6	71.2	42.8	87.0	36.9	17.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	83.8	37.2	5.9	72.3	63.7	8.6	71.2	42.8	87.0	36.9	17.9
LOS	F	D	A	E	E	A	E	D	F	D	B
Approach Delay		42.6			58.2			49.2		30.7	
Approach LOS		D			E			D		C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 118.7

Natural Cycle: 110

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.99

Intersection Signal Delay: 48.2

Intersection LOS: D

Intersection Capacity Utilization 88.7%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 19: Dexter Av. & Central Av. (SR-74)

			
Ø1	Ø2	Ø3	Ø4
13 s	43.5 s	21.1 s	42.4 s
			
Ø5	Ø6	Ø7	Ø8
19.5 s	37 s	26 s	37.5 s

HCM 6th Signalized Intersection Summary 19: Dexter Av. & Central Av. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

08/02/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  						 	
Traffic Volume (veh/h)	256	998	140	136	1546	209	111	283	98	77	159	419
Future Volume (veh/h)	256	998	140	136	1546	209	111	283	98	77	159	419
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	281	1097	111	149	1699	188	122	311	67	85	175	404
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	307	1746	542	176	1728	420	148	481	104	107	560	748
Arrive On Green	0.17	0.34	0.34	0.10	0.27	0.27	0.08	0.32	0.32	0.06	0.30	0.30
Sat Flow, veh/h	1781	5106	1585	1781	6434	1565	1781	1491	321	1781	1870	1585
Grp Volume(v), veh/h	281	1097	111	149	1699	188	122	0	378	85	175	404
Grp Sat Flow(s),veh/h/ln	1781	1702	1585	1781	1609	1565	1781	0	1812	1781	1870	1585
Q Serve(g_s), s	18.3	21.3	5.9	9.7	31.0	11.8	8.0	0.0	21.1	5.6	8.5	21.3
Cycle Q Clear(g_c), s	18.3	21.3	5.9	9.7	31.0	11.8	8.0	0.0	21.1	5.6	8.5	21.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.18	1.00		1.00
Lane Grp Cap(c), veh/h	307	1746	542	176	1728	420	148	0	585	107	560	748
V/C Ratio(X)	0.92	0.63	0.20	0.84	0.98	0.45	0.82	0.00	0.65	0.79	0.31	0.54
Avail Cap(c_a), veh/h	323	1746	542	249	1728	420	225	0	585	127	560	748
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.0	32.6	27.5	52.3	42.9	35.9	53.3	0.0	34.2	54.8	31.9	22.1
Incr Delay (d2), s/veh	27.8	0.7	0.2	12.3	17.8	0.7	8.1	0.0	5.4	20.8	1.5	2.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.2	8.5	2.2	4.8	13.9	4.4	3.8	0.0	9.9	3.1	4.0	8.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	75.8	33.3	27.7	64.6	60.7	36.6	61.4	0.0	39.6	75.5	33.4	24.9
LnGrp LOS	E	C	C	E	E	D	E	A	D	E	C	C
Approach Vol, veh/h		1489			2036			500			664	
Approach Delay, s/veh		40.9			58.8			44.9			33.6	
Approach LOS		D			E			D			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.7	43.9	16.3	46.2	14.4	41.2	25.0	37.5				
Change Period (Y+Rc), s	4.6	* 5.8	4.6	5.8	4.6	5.8	4.6	5.8				
Max Green Setting (Gmax), s	8.4	* 38	16.5	36.6	14.9	31.2	21.4	31.7				
Max Q Clear Time (g_c+I1), s	7.6	23.1	11.7	23.3	10.0	23.3	20.3	33.0				
Green Ext Time (p_c), s	0.0	1.9	0.1	6.1	0.1	1.5	0.1	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			48.0									
HCM 6th LOS			D									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Timings

S. Nichols Mixed-Use Development (JN 10878)

20: Cambern Av./Cambern Av & Central Av. (SR-74)

08/02/2018

										
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	139	1152	1	1807	125	3	2	142	5	97
Future Volume (vph)	139	1152	1	1807	125	3	2	142	5	97
Turn Type	Prot	NA	Prot	NA	Perm	Perm	NA	Perm	NA	Perm
Protected Phases	7	4	3	8			2		6	
Permitted Phases					8	2		6		6
Detector Phase	7	4	3	8	8	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	24.8	9.6	25.5	25.5	34.7	34.7	14.7	14.7	14.7
Total Split (s)	12.0	75.4	9.6	73.0	73.0	35.0	35.0	35.0	35.0	35.0
Total Split (%)	10.0%	62.8%	8.0%	60.8%	60.8%	29.2%	29.2%	29.2%	29.2%	29.2%
Yellow Time (s)	3.6	4.8	3.6	5.5	5.5	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.6	5.8	4.6	6.5	6.5	4.7	4.7		4.7	4.7
Lead/Lag	Lead	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	Max	None	None	None	None	Max	Max	Max	Max	Max
Act Effect Green (s)	7.4	77.3	5.0	66.5	66.5	30.3	30.3		30.3	30.3
Actuated g/C Ratio	0.06	0.64	0.04	0.55	0.55	0.25	0.25		0.25	0.25
v/c Ratio	0.73	0.56	0.01	1.01	0.15	0.01	0.01		0.47	0.23
Control Delay	75.1	13.5	56.0	50.6	2.5	34.0	30.0		43.4	12.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay	75.1	13.5	56.0	50.6	2.5	34.0	30.0		43.4	12.5
LOS	E	B	E	D	A	C	C		D	B
Approach Delay		20.1		47.5			32.0		31.1	
Approach LOS		C		D			C		C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Natural Cycle: 120

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.01

Intersection Signal Delay: 36.2

Intersection LOS: D

Intersection Capacity Utilization 96.5%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 20: Cambern Av./Cambern Av & Central Av. (SR-74)

		
Ø2	Ø3	Ø4
35 s	9.6 s	75.4 s
		
Ø6	Ø7	Ø8
35 s	12 s	73 s

HCM 6th Signalized Intersection Summary S. Nichols Mixed-Use Development (JN 10878)
 20: Cambern Av./Cambern Av & Central Av. (SR-74) 08/02/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	139	1152	1	1	1807	125	3	2	1	142	5	97
Future Volume (veh/h)	139	1152	1	1	1807	125	3	2	1	142	5	97
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	153	1266	1	1	1986	95	3	2	0	156	5	63
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	213	2239	2	2	1969	867	268	472	0	406	11	400
Arrive On Green	0.06	0.61	0.61	0.00	0.55	0.55	0.25	0.25	0.00	0.25	0.25	0.25
Sat Flow, veh/h	3456	3644	3	1781	3554	1564	1332	1870	0	1374	44	1583
Grp Volume(v), veh/h	153	617	650	1	1986	95	3	2	0	161	0	63
Grp Sat Flow(s),veh/h/ln	1728	1777	1870	1781	1777	1564	1332	1870	0	1418	0	1583
Q Serve(g_s), s	5.2	24.6	24.6	0.1	66.5	3.5	0.2	0.1	0.0	11.5	0.0	3.7
Cycle Q Clear(g_c), s	5.2	24.6	24.6	0.1	66.5	3.5	11.8	0.1	0.0	11.6	0.0	3.7
Prop In Lane	1.00		0.00	1.00		1.00	1.00		0.00	0.97		1.00
Lane Grp Cap(c), veh/h	213	1092	1149	2	1969	867	268	472	0	417	0	400
V/C Ratio(X)	0.72	0.57	0.57	0.41	1.01	0.11	0.01	0.00	0.00	0.39	0.00	0.16
Avail Cap(c_a), veh/h	213	1092	1149	74	1969	867	268	472	0	417	0	400
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	55.3	13.7	13.7	59.9	26.7	12.7	42.8	33.6	0.0	37.9	0.0	34.9
Incr Delay (d2), s/veh	18.7	0.9	0.8	36.4	22.4	0.1	0.1	0.0	0.0	2.7	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	9.1	9.5	0.1	30.1	1.1	0.1	0.0	0.0	4.3	0.0	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	74.0	14.5	14.5	96.3	49.1	12.8	42.9	33.6	0.0	40.6	0.0	35.8
LnGrp LOS	E	B	B	F	F	B	D	C	A	D	A	D
Approach Vol, veh/h		1420			2082			5			224	
Approach Delay, s/veh		20.9			47.5			39.2			39.2	
Approach LOS		C			D			D			D	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		35.0	4.8	80.2		35.0	12.0	73.0				
Change Period (Y+Rc), s		* 4.7	4.6	* 6.5		* 4.7	4.6	6.5				
Max Green Setting (Gmax), s		* 30	5.0	* 70		* 30	7.4	66.5				
Max Q Clear Time (g_c+I1), s		13.8	2.1	26.6		13.6	7.2	68.5				
Green Ext Time (p_c), s		0.0	0.0	15.6		0.9	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			36.9									
HCM 6th LOS			D									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Timings
1: Lake St. & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

08/02/2018

									
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	1	7	256	0	1	408	185	33	952
Future Volume (vph)	1	7	256	0	1	408	185	33	952
Turn Type	Perm	NA	Perm	NA	Prot	NA	Perm	Prot	NA
Protected Phases		4		8	5	2		1	6
Permitted Phases	4		8				2		
Detector Phase	4	4	8	8	5	2	2	1	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	14.6	14.6	16.2	16.2	9.6	16.2	16.2	9.6	16.2
Total Split (s)	42.2	42.2	42.2	42.2	35.6	42.2	42.2	35.6	42.2
Total Split (%)	35.2%	35.2%	35.2%	35.2%	29.7%	35.2%	35.2%	29.7%	35.2%
Yellow Time (s)	3.6	3.6	5.2	5.2	3.6	5.2	5.2	3.6	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.6		6.2	4.6	6.2	6.2	4.6	6.2
Lead/Lag					Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	None	Max
Act Effect Green (s)		20.3		18.6	5.1	37.1	37.1	6.4	41.8
Actuated g/C Ratio		0.27		0.25	0.07	0.50	0.50	0.09	0.56
v/c Ratio		0.02		0.78	0.01	0.49	0.24	0.24	1.01
Control Delay		19.7		34.5	39.0	18.1	7.8	40.2	49.6
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		19.7		34.5	39.0	18.1	7.8	40.2	49.6
LOS		B		C	D	B	A	D	D
Approach Delay		19.7		34.5		14.9			49.3
Approach LOS		B		C		B			D

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 74.8

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.01

Intersection Signal Delay: 36.0

Intersection LOS: D

Intersection Capacity Utilization 82.6%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 1: Lake St. & Nichols Rd.

 Ø1	 Ø2	 Ø4
35.6 s	42.2 s	42.2 s
 Ø5	 Ø6	 Ø8
35.6 s	42.2 s	42.2 s

HCM 6th Signalized Intersection Summary

1: Lake St. & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

08/02/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	7	1	256	0	20	1	408	185	33	952	1
Future Volume (veh/h)	1	7	1	256	0	20	1	408	185	33	952	1
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1	8	1	281	0	14	1	448	0	36	1046	1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	71	384	45	425	0	16	2	916		63	978	1
Arrive On Green	0.24	0.24	0.24	0.24	0.00	0.24	0.00	0.49	0.00	0.04	0.52	0.52
Sat Flow, veh/h	70	1578	183	1353	0	67	1781	1870	1585	1781	1868	2
Grp Volume(v), veh/h	10	0	0	295	0	0	1	448	0	36	0	1047
Grp Sat Flow(s),veh/h/ln	1831	0	0	1420	0	0	1781	1870	1585	1781	0	1870
Q Serve(g_s), s	0.0	0.0	0.0	14.3	0.0	0.0	0.0	11.8	0.0	1.5	0.0	38.5
Cycle Q Clear(g_c), s	0.3	0.0	0.0	14.6	0.0	0.0	0.0	11.8	0.0	1.5	0.0	38.5
Prop In Lane	0.10		0.10	0.95		0.05	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	500	0	0	442	0	0	2	916		63	0	979
V/C Ratio(X)	0.02	0.00	0.00	0.67	0.00	0.00	0.41	0.49		0.57	0.00	1.07
Avail Cap(c_a), veh/h	976	0	0	789	0	0	751	916		751	0	979
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.1	0.0	0.0	26.5	0.0	0.0	36.7	12.6	0.0	34.9	0.0	17.5
Incr Delay (d2), s/veh	0.0	0.0	0.0	1.8	0.0	0.0	35.9	1.9	0.0	3.0	0.0	49.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.0	4.6	0.0	0.0	0.0	4.4	0.0	0.6	0.0	25.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.2	0.0	0.0	28.2	0.0	0.0	72.5	14.5	0.0	37.9	0.0	66.6
LnGrp LOS	C	A	A	C	A	A	E	B		D	A	F
Approach Vol, veh/h	10			295			449		A		1083	
Approach Delay, s/veh	21.2			28.2			14.6				65.7	
Approach LOS	C			C			B				E	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.2	42.2		24.1	4.7	44.7		24.1				
Change Period (Y+Rc), s	4.6	6.2		* 6.2	4.6	6.2		6.2				
Max Green Setting (Gmax), s	31.0	36.0		* 38	31.0	36.0		36.0				
Max Q Clear Time (g_c+I1), s	3.5	13.8		2.3	2.0	40.5		16.6				
Green Ext Time (p_c), s	0.0	3.5		0.0	0.0	0.0		1.4				
Intersection Summary												
HCM 6th Ctrl Delay	46.9											
HCM 6th LOS	D											
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.												

Timings
2: Lake St. & Alberhill Ranch Rd.

S. Nichols Mixed-Use Development (JN 10878)

08/02/2018

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	39	21	542	34	26	1140
Future Volume (vph)	39	21	542	34	26	1140
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2		
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	15.1	15.1	16.2	16.2	11.2	16.2
Total Split (s)	16.0	16.0	91.0	91.0	13.0	104.0
Total Split (%)	13.3%	13.3%	75.8%	75.8%	10.8%	86.7%
Yellow Time (s)	4.1	4.1	5.2	5.2	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	6.2	6.2	6.2	6.2
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	Max	Max	None	Max
Act Effect Green (s)	10.0	10.0	94.4	94.4	6.0	102.1
Actuated g/C Ratio	0.08	0.08	0.79	0.79	0.05	0.86
v/c Ratio	0.27	0.14	0.37	0.03	0.30	0.73
Control Delay	56.2	21.6	6.3	1.7	63.2	7.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.2	21.6	6.3	1.7	63.2	7.9
LOS	E	C	A	A	E	A
Approach Delay	44.3		6.0			9.2
Approach LOS	D		A			A

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 119.1

Natural Cycle: 70

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.73

Intersection Signal Delay: 9.3

Intersection LOS: A

Intersection Capacity Utilization 77.8%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 2: Lake St. & Alberhill Ranch Rd.



HCM 6th Signalized Intersection Summary 2: Lake St. & Alberhill Ranch Rd.

S. Nichols Mixed-Use Development (JN 10878)

08/02/2018

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	39	21	542	34	26	1140
Future Volume (veh/h)	39	21	542	34	26	1140
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		0.98	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	40	8	553	32	27	1163
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	120	107	1418	1177	44	1563
Arrive On Green	0.07	0.07	0.76	0.76	0.02	0.84
Sat Flow, veh/h	1781	1585	1870	1553	1781	1870
Grp Volume(v), veh/h	40	8	553	32	27	1163
Grp Sat Flow(s),veh/h/ln	1781	1585	1870	1553	1781	1870
Q Serve(g_s), s	2.5	0.6	11.9	0.6	1.8	31.6
Cycle Q Clear(g_c), s	2.5	0.6	11.9	0.6	1.8	31.6
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	120	107	1418	1177	44	1563
V/C Ratio(X)	0.33	0.07	0.39	0.03	0.61	0.74
Avail Cap(c_a), veh/h	166	148	1418	1177	104	1563
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.0	51.1	4.9	3.5	56.5	4.2
Incr Delay (d2), s/veh	0.6	0.1	0.8	0.0	4.9	3.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.2	3.5	0.1	0.8	6.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	52.6	51.2	5.7	3.5	61.4	7.4
LnGrp LOS	D	D	A	A	E	A
Approach Vol, veh/h	48		585			1190
Approach Delay, s/veh	52.4		5.6			8.6
Approach LOS	D		A			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	9.1	94.9			104.0	13.0
Change Period (Y+Rc), s	6.2	6.2			6.2	5.1
Max Green Setting (Gmax), s	6.8	84.8			97.8	10.9
Max Q Clear Time (g_c+I1), s	3.8	13.9			33.6	4.5
Green Ext Time (p_c), s	0.0	3.6			13.5	0.0
Intersection Summary						
HCM 6th Ctrl Delay			8.8			
HCM 6th LOS			A			

Intersection

Intersection Delay, s/veh10.4

Intersection LOS B

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	206	20	83	267	10	69
Future Vol, veh/h	206	20	83	267	10	69
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	219	21	88	284	11	73
Number of Lanes	1	0	0	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	1
HCM Control Delay	9.5	11.3	8.6
HCM LOS	A	B	A

Lane	NBLn1	NBLn2	EBLn1	WBLn1
Vol Left, %	100%	0%	0%	24%
Vol Thru, %	0%	0%	91%	76%
Vol Right, %	0%	100%	9%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	10	69	226	350
LT Vol	10	0	0	83
Through Vol	0	0	206	267
RT Vol	0	69	20	0
Lane Flow Rate	11	73	240	372
Geometry Grp	7	7	2	2
Degree of Util (X)	0.019	0.106	0.301	0.461
Departure Headway (Hd)	6.393	5.179	4.5	4.461
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	559	690	798	808
Service Time	4.141	2.927	2.53	2.489
HCM Lane V/C Ratio	0.02	0.106	0.301	0.46
HCM Control Delay	9.3	8.5	9.5	11.3
HCM Lane LOS	A	A	A	B
HCM 95th-tile Q	0.1	0.4	1.3	2.5

Timings
4: Lakeshore Dr. & Riverside Dr. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

08/02/2018

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	33	536	296	132	668	336	218	283	298	347	17
Future Volume (vph)	33	536	296	132	668	336	218	283	298	347	17
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2	1	6	
Permitted Phases			4			8					6
Detector Phase	7	4	4	3	8	8	5	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	32.4	32.4	9.6	33.4	33.4	9.6	34.7	9.6	32.7	32.7
Total Split (s)	9.6	38.3	38.3	20.3	49.0	49.0	27.6	35.4	26.0	33.8	33.8
Total Split (%)	8.0%	31.9%	31.9%	16.9%	40.8%	40.8%	23.0%	29.5%	21.7%	28.2%	28.2%
Yellow Time (s)	3.6	4.4	4.4	3.6	4.4	4.4	3.6	3.7	3.6	3.7	3.7
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.4	5.4	4.6	5.4	5.4	4.6	4.7	4.6	4.7	4.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	None	Max	Max
Act Effect Green (s)	5.0	32.1	32.1	12.6	43.7	43.7	18.3	30.8	21.4	33.9	33.9
Actuated g/C Ratio	0.04	0.28	0.28	0.11	0.38	0.38	0.16	0.27	0.18	0.29	0.29
v/c Ratio	0.45	0.57	0.46	0.71	0.98	0.46	0.81	0.49	0.94	0.35	0.03
Control Delay	74.4	39.1	6.3	70.4	67.6	9.6	69.0	30.1	84.9	35.4	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	74.4	39.1	6.3	70.4	67.6	9.6	69.0	30.1	84.9	35.4	0.1
LOS	E	D	A	E	E	A	E	C	F	D	A
Approach Delay		29.2			50.8			42.6		56.7	
Approach LOS		C			D			D		E	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 116.2

Natural Cycle: 120

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.98

Intersection Signal Delay: 44.7

Intersection LOS: D

Intersection Capacity Utilization 96.9%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 4: Lakeshore Dr. & Riverside Dr. (SR-74)

Ø1	Ø2	Ø3	Ø4
26 s	35.4 s	20.3 s	38.3 s
Ø5	Ø6	Ø7	Ø8
27.6 s	33.8 s	9.6 s	49 s

HCM 6th Signalized Intersection Summary 4: Lakeshore Dr. & Riverside Dr. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

08/02/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	33	536	296	132	668	336	218	283	176	298	347	17
Future Volume (veh/h)	33	536	296	132	668	336	218	283	176	298	347	17
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	34	553	185	136	689	192	225	292	77	307	358	14
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	51	1085	484	163	689	576	253	724	188	322	1058	466
Arrive On Green	0.03	0.31	0.31	0.09	0.37	0.37	0.14	0.26	0.26	0.18	0.30	0.30
Sat Flow, veh/h	1781	3554	1585	1781	1870	1564	1781	2792	723	1781	3554	1565
Grp Volume(v), veh/h	34	553	185	136	689	192	225	184	185	307	358	14
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1870	1564	1781	1777	1738	1781	1777	1565
Q Serve(g_s), s	2.2	15.2	10.9	8.9	43.6	10.5	14.7	10.1	10.4	20.2	9.3	0.8
Cycle Q Clear(g_c), s	2.2	15.2	10.9	8.9	43.6	10.5	14.7	10.1	10.4	20.2	9.3	0.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.42	1.00		1.00
Lane Grp Cap(c), veh/h	51	1085	484	163	689	576	253	461	451	322	1058	466
V/C Ratio(X)	0.67	0.51	0.38	0.83	1.00	0.33	0.89	0.40	0.41	0.95	0.34	0.03
Avail Cap(c_a), veh/h	75	1085	484	236	689	576	346	461	451	322	1058	466
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.0	33.8	32.3	52.9	37.4	26.9	49.8	36.2	36.3	48.0	32.4	29.4
Incr Delay (d2), s/veh	5.6	0.4	0.5	10.7	34.3	0.3	15.3	2.6	2.8	37.5	0.9	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	6.4	4.2	4.4	25.6	3.9	7.6	4.7	4.8	12.3	4.1	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.6	34.2	32.8	63.6	71.7	27.3	65.2	38.8	39.1	85.5	33.3	29.6
LnGrp LOS	E	C	C	E	F	C	E	D	D	F	C	C
Approach Vol, veh/h		772			1017			594			679	
Approach Delay, s/veh		35.1			62.2			48.9			56.8	
Approach LOS		D			E			D			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	26.0	35.4	15.4	41.5	21.4	40.0	8.0	49.0				
Change Period (Y+Rc), s	4.6	* 4.7	4.6	5.4	4.6	* 4.7	4.6	5.4				
Max Green Setting (Gmax), s	21.4	* 31	15.7	32.9	23.0	* 29	5.0	43.6				
Max Q Clear Time (g_c+I1), s	22.2	12.4	10.9	17.2	16.7	11.3	4.2	45.6				
Green Ext Time (p_c), s	0.0	2.0	0.1	3.7	0.2	2.2	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			51.6									
HCM 6th LOS			D									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Intersection

Int Delay, s/veh 4.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕	↕		↕	↕
Traffic Vol, veh/h	2	938	5	7	963	130	0	0	7	32	1	2
Future Vol, veh/h	2	938	5	7	963	130	0	0	7	32	1	2
Conflicting Peds, #/hr	0	0	0	0	0	1	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Stop	-	-	Stop
Storage Length	-	-	-	-	-	-	-	-	75	-	-	75
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	967	5	7	993	134	0	0	7	33	1	2

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1128	0	0	972	0	0	2049	2116	970	2049	2051	1061
Stage 1	-	-	-	-	-	-	974	974	-	1075	1075	-
Stage 2	-	-	-	-	-	-	1075	1142	-	974	976	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	619	-	-	709	-	-	41	51	307	41	56	272
Stage 1	-	-	-	-	-	-	303	330	-	266	296	-
Stage 2	-	-	-	-	-	-	266	275	-	303	329	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	618	-	-	709	-	-	39	49	307	39	54	272
Mov Cap-2 Maneuver	-	-	-	-	-	-	39	49	-	39	54	-
Stage 1	-	-	-	-	-	-	301	328	-	264	288	-
Stage 2	-	-	-	-	-	-	256	267	-	294	327	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.1			17			247.2		
HCM LOS							C			F		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	-	307	618	-	-	709	-	-	39	272
HCM Lane V/C Ratio	-	0.024	0.003	-	-	0.01	-	-	0.872	0.008
HCM Control Delay (s)	0	17	10.8	0	-	10.1	0	-	261.1	18.3
HCM Lane LOS	A	C	B	A	-	B	A	-	F	C
HCM 95th %tile Q(veh)	-	0.1	0	-	-	0	-	-	3.3	0

Intersection

Int Delay, s/veh 4.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	938	5	7	963	130	0	0	7	32	1	2
Future Vol, veh/h	2	938	5	7	963	130	0	0	7	32	1	2
Conflicting Peds, #/hr	0	0	0	0	0	1	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Stop	-	-	Stop
Storage Length	100	-	-	100	-	-	-	-	75	-	-	75
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	967	5	7	993	134	0	0	7	33	1	2

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1128	0	0	972	0	0	2049	2116	970	2049	2051	1061
Stage 1	-	-	-	-	-	-	974	974	-	1075	1075	-
Stage 2	-	-	-	-	-	-	1075	1142	-	974	976	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	619	-	-	709	-	-	41	51	307	41	56	272
Stage 1	-	-	-	-	-	-	303	330	-	266	296	-
Stage 2	-	-	-	-	-	-	266	275	-	303	329	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	618	-	-	709	-	-	40	50	307	40	55	272
Mov Cap-2 Maneuver	-	-	-	-	-	-	40	50	-	40	55	-
Stage 1	-	-	-	-	-	-	302	329	-	265	293	-
Stage 2	-	-	-	-	-	-	260	272	-	295	328	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.1	17	236.8
HCM LOS			C	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	-	307	618	-	-	709	-	-	40	272
HCM Lane V/C Ratio	-	0.024	0.003	-	-	0.01	-	-	0.851	0.008
HCM Control Delay (s)	0	17	10.8	-	-	10.1	-	-	250	18.3
HCM Lane LOS	A	C	B	-	-	B	-	-	F	C
HCM 95th %tile Q(veh)	-	0.1	0	-	-	0	-	-	3.2	0

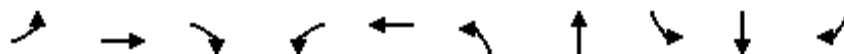
Intersection							
Int Delay, s/veh	7.9						
Movement	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations							
Traffic Vol, veh/h	211	61	250	280	88	286	
Future Vol, veh/h	211	61	250	280	88	286	
Conflicting Peds, #/hr	0	0	0	0	0	0	
Sign Control	Free	Free	Free	Free	Stop	Stop	
RT Channelized	-	None	-	None	-	None	
Storage Length	-	-	120	-	0	0	
Veh in Median Storage, #	0	-	-	0	0	-	
Grade, %	0	-	-	0	0	-	
Peak Hour Factor	94	94	94	94	94	94	
Heavy Vehicles, %	2	2	2	2	2	2	
Mvmt Flow	224	65	266	298	94	304	
Major/Minor	Major1		Major2		Minor1		
Conflicting Flow All	0	0	289	0	1087	257	
Stage 1	-	-	-	-	257	-	
Stage 2	-	-	-	-	830	-	
Critical Hdwy	-	-	4.12	-	6.42	6.22	
Critical Hdwy Stg 1	-	-	-	-	5.42	-	
Critical Hdwy Stg 2	-	-	-	-	5.42	-	
Follow-up Hdwy	-	-	2.218	-	3.518	3.318	
Pot Cap-1 Maneuver	-	-	1273	-	239	782	
Stage 1	-	-	-	-	786	-	
Stage 2	-	-	-	-	428	-	
Platoon blocked, %	-	-		-			
Mov Cap-1 Maneuver	-	-	1273	-	189	782	
Mov Cap-2 Maneuver	-	-	-	-	189	-	
Stage 1	-	-	-	-	622	-	
Stage 2	-	-	-	-	428	-	
Approach	EB		WB		NB		
HCM Control Delay, s	0		4		19.3		
HCM LOS					C		
Minor Lane/Major Mvmt	NBLn1		NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	189		782	-	-	1273	-
HCM Lane V/C Ratio	0.495		0.389	-	-	0.209	-
HCM Control Delay (s)	41.4		12.5	-	-	8.6	-
HCM Lane LOS	E		B	-	-	A	-
HCM 95th %tile O(veh)	2.4		1.9	-	-	0.8	-

Timings

S. Nichols Mixed-Use Development (JN 10878)

7: Collier Av. (SR-74)/Collier Av. & Riverside Dr. (SR-74)/Riverside Dr.

08/02/2018



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations		↔	↔		↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	111	12	853	23	19	976	250	3	200	104
Future Volume (vph)	111	12	853	23	19	976	250	3	200	104
Turn Type	Perm	NA	pm+ov	Perm	NA	Split	NA	Split	NA	Perm
Protected Phases		4	2		8	2	2	6	6	
Permitted Phases	4		4	8						6
Detector Phase	4	4	2	8	8	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	15.4	15.4	15.8	14.6	14.6	15.8	15.8	16.2	16.2	16.2
Total Split (s)	19.0	19.0	79.0	19.0	19.0	79.0	79.0	22.0	22.0	22.0
Total Split (%)	15.8%	15.8%	65.8%	15.8%	15.8%	65.8%	65.8%	18.3%	18.3%	18.3%
Yellow Time (s)	4.4	4.4	4.8	3.6	3.6	4.8	4.8	5.2	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.4	5.8		4.6	5.8	5.8	6.2	6.2	6.2
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	None	None	Max	None	None	Max	Max	Max	Max	Max
Act Effect Green (s)		13.1	85.9		13.9	73.2	73.2	15.8	15.8	15.8
Actuated g/C Ratio		0.11	0.72		0.12	0.61	0.61	0.13	0.13	0.13
v/c Ratio		0.84	0.76		0.31	0.94	0.25	0.01	0.85	0.36
Control Delay		92.9	12.8		49.0	38.3	11.1	45.7	79.8	12.3
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		92.9	12.8		49.0	38.3	11.1	45.7	79.8	12.3
LOS		F	B		D	D	B	D	E	B
Approach Delay		23.0			49.0		32.4		56.6	
Approach LOS		C			D		C		E	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 119.5

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.94

Intersection Signal Delay: 32.0

Intersection LOS: C

Intersection Capacity Utilization 91.2%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 7: Collier Av. (SR-74)/Collier Av. & Riverside Dr. (SR-74)/Riverside Dr.

↖ ↗ Ø2	↖ ↗ Ø6	↖ ↗ Ø4
79 s	22 s	19 s
		↖ ↗ Ø8
		19 s

HCM 6th Signalized Intersection Summary S. Nichols Mixed-Use Development (JN 10878)
 7: Collier Av. (SR-74)/Collier Av. & Riverside Dr. (SR-74)/Riverside Dr. 08/02/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	111	12	853	23	19	8	976	250	21	3	200	104
Future Volume (veh/h)	111	12	853	23	19	8	976	250	21	3	200	104
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	116	12	841	24	20	2	1017	260	21	3	208	35
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	173	12	1145	45	27	1	1079	1033	83	233	245	207
Arrive On Green	0.12	0.12	0.12	0.12	0.12	0.12	0.61	0.61	0.61	0.13	0.13	0.13
Sat Flow, veh/h	974	101	1548	1	225	10	1781	1704	138	1781	1870	1585
Grp Volume(v), veh/h	128	0	841	46	0	0	1017	0	281	3	208	35
Grp Sat Flow(s),veh/h/ln	1075	0	1548	236	0	0	1781	0	1842	1781	1870	1585
Q Serve(g_s), s	0.0	0.0	14.4	0.0	0.0	0.0	63.3	0.0	8.6	0.2	13.1	2.4
Cycle Q Clear(g_c), s	14.4	0.0	14.4	14.4	0.0	0.0	63.3	0.0	8.6	0.2	13.1	2.4
Prop In Lane	0.91		1.00	0.52		0.04	1.00		0.07	1.00		1.00
Lane Grp Cap(c), veh/h	185	0	1145	73	0	0	1079	0	1116	233	245	207
V/C Ratio(X)	0.69	0.00	0.73	0.63	0.00	0.00	0.94	0.00	0.25	0.01	0.85	0.17
Avail Cap(c_a), veh/h	185	0	1145	73	0	0	1079	0	1116	233	245	207
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.2	0.0	6.5	52.2	0.0	0.0	21.9	0.0	11.1	45.7	51.3	46.7
Incr Delay (d2), s/veh	10.5	0.0	2.5	15.5	0.0	0.0	16.6	0.0	0.5	0.1	29.2	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.3	0.0	26.2	1.7	0.0	0.0	27.9	0.0	3.4	0.1	7.9	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.7	0.0	9.0	67.7	0.0	0.0	38.5	0.0	11.6	45.8	80.5	48.4
LnGrp LOS	E	A	A	E	A	A	D	A	B	D	F	D
Approach Vol, veh/h		969			46			1298			246	
Approach Delay, s/veh		16.2			67.7			32.6			75.5	
Approach LOS		B			E			C			E	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		79.0		19.8		22.0		19.8				
Change Period (Y+Rc), s		5.8		5.4		6.2		* 5.4				
Max Green Setting (Gmax), s		73.2		13.6		15.8		* 14				
Max Q Clear Time (g_c+I1), s		65.3		16.4		15.1		16.4				
Green Ext Time (p_c), s		3.7		0.0		0.1		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			31.2									
HCM 6th LOS			C									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Timings

S. Nichols Mixed-Use Development (JN 10878)

8: Collier Av./Collier Av. (SR-74) & Central Av./Central Av. (SR-74)

08/02/2018

											
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	211	355	229	215	802	55	132	378	1016	149	35
Future Volume (vph)	211	355	229	215	802	55	132	378	1016	149	35
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	7	4	3	8	1	5	2	3	1	6	
Permitted Phases					8			2			6
Detector Phase	7	4	3	8	1	5	2	3	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	5.0	10.0	5.0	5.0	10.0	10.0
Minimum Split (s)	9.6	14.7	9.6	42.8	9.6	9.6	15.8	9.6	9.6	29.8	29.8
Total Split (s)	14.0	28.8	28.0	42.8	43.0	13.6	20.2	28.0	43.0	49.6	49.6
Total Split (%)	11.7%	24.0%	23.3%	35.7%	35.8%	11.3%	16.8%	23.3%	35.8%	41.3%	41.3%
Yellow Time (s)	3.6	3.7	3.6	4.8	3.6	3.6	4.8	3.6	3.6	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.7	4.6	5.8	4.6	4.6	5.8	4.6	4.6	5.8	5.8
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	None	None	Max	Max
Act Effect Green (s)	9.2	17.7	12.7	20.1	56.9	7.3	14.8	28.7	35.6	45.5	45.5
Actuated g/C Ratio	0.09	0.18	0.13	0.20	0.56	0.07	0.15	0.28	0.35	0.45	0.45
v/c Ratio	0.70	0.69	0.55	0.60	0.49	0.45	0.50	0.74	0.86	0.10	0.05
Control Delay	59.5	44.8	47.2	43.6	7.4	59.6	50.1	31.7	40.0	19.4	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.5	44.8	47.2	43.6	7.4	59.6	50.1	31.7	40.0	19.4	0.1
LOS	E	D	D	D	A	E	D	C	D	B	A
Approach Delay		49.8		21.0			38.7			36.3	
Approach LOS		D		C			D			D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 100.8

Natural Cycle: 105

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 33.7

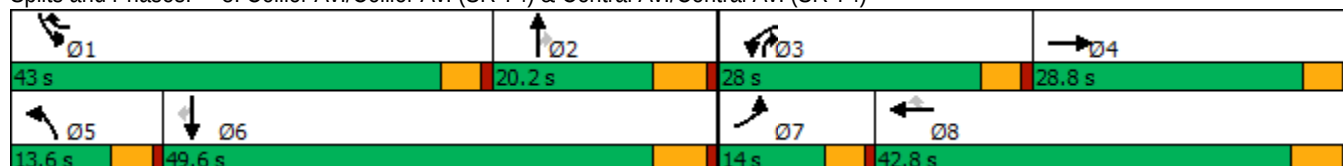
Intersection LOS: C

Intersection Capacity Utilization 75.6%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 8: Collier Av./Collier Av. (SR-74) & Central Av./Central Av. (SR-74)



HCM 6th Signalized Intersection Summary S. Nichols Mixed-Use Development (JN 10878)
8: Collier Av./Collier Av. (SR-74) & Central Av./Central Av. (SR-74) 08/02/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	211	355	56	229	215	802	55	132	378	1016	149	35
Future Volume (veh/h)	211	355	56	229	215	802	55	132	378	1016	149	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	218	366	54	236	222	304	57	136	162	1047	154	23
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	290	516	76	317	325	1403	74	346	435	1145	1688	742
Arrive On Green	0.08	0.17	0.17	0.09	0.17	0.17	0.04	0.19	0.19	0.33	0.48	0.48
Sat Flow, veh/h	3456	3110	455	3456	1870	2750	1781	1870	1560	3456	3554	1563
Grp Volume(v), veh/h	218	208	212	236	222	304	57	136	162	1047	154	23
Grp Sat Flow(s),veh/h/ln	1728	1777	1788	1728	1870	1375	1781	1870	1560	1728	1777	1563
Q Serve(g_s), s	5.7	10.2	10.4	6.1	10.3	5.7	2.9	5.9	7.7	26.8	2.2	0.7
Cycle Q Clear(g_c), s	5.7	10.2	10.4	6.1	10.3	5.7	2.9	5.9	7.7	26.8	2.2	0.7
Prop In Lane	1.00		0.25	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	290	295	297	317	325	1403	74	346	435	1145	1688	742
V/C Ratio(X)	0.75	0.70	0.71	0.74	0.68	0.22	0.77	0.39	0.37	0.91	0.09	0.03
Avail Cap(c_a), veh/h	352	464	467	877	751	2028	174	346	435	1439	1688	742
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.3	36.3	36.4	40.8	35.7	12.7	43.7	33.0	26.9	29.6	13.3	12.9
Incr Delay (d2), s/veh	5.4	3.1	3.2	1.3	2.5	0.1	6.1	3.3	2.4	7.1	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	4.6	4.7	2.6	4.7	1.6	1.4	2.9	3.0	11.3	0.8	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.7	39.4	39.6	42.1	38.2	12.8	49.9	36.3	29.3	36.6	13.4	13.0
LnGrp LOS	D	D	D	D	D	B	D	D	C	D	B	B
Approach Vol, veh/h		638			762			355			1224	
Approach Delay, s/veh		41.9			29.3			35.3			33.3	
Approach LOS		D			C			D			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	35.2	22.9	13.1	21.1	8.4	49.6	12.3	21.8				
Change Period (Y+Rc), s	4.6	5.8	4.6	* 5.8	4.6	5.8	4.6	5.8				
Max Green Setting (Gmax), s	38.4	14.4	23.4	* 24	9.0	43.8	9.4	37.0				
Max Q Clear Time (g_c+I1), s	28.8	9.7	8.1	12.4	4.9	4.2	7.7	12.3				
Green Ext Time (p_c), s	1.8	0.5	0.3	1.9	0.0	1.0	0.1	2.4				

Intersection Summary

HCM 6th Ctrl Delay	34.3
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection

Intersection Delay, s/veh 16

Intersection LOS C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗	↖	↑						↕	
Traffic Vol, veh/h	0	269	302	28	382	0	0	0	0	88	2	149
Future Vol, veh/h	0	269	302	28	382	0	0	0	0	88	2	149
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	0	3	3	25	3	0	0	0	0	8	67	13
Mvmt Flow	0	286	321	30	406	0	0	0	0	94	2	159
Number of Lanes	0	1	1	1	1	0	0	0	0	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	2
HCM Control Delay	13.4	21	13.7
HCM LOS	B	C	B

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	100%	0%	37%
Vol Thru, %	100%	0%	0%	100%	1%
Vol Right, %	0%	100%	0%	0%	62%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	269	302	28	382	239
LT Vol	0	0	28	0	88
Through Vol	269	0	0	382	2
RT Vol	0	302	0	0	149
Lane Flow Rate	286	321	30	406	254
Geometry Grp	7	7	7	7	2
Degree of Util (X)	0.477	0.472	0.058	0.694	0.431
Departure Headway (Hd)	5.999	5.288	7.036	6.148	6.107
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	601	678	508	585	587
Service Time	3.748	3.036	4.789	3.9	4.161
HCM Lane V/C Ratio	0.476	0.473	0.059	0.694	0.433
HCM Control Delay	14.1	12.7	10.2	21.8	13.7
HCM Lane LOS	B	B	B	C	B
HCM 95th-tile Q	2.6	2.5	0.2	5.5	2.2

Intersection												
Int Delay, s/veh	21.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	158	199	0	0	126	44	284	1	34	0	0	0
Future Vol, veh/h	158	199	0	0	126	44	284	1	34	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	230	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	165	207	0	0	131	46	296	1	35	0	0	0

Major/Minor	Major1		Major2		Minor1					
Conflicting Flow All	177	0	-	-	-	0	691	714	207	
Stage 1	-	-	-	-	-	-	537	537	-	
Stage 2	-	-	-	-	-	-	154	177	-	
Critical Hdwy	4.15	-	-	-	-	-	6.44	6.5	6.26	
Critical Hdwy Stg 1	-	-	-	-	-	-	5.44	5.5	-	
Critical Hdwy Stg 2	-	-	-	-	-	-	5.44	5.5	-	
Follow-up Hdwy	2.245	-	-	-	-	-	3.536	4	3.354	
Pot Cap-1 Maneuver	1381	-	0	0	-	-	407	359	823	
Stage 1	-	-	0	0	-	-	582	526	-	
Stage 2	-	-	0	0	-	-	869	756	-	
Platoon blocked, %		-			-	-				
Mov Cap-1 Maneuver	1381	-	-	-	-	-	359	0	823	
Mov Cap-2 Maneuver	-	-	-	-	-	-	359	0	-	
Stage 1	-	-	-	-	-	-	513	0	-	
Stage 2	-	-	-	-	-	-	869	0	-	

Approach	EB	WB	NB
HCM Control Delay, s	3.5	0	52.6
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR
Capacity (veh/h)	382	1381	-	-	-
HCM Lane V/C Ratio	0.87	0.119	-	-	-
HCM Control Delay (s)	52.6	8	-	-	-
HCM Lane LOS	F	A	-	-	-
HCM 95th %tile Q(veh)	8.5	0.4	-	-	-

Intersection	
Intersection Delay, s/veh	12.4
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	158	199	0	0	126	44	284	1	34	0	0	0
Future Vol, veh/h	158	199	0	0	126	44	284	1	34	0	0	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	165	207	0	0	131	46	296	1	35	0	0	0
Number of Lanes	1	1	0	0	1	0	0	1	0	0	0	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	11.5	10.7	14.2
HCM LOS	B	B	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1
Vol Left, %	89%	100%	0%	0%
Vol Thru, %	0%	0%	100%	74%
Vol Right, %	11%	0%	0%	26%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	319	158	199	170
LT Vol	284	158	0	0
Through Vol	1	0	199	126
RT Vol	34	0	0	44
Lane Flow Rate	332	165	207	177
Geometry Grp	2	7	7	5
Degree of Util (X)	0.511	0.289	0.335	0.274
Departure Headway (Hd)	5.538	6.326	5.82	5.568
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	655	569	618	645
Service Time	3.538	4.056	3.549	3.601
HCM Lane V/C Ratio	0.507	0.29	0.335	0.274
HCM Control Delay	14.2	11.6	11.5	10.7
HCM Lane LOS	B	B	B	B
HCM 95th-tile Q	2.9	1.2	1.5	1.1

Intersection

Int Delay, s/veh 1.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	14	19	142	27	54	169
Future Vol, veh/h	14	19	142	27	54	169
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	15	21	154	29	59	184

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	471	169	0
Stage 1	169	-	-
Stage 2	302	-	-
Critical Hdwy	6.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	-
Pot Cap-1 Maneuver	551	875	-
Stage 1	861	-	-
Stage 2	750	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	525	875	-
Mov Cap-2 Maneuver	525	-	-
Stage 1	821	-	-
Stage 2	750	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.6	0	1.9
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	682	1392
HCM Lane V/C Ratio	-	-	0.053	0.042
HCM Control Delay (s)	-	-	10.6	7.7
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.2	0.1

Intersection												
Int Delay, s/veh	1.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	16	0	33	6	0	1	15	152	5	7	164	11
Future Vol, veh/h	16	0	33	6	0	1	15	152	5	7	164	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	3
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	19	0	39	7	0	1	18	181	6	8	195	13
Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	442	444	205	457	447	184	211	0	0	187	0	0
Stage 1	221	221	-	220	220	-	-	-	-	-	-	-
Stage 2	221	223	-	237	227	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	526	508	836	514	506	858	1360	-	-	1387	-	-
Stage 1	781	720	-	782	721	-	-	-	-	-	-	-
Stage 2	781	719	-	766	716	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	515	495	834	482	493	858	1356	-	-	1387	-	-
Mov Cap-2 Maneuver	515	495	-	482	493	-	-	-	-	-	-	-
Stage 1	767	713	-	770	710	-	-	-	-	-	-	-
Stage 2	768	708	-	725	709	-	-	-	-	-	-	-
Approach	EB		WB			NB			SB			
HCM Control Delay, s	10.7		12.1			0.7			0.3			
HCM LOS	B		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1356	-	-	694	514	1387	-	-				
HCM Lane V/C Ratio	0.013	-	-	0.084	0.016	0.006	-	-				
HCM Control Delay (s)	7.7	0	-	10.7	12.1	7.6	0	-				
HCM Lane LOS	A	A	-	B	B	A	A	-				
HCM 95th %tile O(veh)	0	-	-	0.3	0	0	-	-				

Timings
19: Dexter Av. & Central Av. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

08/02/2018

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	381	1821	181	176	1252	75	134	146	75	102	355
Future Volume (vph)	381	1821	181	176	1252	75	134	146	75	102	355
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2	1	6	7
Permitted Phases			4			8					6
Detector Phase	7	4	4	3	8	8	5	2	1	6	7
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0	5.0
Minimum Split (s)	9.6	26.8	26.8	9.6	26.8	26.8	9.6	42.4	9.6	15.8	9.6
Total Split (s)	32.0	47.2	47.2	17.0	32.2	32.2	22.1	43.8	12.0	33.7	32.0
Total Split (%)	26.7%	39.3%	39.3%	14.2%	26.8%	26.8%	18.4%	36.5%	10.0%	28.1%	26.7%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	4.8	3.6	4.4	3.6	4.8	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	5.8	4.6	5.8	5.8	4.6	5.4	4.6	5.8	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	None	Max	None
Act Effect Green (s)	27.2	41.4	41.4	12.4	26.6	26.6	13.3	38.4	7.1	31.8	60.2
Actuated g/C Ratio	0.23	0.35	0.35	0.10	0.22	0.22	0.11	0.32	0.06	0.27	0.50
v/c Ratio	0.97	0.99	0.29	0.98	0.77	0.16	0.70	0.59	0.73	0.21	0.43
Control Delay	84.1	58.0	8.3	117.1	47.5	0.7	69.6	33.0	92.1	36.9	13.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	84.1	58.0	8.3	117.1	47.5	0.7	69.6	33.0	92.1	36.9	13.2
LOS	F	E	A	F	D	A	E	C	F	D	B
Approach Delay		58.4			53.3			43.5		28.9	
Approach LOS		E			D			D		C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 119.7

Natural Cycle: 110

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.99

Intersection Signal Delay: 52.2

Intersection LOS: D

Intersection Capacity Utilization 96.9%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 19: Dexter Av. & Central Av. (SR-74)

Ø1	Ø2	Ø3	Ø4
12 s	43.8 s	17 s	47.2 s
Ø5	Ø6	Ø7	Ø8
22.1 s	33.7 s	32 s	32.2 s

HCM 6th Signalized Intersection Summary
19: Dexter Av. & Central Av. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

08/02/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	381	1821	181	176	1252	75	134	146	189	75	102	355
Future Volume (veh/h)	381	1821	181	176	1252	75	134	146	189	75	102	355
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	389	1858	143	180	1278	53	137	149	133	77	104	299
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	408	1885	535	185	1652	344	164	290	259	98	531	808
Arrive On Green	0.23	0.35	0.35	0.10	0.22	0.22	0.09	0.32	0.32	0.05	0.28	0.28
Sat Flow, veh/h	1781	5443	1545	1781	7481	1559	1781	903	806	1781	1870	1565
Grp Volume(v), veh/h	389	1858	143	180	1278	53	137	0	282	77	104	299
Grp Sat Flow(s),veh/h/ln	1781	1814	1545	1781	1870	1559	1781	0	1709	1781	1870	1565
Q Serve(g_s), s	25.7	40.5	8.0	12.0	19.2	3.3	9.0	0.0	16.0	5.1	5.0	13.7
Cycle Q Clear(g_c), s	25.7	40.5	8.0	12.0	19.2	3.3	9.0	0.0	16.0	5.1	5.0	13.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.47	1.00		1.00
Lane Grp Cap(c), veh/h	408	1885	535	185	1652	344	164	0	549	98	531	808
V/C Ratio(X)	0.95	0.99	0.27	0.97	0.77	0.15	0.84	0.00	0.51	0.79	0.20	0.37
Avail Cap(c_a), veh/h	408	1885	535	185	1652	344	261	0	549	110	531	808
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.4	38.8	28.2	53.4	43.8	37.6	53.4	0.0	33.0	55.8	32.5	17.5
Incr Delay (d2), s/veh	32.3	17.4	0.3	58.3	2.3	0.2	6.5	0.0	3.4	24.3	0.8	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	14.6	20.1	2.9	8.2	8.9	1.2	4.3	0.0	7.0	2.9	2.3	4.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	77.7	56.2	28.4	111.7	46.1	37.8	59.9	0.0	36.4	80.1	33.3	18.8
LnGrp LOS	E	E	C	F	D	D	E	A	D	F	C	B
Approach Vol, veh/h		2390			1511			419			480	
Approach Delay, s/veh		58.0			53.6			44.1			31.8	
Approach LOS		E			D			D			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.2	44.2	17.0	47.2	15.6	39.7	32.0	32.2				
Change Period (Y+Rc), s	4.6	* 5.8	4.6	5.8	4.6	5.8	4.6	5.8				
Max Green Setting (Gmax), s	7.4	* 38	12.4	41.4	17.5	27.9	27.4	26.4				
Max Q Clear Time (g_c+I1), s	7.1	18.0	14.0	42.5	11.0	15.7	27.7	21.2				
Green Ext Time (p_c), s	0.0	1.5	0.0	0.0	0.1	1.2	0.0	3.4				
Intersection Summary												
HCM 6th Ctrl Delay			52.8									
HCM 6th LOS			D									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Timings

S. Nichols Mixed-Use Development (JN 10878)

20: Cambern Av./Cambern Av & Central Av. (SR-74)

08/02/2018



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT	SBR	Ø3
Lane Configurations	↰↰	↰↰	↰↰	↰	↰	↰		↰	↰	
Traffic Volume (vph)	284	1955	1260	161	1	3	259	3	93	
Future Volume (vph)	284	1955	1260	161	1	3	259	3	93	
Turn Type	Prot	NA	NA	Perm	Perm	NA	Perm	NA	Perm	
Protected Phases	7	4	8			2		6		3
Permitted Phases				8	2		6		6	
Detector Phase	7	4	8	8	2	2	6	6	6	
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	5.0
Minimum Split (s)	9.6	24.8	25.5	25.5	34.7	34.7	14.7	14.7	14.7	9.6
Total Split (s)	19.8	74.0	63.8	63.8	36.4	36.4	36.4	36.4	36.4	9.6
Total Split (%)	16.5%	61.7%	53.2%	53.2%	30.3%	30.3%	30.3%	30.3%	30.3%	8%
Yellow Time (s)	3.6	4.8	5.5	5.5	3.7	3.7	3.7	3.7	3.7	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.6	5.8	6.5	6.5	4.7	4.7		4.7	4.7	
Lead/Lag	Lead	Lag	Lag	Lag						Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes						Yes
Recall Mode	Max	None	None	None	Max	Max	Max	Max	Max	None
Act Effect Green (s)	15.2	73.9	53.4	53.4	31.7	31.7		31.7	31.7	
Actuated g/C Ratio	0.13	0.64	0.46	0.46	0.27	0.27		0.27	0.27	
v/c Ratio	0.66	0.90	0.81	0.21	0.00	0.01		0.74	0.19	
Control Delay	56.4	25.1	31.6	3.2	33.0	29.5		52.8	5.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	56.4	25.1	31.6	3.2	33.0	29.5		52.8	5.1	
LOS	E	C	C	A	C	C		D	A	
Approach Delay		29.1	28.4			30.2		40.3		
Approach LOS		C	C			C		D		

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 116.2

Natural Cycle: 110

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 29.8

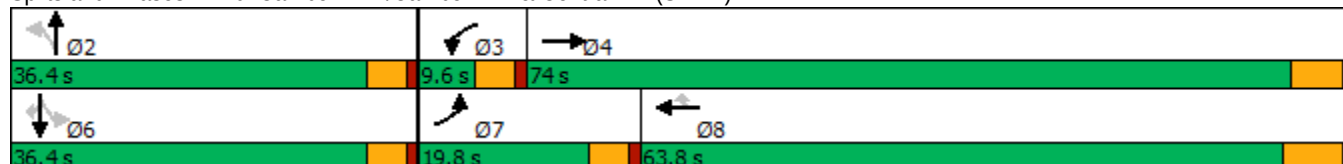
Intersection LOS: C

Intersection Capacity Utilization 92.0%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 20: Cambern Av./Cambern Av & Central Av. (SR-74)



HCM 6th Signalized Intersection Summary S. Nichols Mixed-Use Development (JN 10878)
 20: Cambern Av./Cambern Av & Central Av. (SR-74) 08/02/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	284	1955	1	0	1260	161	1	3	1	259	3	93
Future Volume (veh/h)	284	1955	1	0	1260	161	1	3	1	259	3	93
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	296	2036	1	0	1312	116	1	3	1	270	3	44
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	466	2258	1	2	1578	693	210	377	126	455	4	440
Arrive On Green	0.13	0.62	0.62	0.00	0.44	0.44	0.28	0.28	0.28	0.28	0.28	0.28
Sat Flow, veh/h	3456	3645	2	1781	3554	1562	1359	1342	447	1393	15	1565
Grp Volume(v), veh/h	296	992	1045	0	1312	116	1	0	4	273	0	44
Grp Sat Flow(s),veh/h/ln	1728	1777	1870	1781	1777	1562	1359	0	1790	1408	0	1565
Q Serve(g_s), s	9.1	54.3	54.3	0.0	36.7	5.0	0.1	0.0	0.2	19.4	0.0	2.3
Cycle Q Clear(g_c), s	9.1	54.3	54.3	0.0	36.7	5.0	19.7	0.0	0.2	19.6	0.0	2.3
Prop In Lane	1.00		0.00	1.00		1.00	1.00		0.25	0.99		1.00
Lane Grp Cap(c), veh/h	466	1101	1159	2	1578	693	210	0	503	459	0	440
V/C Ratio(X)	0.64	0.90	0.90	0.00	0.83	0.17	0.00	0.00	0.01	0.59	0.00	0.10
Avail Cap(c_a), veh/h	466	1101	1159	79	1806	794	210	0	503	459	0	440
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	46.2	18.5	18.5	0.0	27.6	18.8	44.9	0.0	29.2	36.3	0.0	30.0
Incr Delay (d2), s/veh	6.5	10.5	10.0	0.0	3.4	0.2	0.0	0.0	0.0	5.6	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.2	22.0	23.0	0.0	14.7	1.7	0.0	0.0	0.1	7.4	0.0	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.6	28.9	28.5	0.0	31.0	19.0	45.0	0.0	29.2	41.8	0.0	30.4
LnGrp LOS	D	C	C	A	C	B	D	A	C	D	A	C
Approach Vol, veh/h		2333			1428			5			317	
Approach Delay, s/veh		31.8			30.0			32.4			40.2	
Approach LOS		C			C			C			D	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		36.4	0.0	76.4		36.4	19.8	56.6				
Change Period (Y+Rc), s		* 4.7	4.6	* 6.5		* 4.7	4.6	6.5				
Max Green Setting (Gmax), s		* 32	5.0	* 68		* 32	15.2	57.3				
Max Q Clear Time (g_c+I1), s		21.7	0.0	56.3		21.6	11.1	38.7				
Green Ext Time (p_c), s		0.0	0.0	10.7		1.2	0.2	11.4				
Intersection Summary												
HCM 6th Ctrl Delay			31.8									
HCM 6th LOS			C									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

APPENDIX 8.2:

EAP (2024) CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

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Timings
1: Lake St. & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

05/21/2018

									
Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBL	SBT	Ø5
Lane Configurations									
Traffic Volume (vph)	17	5	226	6	759	426	37	306	
Future Volume (vph)	17	5	226	6	759	426	37	306	
Turn Type	Perm	NA	Perm	NA	NA	Perm	Prot	NA	
Protected Phases		4		8	2		1	6	5
Permitted Phases	4		8			2			
Detector Phase	4	4	8	8	2	2	1	6	
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	5.0	10.0	5.0
Minimum Split (s)	14.6	14.6	16.2	16.2	16.2	16.2	9.6	16.2	9.6
Total Split (s)	42.2	42.2	42.2	42.2	42.2	42.2	35.6	42.2	35.6
Total Split (%)	35.2%	35.2%	35.2%	35.2%	35.2%	35.2%	29.7%	35.2%	30%
Yellow Time (s)	3.6	3.6	5.2	5.2	5.2	5.2	3.6	5.2	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		4.6		6.2	6.2	6.2	4.6	6.2	
Lead/Lag					Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	Max	Max	None	Max	None
Act Effect Green (s)		24.2		22.6	37.1	37.1	6.6	43.5	
Actuated g/C Ratio		0.31		0.29	0.47	0.47	0.08	0.55	
v/c Ratio		0.05		0.77	0.93	0.56	0.27	0.33	
Control Delay		20.2		39.3	43.3	15.7	43.0	11.9	
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay		20.2		39.3	43.3	15.7	43.0	11.9	
LOS		C		D	D	B	D	B	
Approach Delay		20.2		39.3	33.4			15.2	
Approach LOS		C		D	C			B	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 78.9

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.93

Intersection Signal Delay: 30.7

Intersection LOS: C

Intersection Capacity Utilization 68.2%

ICU Level of Service C

Analysis Period (min) 15

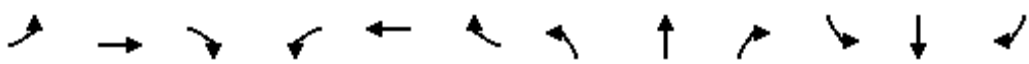
Splits and Phases: 1: Lake St. & Nichols Rd.

		
Ø1	Ø2	Ø4
35.6 s	42.2 s	42.2 s
		
Ø5	Ø6	Ø8
35.6 s	42.2 s	42.2 s

HCM 6th Signalized Intersection Summary
1: Lake St. & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

05/21/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↔	↑	↑	↔	↑	
Traffic Volume (veh/h)	17	5	0	226	6	56	0	759	426	37	306	5
Future Volume (veh/h)	17	5	0	226	6	56	0	759	426	37	306	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	18	5	0	243	6	48	0	816	0	40	329	5
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	372	93	0	376	7	57	2	917		68	1086	17
Arrive On Green	0.24	0.24	0.00	0.24	0.24	0.24	0.00	0.49	0.00	0.04	0.59	0.59
Sat Flow, veh/h	1185	388	0	1193	29	236	1781	1870	1585	1781	1837	28
Grp Volume(v), veh/h	23	0	0	297	0	0	0	816	0	40	0	334
Grp Sat Flow(s),veh/h/ln	1573	0	0	1458	0	0	1781	1870	1585	1781	0	1865
Q Serve(g_s), s	0.0	0.0	0.0	13.5	0.0	0.0	0.0	29.0	0.0	1.6	0.0	6.5
Cycle Q Clear(g_c), s	0.7	0.0	0.0	14.2	0.0	0.0	0.0	29.0	0.0	1.6	0.0	6.5
Prop In Lane	0.78		0.00	0.82		0.16	1.00		1.00	1.00		0.01
Lane Grp Cap(c), veh/h	465	0	0	439	0	0	2	917		68	0	1102
V/C Ratio(X)	0.05	0.00	0.00	0.68	0.00	0.00	0.00	0.89		0.59	0.00	0.30
Avail Cap(c_a), veh/h	856	0	0	801	0	0	752	917		752	0	1102
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.5	0.0	0.0	26.5	0.0	0.0	0.0	16.9	0.0	34.8	0.0	7.5
Incr Delay (d2), s/veh	0.0	0.0	0.0	1.8	0.0	0.0	0.0	12.6	0.0	3.0	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.0	4.6	0.0	0.0	0.0	12.8	0.0	0.7	0.0	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.5	0.0	0.0	28.3	0.0	0.0	0.0	29.5	0.0	37.8	0.0	8.2
LnGrp LOS	C	A	A	C	A	A	A	C		D	A	A
Approach Vol, veh/h	23				297			816		A		374
Approach Delay, s/veh	21.5				28.3			29.5				11.4
Approach LOS	C				C			C				B
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.4	42.2		23.8	0.0	49.6		23.8				
Change Period (Y+Rc), s	4.6	6.2		* 6.2	4.6	6.2		6.2				
Max Green Setting (Gmax), s	31.0	36.0		* 38	31.0	36.0		36.0				
Max Q Clear Time (g_c+I1), s	3.6	31.0		2.7	0.0	8.5		16.2				
Green Ext Time (p_c), s	0.0	2.8		0.1	0.0	2.6		1.4				

Intersection Summary

HCM 6th Ctrl Delay	24.7
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Timings
2: Lake St. & Alberhill Ranch Rd.

S. Nichols Mixed-Use Development (JN 10878)

05/21/2018

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	64	63	1166	54	27	486
Future Volume (vph)	64	63	1166	54	27	486
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2		
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	15.1	15.1	16.2	16.2	11.2	16.2
Total Split (s)	15.1	15.1	93.7	93.7	11.2	104.9
Total Split (%)	12.6%	12.6%	78.1%	78.1%	9.3%	87.4%
Yellow Time (s)	4.1	4.1	5.2	5.2	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	6.2	6.2	6.2	6.2
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	Max	Max	None	Max
Act Effect Green (s)	10.0	10.0	96.2	96.2	5.0	103.0
Actuated g/C Ratio	0.08	0.08	0.80	0.80	0.04	0.86
v/c Ratio	0.46	0.35	0.83	0.05	0.40	0.32
Control Delay	63.3	17.4	17.2	1.8	72.0	2.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.3	17.4	17.2	1.8	72.0	2.9
LOS	E	B	B	A	E	A
Approach Delay	40.5		16.5			6.6
Approach LOS	D		B			A

Intersection Summary

Cycle Length: 120	
Actuated Cycle Length: 120	
Natural Cycle: 100	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.83	
Intersection Signal Delay: 15.4	Intersection LOS: B
Intersection Capacity Utilization 79.1%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 2: Lake St. & Alberhill Ranch Rd.



HCM 6th Signalized Intersection Summary
2: Lake St. & Alberhill Ranch Rd.

S. Nichols Mixed-Use Development (JN 10878)

05/21/2018

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	64	63	1166	54	27	486
Future Volume (veh/h)	64	63	1166	54	27	486
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	68	43	1240	48	29	517
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	145	129	1396	1181	46	1542
Arrive On Green	0.08	0.08	0.75	0.75	0.03	0.82
Sat Flow, veh/h	1781	1585	1870	1582	1781	1870
Grp Volume(v), veh/h	68	43	1240	48	29	517
Grp Sat Flow(s),veh/h/ln	1781	1585	1870	1582	1781	1870
Q Serve(g_s), s	4.4	3.1	59.7	0.9	1.9	8.0
Cycle Q Clear(g_c), s	4.4	3.1	59.7	0.9	1.9	8.0
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	145	129	1396	1181	46	1542
V/C Ratio(X)	0.47	0.33	0.89	0.04	0.63	0.34
Avail Cap(c_a), veh/h	149	132	1396	1181	74	1542
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.5	51.9	11.4	4.0	57.8	2.6
Incr Delay (d2), s/veh	0.9	0.6	8.7	0.1	5.2	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	1.2	20.5	0.3	0.9	1.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	53.4	52.5	20.1	4.0	62.9	3.1
LnGrp LOS	D	D	C	A	E	A
Approach Vol, veh/h	111		1288			546
Approach Delay, s/veh	53.0		19.5			6.3
Approach LOS	D		B			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	9.3	95.6			104.9	14.9
Change Period (Y+Rc), s	6.2	6.2			6.2	5.1
Max Green Setting (Gmax), s	5.0	87.5			98.7	10.0
Max Q Clear Time (g_c+I1), s	3.9	61.7			10.0	6.4
Green Ext Time (p_c), s	0.0	12.2			3.2	0.0
Intersection Summary						
HCM 6th Ctrl Delay			17.7			
HCM 6th LOS			B			

Intersection

Intersection Delay, s/veh 15.7

Intersection LOS C

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	457	18	51	245	43	95
Future Vol, veh/h	457	18	51	245	43	95
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	519	20	58	278	49	108
Number of Lanes	1	0	0	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	1
HCM Control Delay	19.1	12.8	10.1
HCM LOS	C	B	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1
Vol Left, %	100%	0%	0%	17%
Vol Thru, %	0%	0%	96%	83%
Vol Right, %	0%	100%	4%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	43	95	475	296
LT Vol	43	0	0	51
Through Vol	0	0	457	245
RT Vol	0	95	18	0
Lane Flow Rate	49	108	540	336
Geometry Grp	7	7	2	2
Degree of Util (X)	0.097	0.177	0.715	0.481
Departure Headway (Hd)	7.141	5.919	4.771	5.148
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	504	608	750	703
Service Time	4.856	3.634	2.868	3.148
HCM Lane V/C Ratio	0.097	0.178	0.72	0.478
HCM Control Delay	10.6	9.9	19.1	12.8
HCM Lane LOS	B	A	C	B
HCM 95th-tile Q	0.3	0.6	6.1	2.6

Timings
4: Lakeshore Dr. & Riverside Dr. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

05/21/2018

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	21	513	159	152	609	387	300	330	234	193	10
Future Volume (vph)	21	513	159	152	609	387	300	330	234	193	10
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2	1	6	
Permitted Phases			4			8					6
Detector Phase	7	4	4	3	8	8	5	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	32.4	32.4	9.6	33.4	33.4	9.6	34.7	9.6	32.7	32.7
Total Split (s)	9.6	35.0	35.0	22.6	48.0	48.0	28.0	38.4	24.0	34.4	34.4
Total Split (%)	8.0%	29.2%	29.2%	18.8%	40.0%	40.0%	23.3%	32.0%	20.0%	28.7%	28.7%
Yellow Time (s)	3.6	4.4	4.4	3.6	4.4	4.4	3.6	3.7	3.6	3.7	3.7
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.4	5.4	4.6	5.4	5.4	4.6	4.7	4.6	4.7	4.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	None	Max	Max
Act Effect Green (s)	5.0	29.0	29.0	14.7	42.7	42.7	23.4	34.4	18.8	29.8	29.8
Actuated g/C Ratio	0.04	0.25	0.25	0.13	0.37	0.37	0.20	0.30	0.16	0.26	0.26
v/c Ratio	0.32	0.65	0.34	0.77	1.00	0.56	0.94	0.50	0.92	0.24	0.02
Control Delay	66.7	43.5	7.8	71.4	72.3	10.7	82.3	33.2	84.4	35.8	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.7	43.5	7.8	71.4	72.3	10.7	82.3	33.2	84.4	35.8	0.1
LOS	E	D	A	E	E	B	F	C	F	D	A
Approach Delay		36.0			51.4			52.5		61.0	
Approach LOS		D			D			D		E	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 116.2

Natural Cycle: 120

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.00

Intersection Signal Delay: 49.6

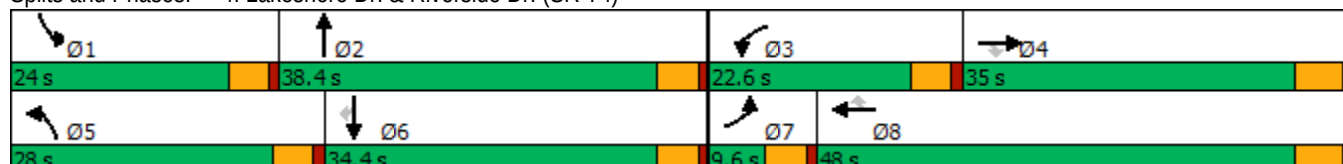
Intersection LOS: D

Intersection Capacity Utilization 90.3%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 4: Lakeshore Dr. & Riverside Dr. (SR-74)



HCM 6th Signalized Intersection Summary
4: Lakeshore Dr. & Riverside Dr. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

05/21/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	513	159	152	609	387	300	330	131	234	193	10
Future Volume (veh/h)	21	513	159	152	609	387	300	330	131	234	193	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	24	576	116	171	684	56	337	371	82	263	217	8
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	41	971	432	199	677	573	354	837	183	289	897	400
Arrive On Green	0.02	0.27	0.27	0.11	0.36	0.36	0.20	0.29	0.29	0.16	0.25	0.25
Sat Flow, veh/h	1781	3554	1582	1781	1870	1584	1781	2897	633	1781	3554	1585
Grp Volume(v), veh/h	24	576	116	171	684	56	337	226	227	263	217	8
Grp Sat Flow(s),veh/h/ln	1781	1777	1582	1781	1870	1584	1781	1777	1754	1781	1777	1585
Q Serve(g_s), s	1.6	16.5	6.8	11.1	42.6	2.8	22.0	12.2	12.4	17.1	5.7	0.4
Cycle Q Clear(g_c), s	1.6	16.5	6.8	11.1	42.6	2.8	22.0	12.2	12.4	17.1	5.7	0.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.36	1.00		1.00
Lane Grp Cap(c), veh/h	41	971	432	199	677	573	354	513	507	289	897	400
V/C Ratio(X)	0.58	0.59	0.27	0.86	1.01	0.10	0.95	0.44	0.45	0.91	0.24	0.02
Avail Cap(c_a), veh/h	76	971	432	272	677	573	354	513	507	294	897	400
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.9	37.1	33.5	51.4	37.6	24.8	46.6	34.1	34.2	48.5	35.0	33.1
Incr Delay (d2), s/veh	4.8	1.0	0.3	14.2	37.2	0.1	35.0	2.7	2.9	29.5	0.6	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	7.1	2.6	5.6	25.6	1.0	13.1	5.7	5.7	9.9	2.6	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	61.7	38.1	33.9	65.6	74.8	24.9	81.6	36.8	37.0	78.0	35.7	33.2
LnGrp LOS	E	D	C	E	F	C	F	D	D	E	D	C
Approach Vol, veh/h		716			911			790			488	
Approach Delay, s/veh		38.2			70.0			56.0			58.4	
Approach LOS		D			E			E			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	23.7	38.7	17.7	37.6	28.0	34.4	7.3	48.0				
Change Period (Y+Rc), s	4.6	* 4.7	4.6	5.4	4.6	* 4.7	4.6	5.4				
Max Green Setting (Gmax), s	19.4	* 34	18.0	29.6	23.4	* 30	5.0	42.6				
Max Q Clear Time (g_c+I1), s	19.1	14.4	13.1	18.5	24.0	7.7	3.6	44.6				
Green Ext Time (p_c), s	0.0	2.6	0.1	3.0	0.0	1.3	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			56.4									
HCM 6th LOS			E									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Intersection												
Int Delay, s/veh	12.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕	↗		↕	↗
Traffic Vol, veh/h	0	963	3	12	725	49	0	2	26	66	3	6
Future Vol, veh/h	0	963	3	12	725	49	0	2	26	66	3	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Stop	-	-	Stop
Storage Length	-	-	-	-	-	-	-	-	75	-	-	75
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	993	3	12	747	51	0	2	27	68	3	6
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	798	0	0	996	0	0	1793	1817	995	1793	1793	773
Stage 1	-	-	-	-	-	-	995	995	-	797	797	-
Stage 2	-	-	-	-	-	-	798	822	-	996	996	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	824	-	-	695	-	-	63	78	297	~ 63	81	399
Stage 1	-	-	-	-	-	-	295	323	-	380	399	-
Stage 2	-	-	-	-	-	-	380	388	-	294	322	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	824	-	-	695	-	-	59	76	297	~ 55	78	399
Mov Cap-2 Maneuver	-	-	-	-	-	-	59	76	-	~ 55	78	-
Stage 1	-	-	-	-	-	-	295	323	-	380	387	-
Stage 2	-	-	-	-	-	-	360	376	-	266	322	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.2			20.8			\$ 305.8		
HCM LOS							C			F		
Minor Lane/Major Mvmt	NBLn1		NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2	
Capacity (veh/h)	76		297	824	-	-	695	-	-	56	399	
HCM Lane V/C Ratio	0.027		0.09	-	-	-	0.018	-	-	1.27	0.016	
HCM Control Delay (s)	53.7		18.3	0	-	-	10.3	0	-	\$ 331.2	14.2	
HCM Lane LOS	F		C	A	-	-	B	A	-	F	B	
HCM 95th %tile Q(veh)	0.1		0.3	0	-	-	0.1	-	-	6.2	0	
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s				+: Computation Not Defined				*: All major volume in platoon		

Intersection												
Int Delay, s/veh	12.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	963	3	12	725	49	0	2	26	66	3	6
Future Vol, veh/h	0	963	3	12	725	49	0	2	26	66	3	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Stop	-	-	Stop
Storage Length	100	-	-	100	-	-	-	-	75	-	-	75
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	993	3	12	747	51	0	2	27	68	3	6
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	798	0	0	996	0	0	1793	1817	995	1793	1793	773
Stage 1	-	-	-	-	-	-	995	995	-	797	797	-
Stage 2	-	-	-	-	-	-	798	822	-	996	996	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	824	-	-	695	-	-	63	78	297	~ 63	81	399
Stage 1	-	-	-	-	-	-	295	323	-	380	399	-
Stage 2	-	-	-	-	-	-	380	388	-	294	322	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	824	-	-	695	-	-	59	77	297	~ 55	80	399
Mov Cap-2 Maneuver	-	-	-	-	-	-	59	77	-	~ 55	80	-
Stage 1	-	-	-	-	-	-	295	323	-	380	392	-
Stage 2	-	-	-	-	-	-	365	381	-	266	322	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.2			20.8			\$ 305.8		
HCM LOS							C			F		
Minor Lane/Major Mvmt	NBLn1 NBLn2		EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2		
Capacity (veh/h)	77	297	824	-	-	695	-	-	56	399		
HCM Lane V/C Ratio	0.027	0.09	-	-	-	0.018	-	-	1.27	0.016		
HCM Control Delay (s)	53	18.3	0	-	-	10.3	-	-	\$ 331.2	14.2		
HCM Lane LOS	F	C	A	-	-	B	-	-	F	B		
HCM 95th %tile Q(veh)	0.1	0.3	0	-	-	0.1	-	-	6.2	0		
Notes												
~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon												

Intersection						
Int Delay, s/veh	6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	524	36	180	260	42	198
Future Vol, veh/h	524	36	180	260	42	198
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	120	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	602	41	207	299	48	228
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	643	0	1336	623
Stage 1	-	-	-	-	623	-
Stage 2	-	-	-	-	713	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	942	-	169	486
Stage 1	-	-	-	-	535	-
Stage 2	-	-	-	-	486	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	942	-	132	486
Mov Cap-2 Maneuver	-	-	-	-	132	-
Stage 1	-	-	-	-	417	-
Stage 2	-	-	-	-	486	-
Approach	EB	WB		NB		
HCM Control Delay, s	0	4		23.8		
HCM LOS	C					
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	132	486	-	-	942	-
HCM Lane V/C Ratio	0.366	0.468	-	-	0.22	-
HCM Control Delay (s)	47.2	18.8	-	-	9.9	-
HCM Lane LOS	E	C	-	-	A	-
HCM 95th %tile O(veh)	1.5	2.5	-	-	0.8	-

05/21/2018

 Ø2 79 s	 Ø6 18 s	 Ø4 23 s
		 Ø8 23 s

HCM 6th Signalized Intersection Summary S. Nichols Mixed-Use Development (JN 10878)
 7: Collier Av. (SR-74)/Collier Av. & Riverside Dr. (SR-74)/Riverside Dr. 05/21/2018

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (veh/h)	142	11	901	6	1	2	688	116	11	1	89	97	
Future Volume (veh/h)	142	11	901	6	1	2	688	116	11	1	89	97	
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	
Adj Flow Rate, veh/h	149	12	882	6	1	0	724	122	11	1	94	62	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2	
Cap, veh/h	270	17	1199	87	10	0	1087	1031	93	175	184	156	
Arrive On Green	0.15	0.15	0.15	0.15	0.15	0.00	0.61	0.61	0.61	0.10	0.10	0.10	
Sat Flow, veh/h	1445	116	1585	212	71	0	1781	1691	152	1781	1870	1585	
Grp Volume(v), veh/h	161	0	882	7	0	0	724	0	133	1	94	62	
Grp Sat Flow(s),veh/h/ln	1561	0	1585	283	0	0	1781	0	1843	1781	1870	1585	
Q Serve(g_s), s	0.0	0.0	17.6	0.3	0.0	0.0	32.0	0.0	3.6	0.1	5.7	4.4	
Cycle Q Clear(g_c), s	11.3	0.0	17.6	11.5	0.0	0.0	32.0	0.0	3.6	0.1	5.7	4.4	
Prop In Lane	0.93		1.00	0.86		0.00	1.00		0.08	1.00		1.00	
Lane Grp Cap(c), veh/h	287	0	1199	97	0	0	1087	0	1124	175	184	156	
V/C Ratio(X)	0.56	0.00	0.74	0.07	0.00	0.00	0.67	0.00	0.12	0.01	0.51	0.40	
Avail Cap(c_a), veh/h	287	0	1199	102	0	0	1087	0	1124	175	184	156	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	48.5	0.0	5.7	45.6	0.0	0.0	15.4	0.0	9.8	48.8	51.4	50.8	
Incr Delay (d2), s/veh	2.5	0.0	2.4	0.3	0.0	0.0	3.2	0.0	0.2	0.1	9.8	7.4	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	4.7	0.0	27.2	0.2	0.0	0.0	12.5	0.0	1.4	0.0	3.1	2.0	
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	51.0	0.0	8.1	45.9	0.0	0.0	18.6	0.0	10.1	48.9	61.2	58.2	
LnGrp LOS	D	A	A	D	A	A	B	A	B	D	E	E	
Approach Vol, veh/h	1043			7				857				157	
Approach Delay, s/veh	14.7			45.9				17.3				59.9	
Approach LOS	B			D				B				E	
Timer - Assigned Phs	2			4			6		8				
Phs Duration (G+Y+Rc), s	79.0			23.0			18.0		23.0				
Change Period (Y+Rc), s	5.8			5.4			6.2		* 5.4				
Max Green Setting (Gmax), s	73.2			17.6			11.8		* 18				
Max Q Clear Time (g_c+I1), s	34.0			19.6			7.7		13.5				
Green Ext Time (p_c), s	3.4			0.0			0.2		0.0				
Intersection Summary													
HCM 6th Ctrl Delay			19.3										
HCM 6th LOS			B										
Notes													

Timings

S. Nichols Mixed-Use Development (JN 10878)

8: Collier Av./Collier Av. (SR-74) & Central Av./Central Av. (SR-74)

05/21/2018

											
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	55	98	562	310	666	33	78	309	853	79	27
Future Volume (vph)	55	98	562	310	666	33	78	309	853	79	27
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	7	4	3	8	1	5	2	3	1	6	
Permitted Phases					8			2			6
Detector Phase	7	4	3	8	1	5	2	3	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	5.0	10.0	5.0	5.0	10.0	10.0
Minimum Split (s)	9.6	14.7	9.6	42.8	9.6	9.6	15.8	9.6	9.6	29.8	29.8
Total Split (s)	10.0	21.0	34.0	45.0	46.0	12.0	19.0	34.0	46.0	53.0	53.0
Total Split (%)	8.3%	17.5%	28.3%	37.5%	38.3%	10.0%	15.8%	28.3%	38.3%	44.2%	44.2%
Yellow Time (s)	3.6	3.7	3.6	4.8	3.6	3.6	4.8	3.6	3.6	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.7	4.6	5.8	4.6	4.6	5.8	4.6	4.6	5.8	5.8
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	None	None	Max	Max
Act Effect Green (s)	5.4	10.8	21.9	28.5	61.3	6.3	18.0	41.1	31.7	47.8	47.8
Actuated g/C Ratio	0.05	0.11	0.21	0.28	0.60	0.06	0.18	0.40	0.31	0.47	0.47
v/c Ratio	0.33	0.36	0.82	0.64	0.37	0.32	0.25	0.46	0.85	0.05	0.04
Control Delay	55.7	37.4	48.6	40.1	1.6	57.9	43.7	14.1	42.1	18.2	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.7	37.4	48.6	40.1	1.6	57.9	43.7	14.1	42.1	18.2	0.1
LOS	E	D	D	D	A	E	D	B	D	B	A
Approach Delay		42.8		26.6			23.0			39.0	
Approach LOS		D		C			C			D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 102.3

Natural Cycle: 95

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.85

Intersection Signal Delay: 30.9

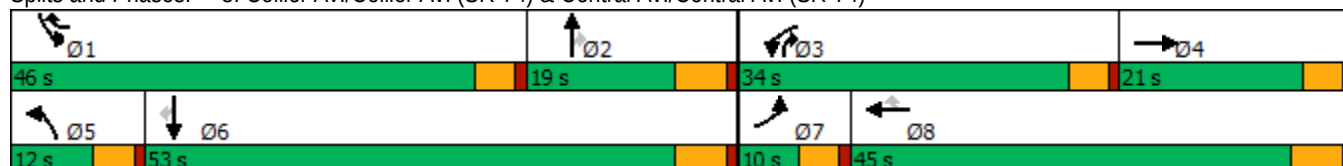
Intersection LOS: C

Intersection Capacity Utilization 68.0%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 8: Collier Av./Collier Av. (SR-74) & Central Av./Central Av. (SR-74)



HCM 6th Signalized Intersection Summary S. Nichols Mixed-Use Development (JN 10878)
 8: Collier Av./Collier Av. (SR-74) & Central Av./Central Av. (SR-74) 05/21/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	98	33	562	310	666	33	78	309	853	79	27
Future Volume (veh/h)	55	98	33	562	310	666	33	78	309	853	79	27
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	59	104	26	598	330	314	35	83	165	907	84	26
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	138	280	68	681	479	1504	55	391	639	999	1660	730
Arrive On Green	0.04	0.10	0.10	0.20	0.26	0.26	0.03	0.21	0.21	0.29	0.47	0.47
Sat Flow, veh/h	3456	2828	683	3456	1870	2725	1781	1870	1563	3456	3554	1562
Grp Volume(v), veh/h	59	64	66	598	330	314	35	83	165	907	84	26
Grp Sat Flow(s),veh/h/ln	1728	1777	1734	1728	1870	1362	1781	1870	1563	1728	1777	1562
Q Serve(g_s), s	1.7	3.4	3.6	17.0	16.1	6.0	2.0	3.7	7.1	25.6	1.3	0.9
Cycle Q Clear(g_c), s	1.7	3.4	3.6	17.0	16.1	6.0	2.0	3.7	7.1	25.6	1.3	0.9
Prop In Lane	1.00		0.39	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	138	176	172	681	479	1504	55	391	639	999	1660	730
V/C Ratio(X)	0.43	0.36	0.38	0.88	0.69	0.21	0.63	0.21	0.26	0.91	0.05	0.04
Avail Cap(c_a), veh/h	185	287	280	1006	726	1864	130	391	639	1416	1660	730
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.4	42.5	42.6	39.4	34.0	11.8	48.4	33.1	19.9	34.6	14.7	14.6
Incr Delay (d2), s/veh	0.8	1.3	1.4	4.5	1.8	0.1	4.4	1.2	1.0	5.3	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	1.5	1.6	7.3	7.2	1.6	0.9	1.8	2.6	10.8	0.5	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.1	43.8	44.0	43.9	35.7	11.9	52.8	34.3	20.9	39.9	14.7	14.7
LnGrp LOS	D	D	D	D	D	B	D	C	C	D	B	B
Approach Vol, veh/h		189			1242			283			1017	
Approach Delay, s/veh		45.2			33.6			28.8			37.2	
Approach LOS		D			C			C			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	33.8	26.9	24.5	15.8	7.7	53.0	8.6	31.7				
Change Period (Y+Rc), s	4.6	5.8	4.6	* 5.8	4.6	5.8	4.6	5.8				
Max Green Setting (Gmax), s	41.4	13.2	29.4	* 16	7.4	47.2	5.4	39.2				
Max Q Clear Time (g_c+I1), s	27.6	9.1	19.0	5.6	4.0	3.3	3.7	18.1				
Green Ext Time (p_c), s	1.6	0.3	0.9	0.4	0.0	0.5	0.0	3.0				
Intersection Summary												
HCM 6th Ctrl Delay			35.3									
HCM 6th LOS			D									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Intersection

Intersection Delay, s/veh68.4

Intersection LOS F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗	↖	↑						↕	
Traffic Vol, veh/h	0	422	301	130	370	0	0	0	0	257	7	70
Future Vol, veh/h	0	422	301	130	370	0	0	0	0	257	7	70
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles, %	0	3	3	25	3	0	0	0	0	8	67	13
Mvmt Flow	0	563	401	173	493	0	0	0	0	343	9	93
Number of Lanes	0	1	1	1	1	0	0	0	0	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	2
HCM Control Delay	83	64	43.2
HCM LOS	F	F	E

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	100%	0%	77%
Vol Thru, %	100%	0%	0%	100%	2%
Vol Right, %	0%	100%	0%	0%	21%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	422	301	130	370	334
LT Vol	0	0	130	0	257
Through Vol	422	0	0	370	7
RT Vol	0	301	0	0	70
Lane Flow Rate	563	401	173	493	445
Geometry Grp	7	7	7	7	2
Degree of Util (X)	1.169	0.755	0.407	1.039	0.876
Departure Headway (Hd)	7.652	6.928	8.727	7.823	7.37
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	478	526	414	469	494
Service Time	5.352	4.628	6.427	5.523	5.37
HCM Lane V/C Ratio	1.178	0.762	0.418	1.051	0.901
HCM Control Delay	122.3	27.9	17.3	80.4	43.2
HCM Lane LOS	F	D	C	F	E
HCM 95th-tile Q	20.2	6.5	1.9	14.6	9.4

Intersection													
Int Delay, s/veh	469.4												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Vol, veh/h	83	596	0	0	343	164	158	3	200	0	0	0	
Future Vol, veh/h	83	596	0	0	343	164	158	3	200	0	0	0	
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop	
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None	
Storage Length	230	-	-	-	-	-	-	-	-	-	-	-	
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-	
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-	
Peak Hour Factor	62	62	62	62	62	62	62	62	62	62	62	62	
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0	
Mvmt Flow	134	961	0	0	553	265	255	5	323	0	0	0	
Major/Minor	Major1			Major2			Minor1						
Conflicting Flow All	818	0	-	-	-	0	1915	2047	961				
Stage 1	-	-	-	-	-	-	1229	1229	-				
Stage 2	-	-	-	-	-	-	686	818	-				
Critical Hdwy	4.15	-	-	-	-	-	6.44	6.5	6.26				
Critical Hdwy Stg 1	-	-	-	-	-	-	5.44	5.5	-				
Critical Hdwy Stg 2	-	-	-	-	-	-	5.44	5.5	-				
Follow-up Hdwy	2.245	-	-	-	-	-	3.536	4	3.354				
Pot Cap-1 Maneuver	797	-	0	0	-	-	~ 73	57	~ 305				
Stage 1	-	-	0	0	-	-	274	252	-				
Stage 2	-	-	0	0	-	-	496	393	-				
Platoon blocked, %		-			-	-							
Mov Cap-1 Maneuver	797	-	-	-	-	-	~ 61	0	~ 305				
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 61	0	-				
Stage 1	-	-	-	-	-	-	~ 228	0	-				
Stage 2	-	-	-	-	-	-	496	0	-				
Approach	EB			WB			NB						
HCM Control Delay, s	1.3				0				\$ 2009.2				
HCM LOS										F			
Minor Lane/Major Mvmt	NBLn1		EBL	EBT	WBT	WBR							
Capacity (veh/h)	110	797	-	-	-	-							
HCM Lane V/C Ratio	5.293	0.168	-	-	-	-							
HCM Control Delay (s)	\$ 2009.2	10.4	-	-	-	-							
HCM Lane LOS	F	B	-	-	-	-							
HCM 95th %tile Q(veh)	62.5	0.6	-	-	-	-							
Notes													
~: Volume exceeds capacity		\$: Delay exceeds 300s			+: Computation Not Defined				*: All major volume in platoon				

Intersection	
Intersection Delay, s/veh	318.6
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	83	596	0	0	343	164	158	3	200	0	0	0
Future Vol, veh/h	83	596	0	0	343	164	158	3	200	0	0	0
Peak Hour Factor	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	134	961	0	0	553	265	255	5	323	0	0	0
Number of Lanes	1	1	0	0	1	0	0	1	0	0	0	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	442.1	306.7	103.2
HCM LOS	F	F	F

Lane	NBLn1	EBLn1	EBLn2	WBLn1
Vol Left, %	44%	100%	0%	0%
Vol Thru, %	1%	0%	100%	68%
Vol Right, %	55%	0%	0%	32%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	361	83	596	507
LT Vol	158	83	0	0
Through Vol	3	0	596	343
RT Vol	200	0	0	164
Lane Flow Rate	582	134	961	818
Geometry Grp	2	7	7	5
Degree of Util (X)	1.103	0.304	2.051	1.61
Departure Headway (Hd)	8.395	9.46	8.938	8.462
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	437	383	413	442
Service Time	6.395	7.16	6.638	6.462
HCM Lane V/C Ratio	1.332	0.35	2.327	1.851
HCM Control Delay	103.2	16.2	501.4	306.7
HCM Lane LOS	F	C	F	F
HCM 95th-tile Q	16.4	1.3	58.2	39

Timings
11: A Street & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

07/19/2018

	→	↖	←	↙
Lane Group	EBT	WBL	WBT	NBL
Lane Configurations	↻	↻	↻	↻
Traffic Volume (vph)	441	17	288	399
Future Volume (vph)	441	17	288	399
Turn Type	NA	Prot	NA	Prot
Protected Phases	4	3	8	2
Permitted Phases				
Detector Phase	4	3	8	2
Switch Phase				
Minimum Initial (s)	10.0	5.0	10.0	10.0
Minimum Split (s)	22.8	9.6	22.8	21.6
Total Split (s)	57.0	16.0	73.0	47.0
Total Split (%)	47.5%	13.3%	60.8%	39.2%
Yellow Time (s)	4.8	3.6	4.8	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	4.6	5.8	4.6
Lead/Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		
Recall Mode	None	None	None	Min
Act Effect Green (s)	32.5	7.3	35.9	26.5
Actuated g/C Ratio	0.44	0.10	0.48	0.36
v/c Ratio	0.77	0.10	0.35	0.70
Control Delay	27.5	45.7	13.3	30.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	27.5	45.7	13.3	30.4
LOS	C	D	B	C
Approach Delay	27.5		15.1	30.4
Approach LOS	C		B	C

Intersection Summary

Cycle Length: 120	
Actuated Cycle Length: 74.6	
Natural Cycle: 70	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.77	
Intersection Signal Delay: 25.5	Intersection LOS: C
Intersection Capacity Utilization 61.9%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 11: A Street & Nichols Rd.

↙ Ø2	↖ Ø3	→ Ø4
47 s	16 s	57 s
	← Ø8	
	73 s	

HCM 6th Signalized Intersection Summary 11: A Street & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

07/19/2018

											
Movement	EBT	EBR	WBL	WBT	NBL	NBR					
Lane Configurations											
Traffic Volume (veh/h)	441	126	17	288	399	5					
Future Volume (veh/h)	441	126	17	288	399	5					
Initial Q (Qb), veh	0	0	0	0	0	0					
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00					
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00					
Work Zone On Approach	No			No	No						
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1900	1900					
Adj Flow Rate, veh/h	479	137	18	313	434	5					
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92					
Percent Heavy Veh, %	2	2	2	2	0	0					
Cap, veh/h	582	166	39	975	518	6					
Arrive On Green	0.42	0.42	0.02	0.52	0.29	0.29					
Sat Flow, veh/h	1398	400	1781	1870	1783	21					
Grp Volume(v), veh/h	0	616	18	313	440	0					
Grp Sat Flow(s),veh/h/ln	0	1798	1781	1870	1807	0					
Q Serve(g_s), s	0.0	16.8	0.6	5.3	12.6	0.0					
Cycle Q Clear(g_c), s	0.0	16.8	0.6	5.3	12.6	0.0					
Prop In Lane		0.22	1.00		0.99	0.01					
Lane Grp Cap(c), veh/h	0	748	39	975	526	0					
V/C Ratio(X)	0.00	0.82	0.46	0.32	0.84	0.00					
Avail Cap(c_a), veh/h	0	1665	367	2273	1385	0					
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00					
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00					
Uniform Delay (d), s/veh	0.0	14.3	26.7	7.6	18.4	0.0					
Incr Delay (d2), s/veh	0.0	2.4	8.3	0.2	3.6	0.0					
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0					
%ile BackOfQ(50%),veh/ln	0.0	5.5	0.3	1.5	5.3	0.0					
Unsig. Movement Delay, s/veh											
LnGrp Delay(d),s/veh	0.0	16.7	35.0	7.8	22.0	0.0					
LnGrp LOS	A	B	D	A	C	A					
Approach Vol, veh/h	616			331	440						
Approach Delay, s/veh	16.7			9.3	22.0						
Approach LOS	B			A	C						
Timer - Assigned Phs	2		3	4	8						
Phs Duration (G+Y+Rc), s	20.7		5.8	28.8	34.6						
Change Period (Y+Rc), s	4.6		4.6	5.8	5.8						
Max Green Setting (Gmax), s	42.4		11.4	51.2	67.2						
Max Q Clear Time (g_c+I1), s	14.6		2.6	18.8	7.3						
Green Ext Time (p_c), s	1.5		0.0	4.2	1.8						
Intersection Summary											
HCM 6th Ctrl Delay			16.6								
HCM 6th LOS			B								
Notes											

Intersection						
Int Delay, s/veh	3.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	258	251	0	149	156	0
Future Vol, veh/h	258	251	0	149	156	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	200	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	280	273	0	162	170	0
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	553	0	579	417
Stage 1	-	-	-	-	417	-
Stage 2	-	-	-	-	162	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1017	-	477	636
Stage 1	-	-	-	-	665	-
Stage 2	-	-	-	-	867	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1017	-	477	636
Mov Cap-2 Maneuver	-	-	-	-	477	-
Stage 1	-	-	-	-	665	-
Stage 2	-	-	-	-	867	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		16.7	
HCM LOS	C					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	477	-	-	1017	-	
HCM Lane V/C Ratio	0.355	-	-	-	-	
HCM Control Delay (s)	16.7	-	-	0	-	
HCM Lane LOS	C	-	-	A	-	
HCM 95th %tile Q(veh)	1.6	-	-	0	-	

Intersection												
Int Delay, s/veh	1.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	29	0	3	1	0	4	1	123	0	2	237	12
Future Vol, veh/h	29	0	3	1	0	4	1	123	0	2	237	12
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	32	0	3	1	0	4	1	134	0	2	258	13
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	407	405	265	406	411	134	271	0	0	134	0	0
Stage 1	269	269	-	136	136	-	-	-	-	-	-	-
Stage 2	138	136	-	270	275	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	555	535	774	555	531	915	1292	-	-	1451	-	-
Stage 1	737	687	-	867	784	-	-	-	-	-	-	-
Stage 2	865	784	-	736	683	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	551	533	774	552	529	915	1292	-	-	1451	-	-
Mov Cap-2 Maneuver	551	533	-	552	529	-	-	-	-	-	-	-
Stage 1	736	686	-	866	783	-	-	-	-	-	-	-
Stage 2	860	783	-	731	682	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	11.8		9.5		0.1		0.1					
HCM LOS	B		A									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1292	-	-	566	809	1451	-	-				
HCM Lane V/C Ratio	0.001	-	-	0.061	0.007	0.001	-	-				
HCM Control Delay (s)	7.8	0	-	11.8	9.5	7.5	0	-				
HCM Lane LOS	A	A	-	B	A	A	A	-				
HCM 95th %tile O(veh)	0	-	-	0.2	0	0	-	-				

Intersection						
Int Delay, s/veh	2.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	48	68	125	241	0
Future Vol, veh/h	0	48	68	125	241	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	52	74	136	262	0
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	546	262	262	0	-	0
Stage 1	262	-	-	-	-	-
Stage 2	284	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	499	777	1302	-	-	-
Stage 1	782	-	-	-	-	-
Stage 2	764	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	469	777	1302	-	-	-
Mov Cap-2 Maneuver	469	-	-	-	-	-
Stage 1	734	-	-	-	-	-
Stage 2	764	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	10	2.8		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1302	-	777	-	-	
HCM Lane V/C Ratio	0.057	-	0.067	-	-	
HCM Control Delay (s)	7.9	0	10	-	-	
HCM Lane LOS	A	A	B	-	-	
HCM 95th %tile Q(veh)	0.2	-	0.2	-	-	

Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	3	285	185	3	7	7
Future Vol, veh/h	3	285	185	3	7	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	310	201	3	8	8
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	204	0	-	0	519	203
Stage 1	-	-	-	-	203	-
Stage 2	-	-	-	-	316	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1368	-	-	-	517	838
Stage 1	-	-	-	-	831	-
Stage 2	-	-	-	-	739	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1368	-	-	-	515	838
Mov Cap-2 Maneuver	-	-	-	-	515	-
Stage 1	-	-	-	-	829	-
Stage 2	-	-	-	-	739	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.1	0		10.8		
HCM LOS				B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1368	-	-	-	638	
HCM Lane V/C Ratio	0.002	-	-	-	0.024	
HCM Control Delay (s)	7.6	0	-	-	10.8	
HCM Lane LOS	A	A	-	-	B	
HCM 95th %tile Q(veh)	0	-	-	-	0.1	

Intersection						
Int Delay, s/veh	7.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	293	278	26	251	0
Future Vol, veh/h	0	293	278	26	251	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	318	302	28	273	0
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	905	273	273	0	-	0
Stage 1	273	-	-	-	-	-
Stage 2	632	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	307	766	1290	-	-	-
Stage 1	773	-	-	-	-	-
Stage 2	530	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	234	766	1290	-	-	-
Mov Cap-2 Maneuver	234	-	-	-	-	-
Stage 1	589	-	-	-	-	-
Stage 2	530	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	13	7.9		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1290	-	766	-	-	
HCM Lane V/C Ratio	0.234	-	0.416	-	-	
HCM Control Delay (s)	8.6	0	13	-	-	
HCM Lane LOS	A	A	B	-	-	
HCM 95th %tile Q(veh)	0.9	-	2.1	-	-	

Intersection						
Int Delay, s/veh	97.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	187	40	265	73	30	514
Future Vol, veh/h	187	40	265	73	30	514
Conflicting Peds, #/hr	0	1	0	3	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	66	66	66	66	66	66
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	283	61	402	111	45	779
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	1330	462	0	0	516	0
Stage 1	461	-	-	-	-	-
Stage 2	869	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	~ 171	600	-	-	1050	-
Stage 1	635	-	-	-	-	-
Stage 2	410	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 157	598	-	-	1047	-
Mov Cap-2 Maneuver	~ 157	-	-	-	-	-
Stage 1	585	-	-	-	-	-
Stage 2	410	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s\$	473.2	0		0.5		
HCM LOS	F					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	180	1047	-	
HCM Lane V/C Ratio	-	-	1.911	0.043	-	
HCM Control Delay (s)	-	-	\$ 473.2	8.6	0	
HCM Lane LOS	-	-	F	A	A	
HCM 95th %tile Q(veh)	-	-	25.5	0.1	-	
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

Intersection						
Int Delay, s/veh	10.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	187	40	265	73	30	514
Future Vol, veh/h	187	40	265	73	30	514
Conflicting Peds, #/hr	0	1	0	3	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	203	43	288	79	33	559
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	956	332	0	0	370	0
Stage 1	331	-	-	-	-	-
Stage 2	625	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	286	710	-	-	1189	-
Stage 1	728	-	-	-	-	-
Stage 2	534	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	274	707	-	-	1186	-
Mov Cap-2 Maneuver	274	-	-	-	-	-
Stage 1	697	-	-	-	-	-
Stage 2	534	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	51.2	0	0.4			
HCM LOS	F					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	307	1186	-	
HCM Lane V/C Ratio	-	-	0.804	0.027	-	
HCM Control Delay (s)	-	-	51.2	8.1	0	
HCM Lane LOS	-	-	F	A	A	
HCM 95th %tile Q(veh)	-	-	6.6	0.1	-	

Intersection												
Int Delay, s/veh	659.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	145	0	296	7	0	17	187	176	7	9	435	257
Future Vol, veh/h	145	0	296	7	0	17	187	176	7	9	435	257
Conflicting Peds, #/hr	0	0	0	0	0	21	0	0	14	0	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	69	69	69	69	69	69	69	69	69	69	69	69
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	210	0	429	10	0	25	271	255	10	13	630	372
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1679	1664	817	1873	1845	295	1003	0	0	279	0	0
Stage 1	843	843	-	816	816	-	-	-	-	-	-	-
Stage 2	836	821	-	1057	1029	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	~ 75	97	~ 376	55	75	744	690	-	-	1284	-	-
Stage 1	358	380	-	371	391	-	-	-	-	-	-	-
Stage 2	362	389	-	272	311	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 44	50	~ 376	-	39	719	689	-	-	1267	-	-
Mov Cap-2 Maneuver	~ 44	50	-	-	39	-	-	-	-	-	-	-
Stage 1	~ 192	370	-	197	208	-	-	-	-	-	-	-
Stage 2	~ 184	207	-	-	303	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, \$	2290.8				6.9		0.1					
HCM LOS	F		-									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	689	-	-	108	-	1267	-	-				
HCM Lane V/C Ratio	0.393	-	-	5.918	-	0.01	-	-				
HCM Control Delay (s)	13.6	0		\$ 2290.8	-	7.9	0	-				
HCM Lane LOS	B	A	-	F	-	A	A	-				
HCM 95th %tile Q(veh)	1.9	-	-	69.8	-	0	-	-				
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon						

Intersection												
Int Delay, s/veh	156.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	145	0	296	7	0	17	187	176	7	9	435	257
Future Vol, veh/h	145	0	296	7	0	17	187	176	7	9	435	257
Conflicting Peds, #/hr	0	0	0	0	0	21	0	0	14	0	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	158	0	322	8	0	18	203	191	8	10	473	279
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1265	1253	614	1409	1388	230	753	0	0	213	0	0
Stage 1	634	634	-	615	615	-	-	-	-	-	-	-
Stage 2	631	619	-	794	773	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	~ 146	172	492	116	143	809	857	-	-	1357	-	-
Stage 1	467	473	-	479	482	-	-	-	-	-	-	-
Stage 2	469	480	-	381	409	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 110	123	492	31	102	782	856	-	-	1339	-	-
Mov Cap-2 Maneuver	~ 110	123	-	31	102	-	-	-	-	-	-	-
Stage 1	342	466	-	346	348	-	-	-	-	-	-	-
Stage 2	329	347	-	130	403	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s\$	536.9		55.2		5.3		0.1					
HCM LOS	F		F									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	856	-	-	230	97	1339	-	-				
HCM Lane V/C Ratio	0.237	-	-	2.084	0.269	0.007	-	-				
HCM Control Delay (s)	10.5	0	-	\$ 536.9	55.2	7.7	0	-				
HCM Lane LOS	B	A	-	F	F	A	A	-				
HCM 95th %tile Q(veh)	0.9	-	-	36.1	1	0	-	-				
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s			+: Computation Not Defined				*: All major volume in platoon			

Timings
19: Dexter Av. & Central Av. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

05/21/2018

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	256	998	140	136	1546	240	111	284	101	160	419
Future Volume (vph)	256	998	140	136	1546	240	111	284	101	160	419
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2	1	6	7
Permitted Phases			4			8					6
Detector Phase	7	4	4	3	8	8	5	2	1	6	7
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0	5.0
Minimum Split (s)	9.6	26.8	26.8	9.6	26.8	26.8	9.6	42.4	9.6	15.8	9.6
Total Split (s)	26.0	42.4	42.4	21.1	37.5	37.5	19.5	43.5	13.0	37.0	26.0
Total Split (%)	21.7%	35.3%	35.3%	17.6%	31.3%	31.3%	16.3%	36.3%	10.8%	30.8%	21.7%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	4.8	3.6	4.4	3.6	4.8	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	5.8	4.6	5.8	5.8	4.6	5.4	4.6	5.8	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	None	Max	None
Act Effect Green (s)	20.5	38.6	38.6	13.6	31.7	31.7	12.0	38.1	8.4	34.1	60.4
Actuated g/C Ratio	0.17	0.32	0.32	0.11	0.27	0.27	0.10	0.32	0.07	0.29	0.51
v/c Ratio	0.92	0.67	0.25	0.74	1.00	0.45	0.69	0.72	0.90	0.33	0.54
Control Delay	84.3	37.5	5.9	72.5	64.9	8.7	71.4	43.1	112.2	36.8	17.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	84.3	37.5	5.9	72.5	64.9	8.7	71.4	43.1	112.2	36.8	17.9
LOS	F	D	A	E	E	A	E	D	F	D	B
Approach Delay		42.9			58.4			49.5		36.4	
Approach LOS		D			E			D		D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 119.1

Natural Cycle: 110

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.00

Intersection Signal Delay: 49.3

Intersection LOS: D

Intersection Capacity Utilization 90.0%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 19: Dexter Av. & Central Av. (SR-74)

			
Ø1	Ø2	Ø3	Ø4
13 s	43.5 s	21.1 s	42.4 s
			
Ø5	Ø6	Ø7	Ø8
19.5 s	37 s	26 s	37.5 s

HCM 6th Signalized Intersection Summary
19: Dexter Av. & Central Av. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

05/21/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			 			 	
Traffic Volume (veh/h)	256	998	140	136	1546	240	111	284	98	101	160	419
Future Volume (veh/h)	256	998	140	136	1546	240	111	284	98	101	160	419
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	281	1097	111	149	1699	222	122	312	67	111	176	404
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	307	1728	536	176	1706	415	148	475	102	125	572	757
Arrive On Green	0.17	0.34	0.34	0.10	0.27	0.27	0.08	0.32	0.32	0.07	0.31	0.31
Sat Flow, veh/h	1781	5106	1585	1781	6434	1565	1781	1492	320	1781	1870	1585
Grp Volume(v), veh/h	281	1097	111	149	1699	222	122	0	379	111	176	404
Grp Sat Flow(s),veh/h/ln	1781	1702	1585	1781	1609	1565	1781	0	1812	1781	1870	1585
Q Serve(g_s), s	18.5	21.7	6.0	9.8	31.5	14.5	8.1	0.0	21.5	7.4	8.6	21.4
Cycle Q Clear(g_c), s	18.5	21.7	6.0	9.8	31.5	14.5	8.1	0.0	21.5	7.4	8.6	21.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.18	1.00		1.00
Lane Grp Cap(c), veh/h	307	1728	536	176	1706	415	148	0	577	125	572	757
V/C Ratio(X)	0.92	0.63	0.21	0.85	1.00	0.54	0.82	0.00	0.66	0.89	0.31	0.53
Avail Cap(c_a), veh/h	319	1728	536	246	1706	415	222	0	577	125	572	757
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.7	33.3	28.1	53.0	43.9	37.6	54.0	0.0	35.1	55.1	31.8	21.9
Incr Delay (d2), s/veh	28.6	0.8	0.2	13.0	20.8	1.3	8.8	0.0	5.7	46.7	1.4	2.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.4	8.7	2.2	4.9	14.5	5.6	3.9	0.0	10.2	4.9	4.0	8.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	77.3	34.1	28.3	66.0	64.7	39.0	62.7	0.0	40.8	101.8	33.2	24.6
LnGrp LOS	E	C	C	E	E	D	E	A	D	F	C	C
Approach Vol, veh/h		1489			2070			501			691	
Approach Delay, s/veh		41.8			62.0			46.2			39.2	
Approach LOS		D			E			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.0	43.9	16.4	46.3	14.5	42.4	25.2	37.5				
Change Period (Y+Rc), s	4.6	* 5.8	4.6	5.8	4.6	5.8	4.6	5.8				
Max Green Setting (Gmax), s	8.4	* 38	16.5	36.6	14.9	31.2	21.4	31.7				
Max Q Clear Time (g_c+I1), s	9.4	23.5	11.8	23.7	10.1	23.4	20.5	33.5				
Green Ext Time (p_c), s	0.0	1.8	0.1	6.0	0.1	1.5	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			50.7									
HCM 6th LOS			D									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Timings

S. Nichols Mixed-Use Development (JN 10878)

20: Cambern Av./Cambern Av & Central Av. (SR-74)

05/21/2018

										
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	141	1173	1	1835	125	3	2	142	5	100
Future Volume (vph)	141	1173	1	1835	125	3	2	142	5	100
Turn Type	Prot	NA	Prot	NA	Perm	Perm	NA	Perm	NA	Perm
Protected Phases	7	4	3	8			2		6	
Permitted Phases					8	2		6		6
Detector Phase	7	4	3	8	8	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	24.8	9.6	25.5	25.5	34.7	34.7	14.7	14.7	14.7
Total Split (s)	12.0	75.4	9.6	73.0	73.0	35.0	35.0	35.0	35.0	35.0
Total Split (%)	10.0%	62.8%	8.0%	60.8%	60.8%	29.2%	29.2%	29.2%	29.2%	29.2%
Yellow Time (s)	3.6	4.8	3.6	5.5	5.5	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.6	5.8	4.6	6.5	6.5	4.7	4.7		4.7	4.7
Lead/Lag	Lead	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	Max	None	None	None	None	Max	Max	Max	Max	Max
Act Effect Green (s)	7.4	77.3	5.0	66.5	66.5	30.3	30.3		30.3	30.3
Actuated g/C Ratio	0.06	0.64	0.04	0.55	0.55	0.25	0.25		0.25	0.25
v/c Ratio	0.73	0.57	0.01	1.03	0.15	0.01	0.01		0.47	0.24
Control Delay	75.9	13.7	56.0	55.0	2.5	34.0	30.0		43.4	13.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay	75.9	13.7	56.0	55.0	2.5	34.0	30.0		43.4	13.1
LOS	E	B	E	D	A	C	C		D	B
Approach Delay		20.3		51.6			32.0		31.1	
Approach LOS		C		D			C		C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Natural Cycle: 120

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.03

Intersection Signal Delay: 38.5

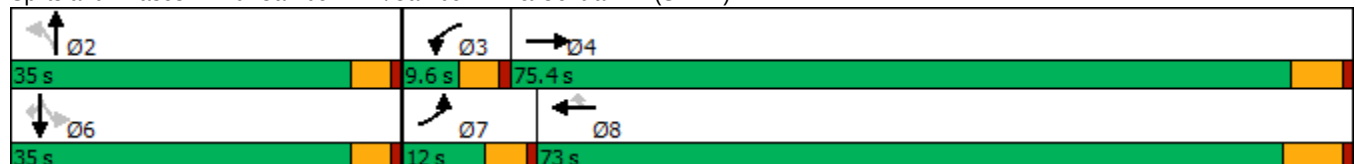
Intersection LOS: D

Intersection Capacity Utilization 97.3%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 20: Cambern Av./Cambern Av & Central Av. (SR-74)



HCM 6th Signalized Intersection Summary S. Nichols Mixed-Use Development (JN 10878)
 20: Cambern Av./Cambern Av & Central Av. (SR-74) 05/21/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	141	1173	1	1	1835	125	3	2	1	142	5	100
Future Volume (veh/h)	141	1173	1	1	1835	125	3	2	1	142	5	100
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	155	1289	1	1	2016	95	3	2	0	156	5	66
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	213	2239	2	2	1969	867	267	472	0	406	11	400
Arrive On Green	0.06	0.61	0.61	0.00	0.55	0.55	0.25	0.25	0.00	0.25	0.25	0.25
Sat Flow, veh/h	3456	3644	3	1781	3554	1564	1328	1870	0	1374	44	1583
Grp Volume(v), veh/h	155	629	661	1	2016	95	3	2	0	161	0	66
Grp Sat Flow(s),veh/h/ln	1728	1777	1870	1781	1777	1564	1328	1870	0	1418	0	1583
Q Serve(g_s), s	5.3	25.3	25.3	0.1	66.5	3.5	0.2	0.1	0.0	11.5	0.0	3.9
Cycle Q Clear(g_c), s	5.3	25.3	25.3	0.1	66.5	3.5	11.8	0.1	0.0	11.6	0.0	3.9
Prop In Lane	1.00		0.00	1.00		1.00	1.00		0.00	0.97		1.00
Lane Grp Cap(c), veh/h	213	1092	1149	2	1969	867	267	472	0	417	0	400
V/C Ratio(X)	0.73	0.58	0.58	0.41	1.02	0.11	0.01	0.00	0.00	0.39	0.00	0.17
Avail Cap(c_a), veh/h	213	1092	1149	74	1969	867	267	472	0	417	0	400
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	55.3	13.8	13.8	59.9	26.7	12.7	42.8	33.6	0.0	37.9	0.0	35.0
Incr Delay (d2), s/veh	19.4	0.9	0.9	36.4	26.5	0.1	0.1	0.0	0.0	2.7	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	9.3	9.8	0.1	31.2	1.1	0.1	0.0	0.0	4.3	0.0	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	74.8	14.7	14.7	96.3	53.3	12.8	42.9	33.6	0.0	40.6	0.0	35.9
LnGrp LOS	E	B	B	F	F	B	D	C	A	D	A	D
Approach Vol, veh/h	1445			2112			5			227		
Approach Delay, s/veh	21.1			51.5			39.2			39.2		
Approach LOS	C			D			D			D		
Timer - Assigned Phs	2			3			4			6		
Phs Duration (G+Y+Rc), s	35.0			4.8			80.2			35.0		
Change Period (Y+Rc), s	* 4.7			4.6			* 6.5			* 4.7		
Max Green Setting (Gmax), s	* 30			5.0			* 70			* 30		
Max Q Clear Time (g_c+I1), s	13.8			2.1			27.3			13.6		
Green Ext Time (p_c), s	0.0			0.0			16.0			1.0		
Intersection Summary												
HCM 6th Ctrl Delay	39.2											
HCM 6th LOS	D											
Notes												

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection						
Int Delay, s/veh	0.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	443	354	0	327	0	7
Future Vol, veh/h	443	354	0	327	0	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	482	385	0	355	0	8
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	-	-	-	675
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.318
Pot Cap-1 Maneuver	-	-	0	-	0	454
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	454
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	WB		NB		
HCM Control Delay, s	0	0		13.1		
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT		
Capacity (veh/h)	454	-	-	-		
HCM Lane V/C Ratio	0.017	-	-	-		
HCM Control Delay (s)	13.1	-	-	-		
HCM Lane LOS	B	-	-	-		
HCM 95th %tile O(veh)	0.1	-	-	-		

Timings
1: Lake St. & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

05/21/2018

									
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	1	7	280	0	1	408	212	46	952
Future Volume (vph)	1	7	280	0	1	408	212	46	952
Turn Type	Perm	NA	Perm	NA	Prot	NA	Perm	Prot	NA
Protected Phases		4		8	5	2		1	6
Permitted Phases	4		8				2		
Detector Phase	4	4	8	8	5	2	2	1	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	14.6	14.6	16.2	16.2	9.6	16.2	16.2	9.6	16.2
Total Split (s)	42.2	42.2	42.2	42.2	35.6	42.2	42.2	35.6	42.2
Total Split (%)	35.2%	35.2%	35.2%	35.2%	29.7%	35.2%	35.2%	29.7%	35.2%
Yellow Time (s)	3.6	3.6	5.2	5.2	3.6	5.2	5.2	3.6	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.6		6.2	4.6	6.2	6.2	4.6	6.2
Lead/Lag					Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	None	Max
Act Effect Green (s)		24.1		22.5	5.2	37.2	37.2	7.1	42.5
Actuated g/C Ratio		0.30		0.28	0.07	0.47	0.47	0.09	0.54
v/c Ratio		0.02		0.79	0.01	0.51	0.29	0.32	1.05
Control Delay		19.1		34.7	42.0	21.2	8.9	43.6	64.1
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		19.1		34.7	42.0	21.2	8.9	43.6	64.1
LOS		B		C	D	C	A	D	E
Approach Delay		19.1		34.7		17.0			63.2
Approach LOS		B		C		B			E

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 79.3

Natural Cycle: 100

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.05

Intersection Signal Delay: 43.6

Intersection LOS: D

Intersection Capacity Utilization 84.6%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 1: Lake St. & Nichols Rd.

		
Ø1	Ø2	Ø4
35.6 s	42.2 s	42.2 s
		
Ø5	Ø6	Ø8
35.6 s	42.2 s	42.2 s

HCM 6th Signalized Intersection Summary
1: Lake St. & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

05/21/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	7	1	280	0	32	1	408	212	46	952	1
Future Volume (veh/h)	1	7	1	280	0	32	1	408	212	46	952	1
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1	8	1	308	0	27	1	448	0	51	1046	1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	72	424	49	443	0	31	2	873		77	950	1
Arrive On Green	0.27	0.27	0.27	0.27	0.00	0.27	0.00	0.47	0.00	0.04	0.51	0.51
Sat Flow, veh/h	77	1572	183	1310	0	115	1781	1870	1585	1781	1868	2
Grp Volume(v), veh/h	10	0	0	335	0	0	1	448	0	51	0	1047
Grp Sat Flow(s),veh/h/ln	1832	0	0	1424	0	0	1781	1870	1585	1781	0	1870
Q Serve(g_s), s	0.0	0.0	0.0	17.0	0.0	0.0	0.0	13.0	0.0	2.2	0.0	39.2
Cycle Q Clear(g_c), s	0.3	0.0	0.0	17.3	0.0	0.0	0.0	13.0	0.0	2.2	0.0	39.2
Prop In Lane	0.10		0.10	0.92		0.08	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	546	0	0	474	0	0	2	873		77	0	951
V/C Ratio(X)	0.02	0.00	0.00	0.71	0.00	0.00	0.41	0.51		0.66	0.00	1.10
Avail Cap(c_a), veh/h	932	0	0	753	0	0	716	873		716	0	951
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	20.7	0.0	0.0	26.8	0.0	0.0	38.5	14.4	0.0	36.4	0.0	19.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	1.9	0.0	0.0	35.9	2.2	0.0	3.6	0.0	61.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.0	5.4	0.0	0.0	0.0	5.0	0.0	1.0	0.0	29.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.7	0.0	0.0	28.8	0.0	0.0	74.4	16.6	0.0	40.0	0.0	80.0
LnGrp LOS	C	A	A	C	A	A	E	B		D	A	F
Approach Vol, veh/h		10			335			449	A		1098	
Approach Delay, s/veh		20.7			28.8			16.7			78.2	
Approach LOS		C			C			B			E	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.9	42.2		27.0	4.7	45.4		27.0				
Change Period (Y+Rc), s	4.6	6.2		* 6.2	4.6	6.2		6.2				
Max Green Setting (Gmax), s	31.0	36.0		* 38	31.0	36.0		36.0				
Max Q Clear Time (g_c+I1), s	4.2	15.0		2.3	2.0	41.2		19.3				
Green Ext Time (p_c), s	0.0	3.4		0.0	0.0	0.0		1.5				
Intersection Summary												
HCM 6th Ctrl Delay				54.5								
HCM 6th LOS				D								
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.												

Timings
2: Lake St. & Alberhill Ranch Rd.

S. Nichols Mixed-Use Development (JN 10878)

05/21/2018

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	39	28	562	34	33	1158
Future Volume (vph)	39	28	562	34	33	1158
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2		
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	15.1	15.1	16.2	16.2	11.2	16.2
Total Split (s)	16.0	16.0	91.0	91.0	13.0	104.0
Total Split (%)	13.3%	13.3%	75.8%	75.8%	10.8%	86.7%
Yellow Time (s)	4.1	4.1	5.2	5.2	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	6.2	6.2	6.2	6.2
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	Max	Max	None	Max
Act Effect Green (s)	10.0	10.0	94.3	94.3	6.2	102.1
Actuated g/C Ratio	0.08	0.08	0.79	0.79	0.05	0.86
v/c Ratio	0.27	0.18	0.39	0.03	0.37	0.74
Control Delay	56.2	20.4	6.5	1.7	65.9	8.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.2	20.4	6.5	1.7	65.9	8.3
LOS	E	C	A	A	E	A
Approach Delay	41.2		6.2			9.9
Approach LOS	D		A			A

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 119.1
Natural Cycle: 75
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.74
Intersection Signal Delay: 9.8
Intersection LOS: A
Intersection Capacity Utilization 78.7%
ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 2: Lake St. & Alberhill Ranch Rd.



HCM 6th Signalized Intersection Summary
2: Lake St. & Alberhill Ranch Rd.

S. Nichols Mixed-Use Development (JN 10878)

05/21/2018

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	39	28	562	34	33	1158
Future Volume (veh/h)	39	28	562	34	33	1158
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		0.98	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	40	16	573	32	34	1182
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	127	113	1405	1166	51	1557
Arrive On Green	0.07	0.07	0.75	0.75	0.03	0.83
Sat Flow, veh/h	1781	1585	1870	1553	1781	1870
Grp Volume(v), veh/h	40	16	573	32	34	1182
Grp Sat Flow(s),veh/h/ln	1781	1585	1870	1553	1781	1870
Q Serve(g_s), s	2.5	1.1	12.9	0.6	2.2	33.8
Cycle Q Clear(g_c), s	2.5	1.1	12.9	0.6	2.2	33.8
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	127	113	1405	1166	51	1557
V/C Ratio(X)	0.31	0.14	0.41	0.03	0.67	0.76
Avail Cap(c_a), veh/h	165	147	1405	1166	103	1557
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.8	51.2	5.2	3.7	56.5	4.5
Incr Delay (d2), s/veh	0.5	0.2	0.9	0.0	5.5	3.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.4	3.9	0.2	1.0	6.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	52.3	51.4	6.1	3.8	62.1	8.0
LnGrp LOS	D	D	A	A	E	A
Approach Vol, veh/h	56		605			1216
Approach Delay, s/veh	52.1		6.0			9.5
Approach LOS	D		A			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	9.6	94.4			104.0	13.5
Change Period (Y+Rc), s	6.2	6.2			6.2	5.1
Max Green Setting (Gmax), s	6.8	84.8			97.8	10.9
Max Q Clear Time (g_c+I1), s	4.2	14.9			35.8	4.5
Green Ext Time (p_c), s	0.0	3.7			14.0	0.0
Intersection Summary						
HCM 6th Ctrl Delay			9.7			
HCM 6th LOS			A			

Intersection

Intersection Delay, s/veh 11.4

Intersection LOS B

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	246	20	94	303	10	80
Future Vol, veh/h	246	20	94	303	10	80
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	262	21	100	322	11	85
Number of Lanes	1	0	0	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	1
HCM Control Delay	10.3	12.7	9
HCM LOS	B	B	A

Lane	NBLn1	NBLn2	EBLn1	WBLn1
Vol Left, %	100%	0%	0%	24%
Vol Thru, %	0%	0%	92%	76%
Vol Right, %	0%	100%	8%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	10	80	266	397
LT Vol	10	0	0	94
Through Vol	0	0	246	303
RT Vol	0	80	20	0
Lane Flow Rate	11	85	283	422
Geometry Grp	7	7	2	2
Degree of Util (X)	0.02	0.127	0.362	0.534
Departure Headway (Hd)	6.601	5.385	4.607	4.55
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	540	662	778	790
Service Time	4.368	3.151	2.65	2.588
HCM Lane V/C Ratio	0.02	0.128	0.364	0.534
HCM Control Delay	9.5	8.9	10.3	12.7
HCM Lane LOS	A	A	B	B
HCM 95th-tile Q	0.1	0.4	1.7	3.2

Timings

S. Nichols Mixed-Use Development (JN 10878)

4: Lakeshore Dr. & Riverside Dr. (SR-74)

05/21/2018

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	33	550	296	138	679	343	218	283	305	347	17
Future Volume (vph)	33	550	296	138	679	343	218	283	305	347	17
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2	1	6	
Permitted Phases			4			8					6
Detector Phase	7	4	4	3	8	8	5	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	32.4	32.4	9.6	33.4	33.4	9.6	34.7	9.6	32.7	32.7
Total Split (s)	9.6	38.3	38.3	20.3	49.0	49.0	27.6	35.4	26.0	33.8	33.8
Total Split (%)	8.0%	31.9%	31.9%	16.9%	40.8%	40.8%	23.0%	29.5%	21.7%	28.2%	28.2%
Yellow Time (s)	3.6	4.4	4.4	3.6	4.4	4.4	3.6	3.7	3.6	3.7	3.7
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.4	5.4	4.6	5.4	5.4	4.6	4.7	4.6	4.7	4.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	None	Max	Max
Act Effect Green (s)	5.0	31.9	31.9	12.8	43.7	43.7	18.3	30.8	21.4	33.9	33.9
Actuated g/C Ratio	0.04	0.27	0.27	0.11	0.38	0.38	0.16	0.27	0.18	0.29	0.29
v/c Ratio	0.45	0.58	0.47	0.73	1.00	0.47	0.81	0.50	0.96	0.35	0.03
Control Delay	74.4	39.6	6.3	71.9	71.5	9.9	69.0	29.3	89.3	35.4	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	74.4	39.6	6.3	71.9	71.5	9.9	69.0	29.3	89.3	35.4	0.1
LOS	E	D	A	E	E	A	E	C	F	D	A
Approach Delay		29.7			53.3			42.0		59.0	
Approach LOS		C			D			D		E	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 116.2

Natural Cycle: 120

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.00

Intersection Signal Delay: 46.0

Intersection LOS: D

Intersection Capacity Utilization 97.9%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 4: Lakeshore Dr. & Riverside Dr. (SR-74)

			
Ø1	Ø2	Ø3	Ø4
26 s	35.4 s	20.3 s	38.3 s
			
Ø5	Ø6	Ø7	Ø8
27.6 s	33.8 s	9.6 s	49 s

HCM 6th Signalized Intersection Summary 4: Lakeshore Dr. & Riverside Dr. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

05/21/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	33	550	296	138	679	343	218	283	183	305	347	17
Future Volume (veh/h)	33	550	296	138	679	343	218	283	183	305	347	17
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	34	567	185	142	700	200	225	292	85	314	358	14
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	51	1073	478	169	689	576	253	707	202	322	1058	466
Arrive On Green	0.03	0.30	0.30	0.09	0.37	0.37	0.14	0.26	0.26	0.18	0.30	0.30
Sat Flow, veh/h	1781	3554	1585	1781	1870	1564	1781	2726	779	1781	3554	1565
Grp Volume(v), veh/h	34	567	185	142	700	200	225	188	189	314	358	14
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1870	1564	1781	1777	1728	1781	1777	1565
Q Serve(g_s), s	2.2	15.7	10.9	9.3	43.6	11.0	14.7	10.4	10.7	20.8	9.3	0.8
Cycle Q Clear(g_c), s	2.2	15.7	10.9	9.3	43.6	11.0	14.7	10.4	10.7	20.8	9.3	0.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.45	1.00		1.00
Lane Grp Cap(c), veh/h	51	1073	478	169	689	576	253	461	448	322	1058	466
V/C Ratio(X)	0.67	0.53	0.39	0.84	1.02	0.35	0.89	0.41	0.42	0.97	0.34	0.03
Avail Cap(c_a), veh/h	75	1073	478	236	689	576	346	461	448	322	1058	466
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.0	34.3	32.7	52.7	37.4	27.1	49.8	36.3	36.4	48.2	32.4	29.4
Incr Delay (d2), s/veh	5.6	0.5	0.5	12.6	38.4	0.4	15.3	2.7	2.9	43.1	0.9	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	6.7	4.2	4.7	26.4	4.1	7.6	4.9	4.9	13.0	4.1	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.6	34.8	33.2	65.3	75.7	27.4	65.2	39.0	39.3	91.3	33.3	29.6
LnGrp LOS	E	C	C	E	F	C	E	D	D	F	C	C
Approach Vol, veh/h		786			1042			602			686	
Approach Delay, s/veh		35.6			65.0			48.9			59.8	
Approach LOS		D			E			D			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	26.0	35.4	15.8	41.1	21.4	40.0	8.0	49.0				
Change Period (Y+Rc), s	4.6	* 4.7	4.6	5.4	4.6	* 4.7	4.6	5.4				
Max Green Setting (Gmax), s	21.4	* 31	15.7	32.9	23.0	* 29	5.0	43.6				
Max Q Clear Time (g_c+I1), s	22.8	12.7	11.3	17.7	16.7	11.3	4.2	45.6				
Green Ext Time (p_c), s	0.0	2.1	0.1	3.7	0.2	2.2	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay 53.3

HCM 6th LOS D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection												
Int Delay, s/veh	9.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕	↗		↕	↗
Traffic Vol, veh/h	2	966	5	16	987	139	0	0	16	41	1	2
Future Vol, veh/h	2	966	5	16	987	139	0	0	16	41	1	2
Conflicting Peds, #/hr	0	0	0	0	0	1	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Stop	-	-	Stop
Storage Length	-	-	-	-	-	-	-	-	75	-	-	75
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	996	5	16	1018	143	0	0	16	42	1	2
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1162	0	0	1001	0	0	2125	2197	999	2126	2128	1091
Stage 1	-	-	-	-	-	-	1003	1003	-	1123	1123	-
Stage 2	-	-	-	-	-	-	1122	1194	-	1003	1005	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	601	-	-	692	-	-	36	45	295	~ 36	50	261
Stage 1	-	-	-	-	-	-	292	320	-	250	281	-
Stage 2	-	-	-	-	-	-	250	260	-	292	319	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	600	-	-	692	-	-	33	42	295	~ 32	46	261
Mov Cap-2 Maneuver	-	-	-	-	-	-	33	42	-	~ 32	46	-
Stage 1	-	-	-	-	-	-	290	317	-	248	262	-
Stage 2	-	-	-	-	-	-	230	242	-	273	316	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.1			17.9			\$ 450		
HCM LOS							C			F		
Minor Lane/Major Mvmt	NBLn1 NBLn2		EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2		
Capacity (veh/h)	- 295		600	-	-	692	-	-	32	261		
HCM Lane V/C Ratio	- 0.056		0.003	-	-	0.024	-	-	1.353	0.008		
HCM Control Delay (s)	0 17.9		11	0	-	10.3	0	-	\$ 470.5	18.9		
HCM Lane LOS	A C		B	A	-	B	A	-	F	C		
HCM 95th %tile Q(veh)	- 0.2		0	-	-	0.1	-	-	4.8	0		
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s				+: Computation Not Defined				*: All major volume in platoon		

Intersection												
Int Delay, s/veh	8.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	966	5	16	987	139	0	0	16	41	1	2
Future Vol, veh/h	2	966	5	16	987	139	0	0	16	41	1	2
Conflicting Peds, #/hr	0	0	0	0	0	1	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Stop	-	-	Stop
Storage Length	100	-	-	100	-	-	-	-	75	-	-	75
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	996	5	16	1018	143	0	0	16	42	1	2
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1162	0	0	1001	0	0	2125	2197	999	2126	2128	1091
Stage 1	-	-	-	-	-	-	1003	1003	-	1123	1123	-
Stage 2	-	-	-	-	-	-	1122	1194	-	1003	1005	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	601	-	-	692	-	-	36	45	295	~ 36	50	261
Stage 1	-	-	-	-	-	-	292	320	-	250	281	-
Stage 2	-	-	-	-	-	-	250	260	-	292	319	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	600	-	-	692	-	-	34	44	295	~ 33	49	261
Mov Cap-2 Maneuver	-	-	-	-	-	-	34	44	-	~ 33	49	-
Stage 1	-	-	-	-	-	-	291	319	-	249	274	-
Stage 2	-	-	-	-	-	-	241	254	-	275	318	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.1			17.9			\$ 428.1		
HCM LOS							C			F		
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2		
Capacity (veh/h)	-	295	600	-	-	692	-	-	33	261		
HCM Lane V/C Ratio	-	0.056	0.003	-	-	0.024	-	-	1.312	0.008		
HCM Control Delay (s)	0	17.9	11	-	-	10.3	-	-	\$ 447.6	18.9		
HCM Lane LOS	A	C	B	-	-	B	-	-	F	C		
HCM 95th %tile Q(veh)	-	0.2	0	-	-	0.1	-	-	4.7	0		
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s			+: Computation Not Defined				*: All major volume in platoon			

Intersection							
Int Delay, s/veh	11.8						
Movement	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations							
Traffic Vol, veh/h	262	61	317	327	88	361	
Future Vol, veh/h	262	61	317	327	88	361	
Conflicting Peds, #/hr	0	0	0	0	0	0	
Sign Control	Free	Free	Free	Free	Stop	Stop	
RT Channelized	-	None	-	None	-	None	
Storage Length	-	-	120	-	0	0	
Veh in Median Storage, #	0	-	-	0	0	-	
Grade, %	0	-	-	0	0	-	
Peak Hour Factor	94	94	94	94	94	94	
Heavy Vehicles, %	2	2	2	2	2	2	
Mvmt Flow	279	65	337	348	94	384	
Major/Minor	Major1		Major2		Minor1		
Conflicting Flow All	0	0	344	0	1334	312	
Stage 1	-	-	-	-	312	-	
Stage 2	-	-	-	-	1022	-	
Critical Hdwy	-	-	4.12	-	6.42	6.22	
Critical Hdwy Stg 1	-	-	-	-	5.42	-	
Critical Hdwy Stg 2	-	-	-	-	5.42	-	
Follow-up Hdwy	-	-	2.218	-	3.518	3.318	
Pot Cap-1 Maneuver	-	-	1215	-	170	728	
Stage 1	-	-	-	-	742	-	
Stage 2	-	-	-	-	347	-	
Platoon blocked, %	-	-		-			
Mov Cap-1 Maneuver	-	-	1215	-	123	728	
Mov Cap-2 Maneuver	-	-	-	-	123	-	
Stage 1	-	-	-	-	536	-	
Stage 2	-	-	-	-	347	-	
Approach	EB		WB		NB		
HCM Control Delay, s	0		4.5		30.8		
HCM LOS					D		
Minor Lane/Major Mvmt	NBLn1		NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	123		728	-	-	1215	-
HCM Lane V/C Ratio	0.761		0.528	-	-	0.278	-
HCM Control Delay (s)	94.2		15.3	-	-	9.1	-
HCM Lane LOS	F		C	-	-	A	-
HCM 95th %tile O(veh)	4.4		3.1	-	-	1.1	-

Timings

S. Nichols Mixed-Use Development (JN 10878)

7: Collier Av. (SR-74)/Collier Av. & Riverside Dr. (SR-74)/Riverside Dr.

05/21/2018

										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	157	12	853	23	19	976	279	3	226	145
Future Volume (vph)	157	12	853	23	19	976	279	3	226	145
Turn Type	Perm	NA	pm+ov	Perm	NA	Split	NA	Split	NA	Perm
Protected Phases		4	2		8	2	2	6	6	
Permitted Phases	4		4	8						6
Detector Phase	4	4	2	8	8	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	15.4	15.4	15.8	14.6	14.6	15.8	15.8	16.2	16.2	16.2
Total Split (s)	19.0	19.0	79.0	19.0	19.0	79.0	79.0	22.0	22.0	22.0
Total Split (%)	15.8%	15.8%	65.8%	15.8%	15.8%	65.8%	65.8%	18.3%	18.3%	18.3%
Yellow Time (s)	4.4	4.4	4.8	3.6	3.6	4.8	4.8	5.2	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.4	5.8		4.6	5.8	5.8	6.2	6.2	6.2
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	None	None	Max	None	None	Max	Max	Max	Max	Max
Act Effct Green (s)		13.6	86.4		14.4	73.2	73.2	15.8	15.8	15.8
Actuated g/C Ratio		0.11	0.72		0.12	0.61	0.61	0.13	0.13	0.13
v/c Ratio		1.13	0.76		0.39	0.94	0.28	0.01	0.96	0.45
Control Delay		158.2	13.5		53.3	39.2	11.6	45.7	100.1	11.8
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		158.2	13.5		53.3	39.2	11.6	45.7	100.1	11.8
LOS		F	B		D	D	B	D	F	B
Approach Delay		37.6			53.3		32.7		65.4	
Approach LOS		D			D		C		E	
Intersection Summary										
Cycle Length: 120										
Actuated Cycle Length: 120										
Natural Cycle: 110										
Control Type: Actuated-Uncoordinated										
Maximum v/c Ratio: 1.13										
Intersection Signal Delay: 39.4					Intersection LOS: D					
Intersection Capacity Utilization 96.5%					ICU Level of Service F					
Analysis Period (min) 15										

Splits and Phases: 7: Collier Av. (SR-74)/Collier Av. & Riverside Dr. (SR-74)/Riverside Dr.

										
Ø2	Ø6	Ø4	Ø8							
79 s	22 s	19 s	19 s							

HCM 6th Signalized Intersection Summary S. Nichols Mixed-Use Development (JN 10878)
 7: Collier Av. (SR-74)/Collier Av. & Riverside Dr. (SR-74)/Riverside Dr. 05/21/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	157	12	853	23	19	8	976	279	21	3	226	145
Future Volume (veh/h)	157	12	853	23	19	8	976	279	21	3	226	145
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	164	12	841	24	20	2	1017	291	21	3	235	78
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	176	9	1145	45	27	1	1079	1043	75	233	245	207
Arrive On Green	0.12	0.12	0.12	0.12	0.12	0.12	0.61	0.61	0.61	0.13	0.13	0.13
Sat Flow, veh/h	990	72	1548	0	225	10	1781	1721	124	1781	1870	1585
Grp Volume(v), veh/h	176	0	841	46	0	0	1017	0	312	3	235	78
Grp Sat Flow(s),veh/h/ln	1062	0	1548	235	0	0	1781	0	1845	1781	1870	1585
Q Serve(g_s), s	0.0	0.0	14.4	0.0	0.0	0.0	63.3	0.0	9.7	0.2	15.1	5.4
Cycle Q Clear(g_c), s	14.4	0.0	14.4	14.4	0.0	0.0	63.3	0.0	9.7	0.2	15.1	5.4
Prop In Lane	0.93		1.00	0.52		0.04	1.00		0.07	1.00		1.00
Lane Grp Cap(c), veh/h	184	0	1145	73	0	0	1079	0	1118	233	245	207
V/C Ratio(X)	0.96	0.00	0.73	0.63	0.00	0.00	0.94	0.00	0.28	0.01	0.96	0.38
Avail Cap(c_a), veh/h	184	0	1145	73	0	0	1079	0	1118	233	245	207
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.2	0.0	6.5	52.2	0.0	0.0	21.9	0.0	11.3	45.7	52.2	48.0
Incr Delay (d2), s/veh	53.3	0.0	2.5	15.7	0.0	0.0	16.6	0.0	0.6	0.1	48.2	5.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.0	0.0	26.2	1.7	0.0	0.0	27.9	0.0	3.8	0.1	10.1	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	108.5	0.0	9.0	67.9	0.0	0.0	38.5	0.0	11.9	45.8	100.4	53.1
LnGrp LOS	F	A	A	E	A	A	D	A	B	D	F	D
Approach Vol, veh/h		1017			46			1329			316	
Approach Delay, s/veh		26.2			67.9			32.2			88.2	
Approach LOS		C			E			C			F	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		79.0		19.8		22.0		19.8				
Change Period (Y+Rc), s		5.8		5.4		6.2		* 5.4				
Max Green Setting (Gmax), s		73.2		13.6		15.8		* 14				
Max Q Clear Time (g_c+I1), s		65.3		16.4		17.1		16.4				
Green Ext Time (p_c), s		3.8		0.0		0.0		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			37.1									
HCM 6th LOS			D									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Timings

S. Nichols Mixed-Use Development (JN 10878)

8: Collier Av./Collier Av. (SR-74) & Central Av./Central Av. (SR-74)

05/21/2018

											
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	226	355	229	215	802	55	147	378	1016	162	48
Future Volume (vph)	226	355	229	215	802	55	147	378	1016	162	48
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	7	4	3	8	1	5	2	3	1	6	
Permitted Phases					8			2			6
Detector Phase	7	4	3	8	1	5	2	3	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	5.0	10.0	5.0	5.0	10.0	10.0
Minimum Split (s)	9.6	14.7	9.6	42.8	9.6	9.6	15.8	9.6	9.6	29.8	29.8
Total Split (s)	14.0	28.8	28.0	42.8	43.0	13.6	20.2	28.0	43.0	49.6	49.6
Total Split (%)	11.7%	24.0%	23.3%	35.7%	35.8%	11.3%	16.8%	23.3%	35.8%	41.3%	41.3%
Yellow Time (s)	3.6	3.7	3.6	4.8	3.6	3.6	4.8	3.6	3.6	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.7	4.6	5.8	4.6	4.6	5.8	4.6	4.6	5.8	5.8
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	None	None	Max	Max
Act Effect Green (s)	9.4	17.9	12.7	20.1	56.9	7.3	14.8	28.7	35.6	45.4	45.4
Actuated g/C Ratio	0.09	0.18	0.13	0.20	0.56	0.07	0.15	0.28	0.35	0.45	0.45
v/c Ratio	0.73	0.68	0.55	0.60	0.50	0.45	0.56	0.74	0.87	0.10	0.06
Control Delay	61.2	44.5	47.2	43.6	8.2	59.6	52.0	31.8	40.2	19.4	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.2	44.5	47.2	43.6	8.2	59.6	52.0	31.8	40.2	19.4	0.1
LOS	E	D	D	D	A	E	D	C	D	B	A
Approach Delay		50.4		21.5			39.6			35.9	
Approach LOS		D		C			D			D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 101

Natural Cycle: 105

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 34.1

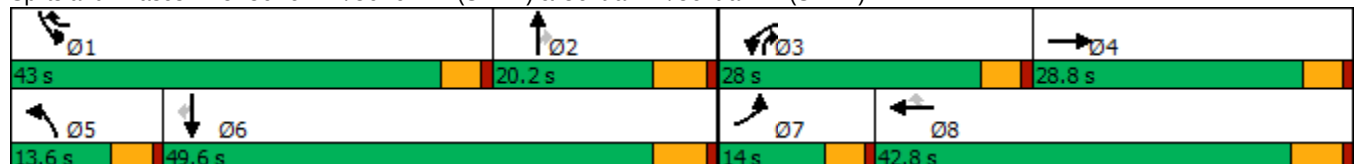
Intersection LOS: C

Intersection Capacity Utilization 75.6%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 8: Collier Av./Collier Av. (SR-74) & Central Av./Central Av. (SR-74)



HCM 6th Signalized Intersection Summary S. Nichols Mixed-Use Development (JN 10878)
 8: Collier Av./Collier Av. (SR-74) & Central Av./Central Av. (SR-74) 05/21/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	226	355	56	229	215	802	55	147	378	1016	162	48
Future Volume (veh/h)	226	355	56	229	215	802	55	147	378	1016	162	48
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	233	366	54	236	222	304	57	152	162	1047	167	36
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	304	529	77	317	325	1401	74	342	431	1144	1679	738
Arrive On Green	0.09	0.17	0.17	0.09	0.17	0.17	0.04	0.18	0.18	0.33	0.47	0.47
Sat Flow, veh/h	3456	3110	455	3456	1870	2750	1781	1870	1560	3456	3554	1563
Grp Volume(v), veh/h	233	208	212	236	222	304	57	152	162	1047	167	36
Grp Sat Flow(s),veh/h/ln	1728	1777	1788	1728	1870	1375	1781	1870	1560	1728	1777	1563
Q Serve(g_s), s	6.1	10.2	10.4	6.2	10.3	5.7	2.9	6.7	7.8	26.9	2.4	1.2
Cycle Q Clear(g_c), s	6.1	10.2	10.4	6.2	10.3	5.7	2.9	6.7	7.8	26.9	2.4	1.2
Prop In Lane	1.00		0.25	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	304	302	304	317	325	1401	74	342	431	1144	1679	738
V/C Ratio(X)	0.77	0.69	0.70	0.74	0.68	0.22	0.77	0.44	0.38	0.91	0.10	0.05
Avail Cap(c_a), veh/h	350	462	465	872	747	2021	173	342	431	1431	1679	738
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.3	36.2	36.2	41.0	35.9	12.8	44.0	33.7	27.2	29.7	13.5	13.2
Incr Delay (d2), s/veh	7.0	2.8	2.9	1.3	2.5	0.1	6.2	4.1	2.5	7.2	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	4.6	4.7	2.6	4.7	1.6	1.4	3.3	3.0	11.4	0.9	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.3	39.0	39.1	42.4	38.5	12.9	50.2	37.8	29.7	36.9	13.7	13.3
LnGrp LOS	D	D	D	D	D	B	D	D	C	D	B	B
Approach Vol, veh/h		653			762			371			1250	
Approach Delay, s/veh		42.4			29.5			36.2			33.2	
Approach LOS		D			C			D			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	35.3	22.7	13.1	21.6	8.4	49.6	12.8	21.9				
Change Period (Y+Rc), s	4.6	5.8	4.6	* 5.8	4.6	5.8	4.6	5.8				
Max Green Setting (Gmax), s	38.4	14.4	23.4	* 24	9.0	43.8	9.4	37.0				
Max Q Clear Time (g_c+I1), s	28.9	9.8	8.2	12.4	4.9	4.4	8.1	12.3				
Green Ext Time (p_c), s	1.8	0.5	0.3	1.9	0.0	1.1	0.1	2.4				

Intersection Summary

HCM 6th Ctrl Delay	34.6
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection

Intersection Delay, s/veh 37.2

Intersection LOS E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗	↖	↑						↕	
Traffic Vol, veh/h	0	395	302	87	496	0	0	0	0	155	2	149
Future Vol, veh/h	0	395	302	87	496	0	0	0	0	155	2	149
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	0	3	3	25	3	0	0	0	0	8	67	13
Mvmt Flow	0	420	321	93	528	0	0	0	0	165	2	159
Number of Lanes	0	1	1	1	1	0	0	0	0	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	2
HCM Control Delay	24.5	61.2	20.6
HCM LOS	C	F	C

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	100%	0%	51%
Vol Thru, %	100%	0%	0%	100%	1%
Vol Right, %	0%	100%	0%	0%	49%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	395	302	87	496	306
LT Vol	0	0	87	0	155
Through Vol	395	0	0	496	2
RT Vol	0	302	0	0	149
Lane Flow Rate	420	321	93	528	326
Geometry Grp	7	7	7	7	2
Degree of Util (X)	0.792	0.542	0.201	1.016	0.619
Departure Headway (Hd)	6.911	6.192	7.83	6.934	6.952
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	525	585	461	528	524
Service Time	4.611	3.892	5.53	4.634	4.952
HCM Lane V/C Ratio	0.8	0.549	0.202	1	0.622
HCM Control Delay	31	16	12.5	69.7	20.6
HCM Lane LOS	D	C	B	F	C
HCM 95th-tile Q	7.4	3.2	0.7	14.6	4.2

Intersection												
Int Delay, s/veh	103.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	158	392	0	0	299	99	284	1	104	0	0	0
Future Vol, veh/h	158	392	0	0	299	99	284	1	104	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	230	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	165	408	0	0	311	103	296	1	108	0	0	0
Major/Minor	Major1			Major2			Minor1					
Conflicting Flow All	414	0	-	-	-	0	1101	1152	408			
Stage 1	-	-	-	-	-	-	738	738	-			
Stage 2	-	-	-	-	-	-	363	414	-			
Critical Hdwy	4.15	-	-	-	-	-	6.44	6.5	6.26			
Critical Hdwy Stg 1	-	-	-	-	-	-	5.44	5.5	-			
Critical Hdwy Stg 2	-	-	-	-	-	-	5.44	5.5	-			
Follow-up Hdwy	2.245	-	-	-	-	-	3.536	4	3.354			
Pot Cap-1 Maneuver	1129	-	0	0	-	-	~ 232	199	635			
Stage 1	-	-	0	0	-	-	469	427	-			
Stage 2	-	-	0	0	-	-	699	597	-			
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	1129	-	-	-	-	-	~ 198	0	635			
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 198	0	-			
Stage 1	-	-	-	-	-	-	401	0	-			
Stage 2	-	-	-	-	-	-	699	0	-			
Approach	EB			WB			NB					
HCM Control Delay, s	2.5			0			\$ 353.5					
HCM LOS							F					
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR							
Capacity (veh/h)	243	1129	-	-	-							
HCM Lane V/C Ratio	1.668	0.146	-	-	-							
HCM Control Delay (s)	\$ 353.5	8.7	-	-	-							
HCM Lane LOS	F	A	-	-	-							
HCM 95th %tile Q(veh)	26.1	0.5	-	-	-							
Notes												
~: Volume exceeds capacity	\$: Delay exceeds 300s			+: Computation Not Defined			*: All major volume in platoon					

Intersection	
Intersection Delay, s/veh	25.7
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	158	392	0	0	299	99	284	1	104	0	0	0
Future Vol, veh/h	158	392	0	0	299	99	284	1	104	0	0	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	165	408	0	0	311	103	296	1	108	0	0	0
Number of Lanes	1	1	0	0	1	0	0	1	0	0	0	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	24.8	26	26.6
HCM LOS	C	D	D

Lane	NBLn1	EBLn1	EBLn2	WBLn1
Vol Left, %	73%	100%	0%	0%
Vol Thru, %	0%	0%	100%	75%
Vol Right, %	27%	0%	0%	25%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	389	158	392	398
LT Vol	284	158	0	0
Through Vol	1	0	392	299
RT Vol	104	0	0	99
Lane Flow Rate	405	165	408	415
Geometry Grp	2	7	7	5
Degree of Util (X)	0.746	0.335	0.774	0.744
Departure Headway (Hd)	6.629	7.338	6.826	6.462
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	551	490	531	560
Service Time	4.629	5.084	4.572	4.503
HCM Lane V/C Ratio	0.735	0.337	0.768	0.741
HCM Control Delay	26.6	13.8	29.3	26
HCM Lane LOS	D	B	D	D
HCM 95th-tile Q	6.4	1.5	7	6.4

Timings
11: A Street & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

07/19/2018

	→	↖	←	↙
Lane Group	EBT	WBL	WBT	NBL
Lane Configurations	↻	↻	↻	↻
Traffic Volume (vph)	222	11	194	385
Future Volume (vph)	222	11	194	385
Turn Type	NA	Prot	NA	Prot
Protected Phases	4	3	8	2
Permitted Phases				
Detector Phase	4	3	8	2
Switch Phase				
Minimum Initial (s)	10.0	5.0	10.0	10.0
Minimum Split (s)	22.8	10.8	22.8	21.6
Total Split (s)	57.0	16.0	73.0	47.0
Total Split (%)	47.5%	13.3%	60.8%	39.2%
Yellow Time (s)	4.8	3.6	4.8	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	4.6	5.8	4.6
Lead/Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		
Recall Mode	None	None	None	Min
Act Effect Green (s)	17.8	5.8	19.1	18.5
Actuated g/C Ratio	0.36	0.12	0.39	0.38
v/c Ratio	0.57	0.06	0.29	0.63
Control Delay	17.0	28.9	11.9	19.2
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	17.0	28.9	11.9	19.2
LOS	B	C	B	B
Approach Delay	17.0		12.8	19.2
Approach LOS	B		B	B

Intersection Summary

Cycle Length: 120	
Actuated Cycle Length: 49.3	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.63	
Intersection Signal Delay: 17.0	Intersection LOS: B
Intersection Capacity Utilization 49.4%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 11: A Street & Nichols Rd.

↙ Ø2	↖ Ø3	→ Ø4
47 s	16 s	57 s
	← Ø8	
	73 s	

HCM 6th Signalized Intersection Summary 11: A Street & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)
07/19/2018

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	222	122	11	194	385	4
Future Volume (veh/h)	222	122	11	194	385	4
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1900	1900
Adj Flow Rate, veh/h	241	133	12	211	418	4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	0	0
Cap, veh/h	339	187	28	809	538	5
Arrive On Green	0.30	0.30	0.02	0.43	0.30	0.30
Sat Flow, veh/h	1133	625	1781	1870	1786	17
Grp Volume(v), veh/h	0	374	12	211	423	0
Grp Sat Flow(s),veh/h/ln	0	1758	1781	1870	1808	0
Q Serve(g_s), s	0.0	7.4	0.3	2.8	8.3	0.0
Cycle Q Clear(g_c), s	0.0	7.4	0.3	2.8	8.3	0.0
Prop In Lane		0.36	1.00		0.99	0.01
Lane Grp Cap(c), veh/h	0	526	28	809	544	0
V/C Ratio(X)	0.00	0.71	0.43	0.26	0.78	0.00
Avail Cap(c_a), veh/h	0	2305	520	3220	1963	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	12.2	19.0	7.1	12.5	0.0
Incr Delay (d2), s/veh	0.0	1.8	3.9	0.2	2.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.2	0.1	0.6	3.1	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	14.0	22.9	7.3	14.9	0.0
LnGrp LOS	A	B	C	A	B	A
Approach Vol, veh/h	374			223	423	
Approach Delay, s/veh	14.0			8.1	14.9	
Approach LOS	B			A	B	
Timer - Assigned Phs	2		3	4	8	
Phs Duration (G+Y+Rc), s	16.3		5.2	17.5	22.7	
Change Period (Y+Rc), s	4.6		4.6	5.8	5.8	
Max Green Setting (Gmax), s	42.4		11.4	51.2	67.2	
Max Q Clear Time (g_c+I1), s	10.3		2.3	9.4	4.8	
Green Ext Time (p_c), s	1.4		0.0	2.3	1.2	
Intersection Summary						
HCM 6th Ctrl Delay			13.1			
HCM 6th LOS			B			
Notes						

Intersection						
Int Delay, s/veh	2.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	142	147	0	101	105	0
Future Vol, veh/h	142	147	0	101	105	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	200	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	154	160	0	110	114	0
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	314	0	344	234
Stage 1	-	-	-	-	234	-
Stage 2	-	-	-	-	110	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1246	-	652	805
Stage 1	-	-	-	-	805	-
Stage 2	-	-	-	-	915	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1246	-	652	805
Mov Cap-2 Maneuver	-	-	-	-	652	-
Stage 1	-	-	-	-	805	-
Stage 2	-	-	-	-	915	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		11.7	
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	652	-	-	1246	-	
HCM Lane V/C Ratio	0.175	-	-	-	-	
HCM Control Delay (s)	11.7	-	-	0	-	
HCM Lane LOS	B	-	-	A	-	
HCM 95th %tile Q(veh)	0.6	-	-	0	-	

Intersection												
Int Delay, s/veh	1.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	17	0	2	0	0	3	3	85	1	5	110	32
Future Vol, veh/h	17	0	2	0	0	3	3	85	1	5	110	32
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	18	0	2	0	0	3	3	92	1	5	120	35
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	248	247	138	248	264	93	155	0	0	93	0	0
Stage 1	148	148	-	99	99	-	-	-	-	-	-	-
Stage 2	100	99	-	149	165	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	706	655	910	706	641	964	1425	-	-	1501	-	-
Stage 1	855	775	-	907	813	-	-	-	-	-	-	-
Stage 2	906	813	-	854	762	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	700	651	910	701	637	964	1425	-	-	1501	-	-
Mov Cap-2 Maneuver	700	651	-	701	637	-	-	-	-	-	-	-
Stage 1	853	772	-	905	811	-	-	-	-	-	-	-
Stage 2	901	811	-	849	759	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	10.2		8.7		0.3		0.3					
HCM LOS	B		A									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1425	-	-	717	964	1501	-	-				
HCM Lane V/C Ratio	0.002	-	-	0.029	0.003	0.004	-	-				
HCM Control Delay (s)	7.5	0	-	10.2	8.7	7.4	0	-				
HCM Lane LOS	A	A	-	B	A	A	A	-				
HCM 95th %tile O(veh)	0	-	-	0.1	0	0	-	-				

Intersection						
Int Delay, s/veh	2.6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	44	46	89	112	0
Future Vol, veh/h	0	44	46	89	112	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	48	50	97	122	0
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	319	122	122	0	-	0
Stage 1	122	-	-	-	-	-
Stage 2	197	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	674	929	1465	-	-	-
Stage 1	903	-	-	-	-	-
Stage 2	836	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	650	929	1465	-	-	-
Mov Cap-2 Maneuver	650	-	-	-	-	-
Stage 1	870	-	-	-	-	-
Stage 2	836	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	9.1	2.6		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1465	-	929	-	-	
HCM Lane V/C Ratio	0.034	-	0.051	-	-	
HCM Control Delay (s)	7.5	0	9.1	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0.1	-	0.2	-	-	

Intersection						
Int Delay, s/veh	0.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	8	148	131	8	4	4
Future Vol, veh/h	8	148	131	8	4	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	161	142	9	4	4
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	151	0	-	0	326	147
Stage 1	-	-	-	-	147	-
Stage 2	-	-	-	-	179	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1430	-	-	-	668	900
Stage 1	-	-	-	-	880	-
Stage 2	-	-	-	-	852	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1430	-	-	-	663	900
Mov Cap-2 Maneuver	-	-	-	-	663	-
Stage 1	-	-	-	-	874	-
Stage 2	-	-	-	-	852	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.4	0		9.8		
HCM LOS				A		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1430	-	-	-	764	
HCM Lane V/C Ratio	0.006	-	-	-	0.011	
HCM Control Delay (s)	7.5	0	-	-	9.8	
HCM Lane LOS	A	A	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	0	

Intersection						
Int Delay, s/veh	5.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	153	176	44	120	0
Future Vol, veh/h	0	153	176	44	120	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	166	191	48	130	0
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	560	130	130	0	-	0
Stage 1	130	-	-	-	-	-
Stage 2	430	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	489	920	1455	-	-	-
Stage 1	896	-	-	-	-	-
Stage 2	656	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	423	920	1455	-	-	-
Mov Cap-2 Maneuver	423	-	-	-	-	-
Stage 1	775	-	-	-	-	-
Stage 2	656	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	9.8	6.3		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1455	-	920	-	-	
HCM Lane V/C Ratio	0.131	-	0.181	-	-	
HCM Control Delay (s)	7.8	0	9.8	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0.5	-	0.7	-	-	

Intersection						
Int Delay, s/veh	1.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	14	28	191	27	63	211
Future Vol, veh/h	14	28	191	27	63	211
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	15	30	208	29	68	229
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	588	223	0	0	237	0
Stage 1	223	-	-	-	-	-
Stage 2	365	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	471	817	-	-	1330	-
Stage 1	814	-	-	-	-	-
Stage 2	702	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	443	817	-	-	1330	-
Mov Cap-2 Maneuver	443	-	-	-	-	-
Stage 1	766	-	-	-	-	-
Stage 2	702	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	11.1	0		1.8		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	638	1330	-	
HCM Lane V/C Ratio	-	-	0.072	0.051	-	
HCM Control Delay (s)	-	-	11.1	7.9	0	
HCM Lane LOS	-	-	B	A	A	
HCM 95th %tile Q(veh)	-	-	0.2	0.2	-	

Intersection												
Int Delay, s/veh	1.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	16	0	33	6	0	1	15	201	5	7	206	11
Future Vol, veh/h	16	0	33	6	0	1	15	201	5	7	206	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	3
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	19	0	39	7	0	1	18	239	6	8	245	13
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	550	552	255	565	555	242	261	0	0	245	0	0
Stage 1	271	271	-	278	278	-	-	-	-	-	-	-
Stage 2	279	281	-	287	277	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	446	442	784	436	440	797	1303	-	-	1321	-	-
Stage 1	735	685	-	728	680	-	-	-	-	-	-	-
Stage 2	728	678	-	720	681	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	436	431	782	407	429	797	1299	-	-	1321	-	-
Mov Cap-2 Maneuver	436	431	-	407	429	-	-	-	-	-	-	-
Stage 1	721	678	-	716	669	-	-	-	-	-	-	-
Stage 2	715	667	-	679	674	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	11.4		13.4		0.5		0.2					
HCM LOS	B		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1299	-	-	621	438	1321	-	-				
HCM Lane V/C Ratio	0.014	-	-	0.094	0.019	0.006	-	-				
HCM Control Delay (s)	7.8	0	-	11.4	13.4	7.7	0	-				
HCM Lane LOS	A	A	-	B	B	A	A	-				
HCM 95th %tile O(veh)	0	-	-	0.3	0.1	0	-	-				

Timings
19: Dexter Av. & Central Av. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

07/02/2018

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	381	1821	181	176	1252	98	134	148	96	103	355
Future Volume (vph)	381	1821	181	176	1252	98	134	148	96	103	355
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2	1	6	7
Permitted Phases			4			8					6
Detector Phase	7	4	4	3	8	8	5	2	1	6	7
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0	5.0
Minimum Split (s)	9.6	26.8	26.8	9.6	26.8	26.8	9.6	42.4	9.6	15.8	9.6
Total Split (s)	32.0	47.2	47.2	17.0	32.2	32.2	22.1	43.8	12.0	33.7	32.0
Total Split (%)	26.7%	39.3%	39.3%	14.2%	26.8%	26.8%	18.4%	36.5%	10.0%	28.1%	26.7%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	4.8	3.6	4.4	3.6	4.8	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	5.8	4.6	5.8	5.8	4.6	5.4	4.6	5.8	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	None	Max	None
Act Effect Green (s)	27.2	41.4	41.4	12.4	26.6	26.6	13.3	38.4	7.4	32.1	60.5
Actuated g/C Ratio	0.23	0.34	0.34	0.10	0.22	0.22	0.11	0.32	0.06	0.27	0.50
v/c Ratio	0.97	0.99	0.29	0.99	0.77	0.20	0.70	0.60	0.90	0.21	0.43
Control Delay	84.4	58.7	8.3	118.0	47.7	0.9	69.8	33.4	118.6	36.8	13.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	84.4	58.7	8.3	118.0	47.7	0.9	69.8	33.4	118.6	36.8	13.2
LOS	F	E	A	F	D	A	E	C	F	D	B
Approach Delay		59.0			52.8			43.7		35.8	
Approach LOS		E			D			D		D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Natural Cycle: 120

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.99

Intersection Signal Delay: 53.0

Intersection LOS: D

Intersection Capacity Utilization 98.1%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 19: Dexter Av. & Central Av. (SR-74)

			
12 s	43.8 s	17 s	47.2 s
			
22.1 s	33.7 s	32 s	32.2 s

HCM 6th Signalized Intersection Summary
19: Dexter Av. & Central Av. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

07/02/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  							
Traffic Volume (veh/h)	381	1821	181	176	1252	98	134	148	189	96	103	355
Future Volume (veh/h)	381	1821	181	176	1252	98	134	148	189	96	103	355
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	389	1858	143	180	1278	76	137	151	133	98	105	299
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	405	1872	531	183	1640	342	164	290	255	109	539	812
Arrive On Green	0.23	0.34	0.34	0.10	0.22	0.22	0.09	0.32	0.32	0.06	0.29	0.29
Sat Flow, veh/h	1781	5443	1545	1781	7481	1559	1781	909	801	1781	1870	1565
Grp Volume(v), veh/h	389	1858	143	180	1278	76	137	0	284	98	105	299
Grp Sat Flow(s),veh/h/ln	1781	1814	1545	1781	1870	1559	1781	0	1710	1781	1870	1565
Q Serve(g_s), s	26.0	40.9	8.1	12.1	19.4	4.8	9.1	0.0	16.3	6.6	5.1	13.8
Cycle Q Clear(g_c), s	26.0	40.9	8.1	12.1	19.4	4.8	9.1	0.0	16.3	6.6	5.1	13.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.47	1.00		1.00
Lane Grp Cap(c), veh/h	405	1872	531	183	1640	342	164	0	546	109	539	812
V/C Ratio(X)	0.96	0.99	0.27	0.98	0.78	0.22	0.84	0.00	0.52	0.90	0.19	0.37
Avail Cap(c_a), veh/h	405	1872	531	183	1640	342	259	0	546	109	539	812
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.0	39.4	28.6	53.9	44.3	38.6	53.8	0.0	33.5	56.1	32.3	17.4
Incr Delay (d2), s/veh	34.0	19.1	0.3	60.6	2.5	0.3	6.9	0.0	3.5	53.2	0.8	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	14.9	20.6	2.9	8.4	9.0	1.8	4.3	0.0	7.1	4.5	2.4	5.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	80.0	58.4	28.8	114.5	46.7	38.9	60.6	0.0	37.0	109.3	33.1	18.7
LnGrp LOS	E	E	C	F	D	D	E	A	D	F	C	B
Approach Vol, veh/h		2390			1534			421			502	
Approach Delay, s/veh		60.1			54.3			44.7			39.4	
Approach LOS		E			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.0	44.2	17.0	47.2	15.7	40.5	32.0	32.2				
Change Period (Y+Rc), s	4.6	* 5.8	4.6	5.8	4.6	5.8	4.6	5.8				
Max Green Setting (Gmax), s	7.4	* 38	12.4	41.4	17.5	27.9	27.4	26.4				
Max Q Clear Time (g_c+I1), s	8.6	18.3	14.1	42.9	11.1	15.8	28.0	21.4				
Green Ext Time (p_c), s	0.0	1.5	0.0	0.0	0.1	1.2	0.0	3.3				

Intersection Summary

HCM 6th Ctrl Delay 54.8

HCM 6th LOS D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Timings

S. Nichols Mixed-Use Development (JN 10878)

20: Cambern Av./Cambern Av & Central Av. (SR-74)

05/21/2018



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT	SBR	Ø3
Lane Configurations	←←	→→	←←	→	←	→		←	→	
Traffic Volume (vph)	286	1974	1281	161	1	3	259	3	95	
Future Volume (vph)	286	1974	1281	161	1	3	259	3	95	
Turn Type	Prot	NA	NA	Perm	Perm	NA	Perm	NA	Perm	
Protected Phases	7	4	8			2		6		3
Permitted Phases				8	2		6		6	
Detector Phase	7	4	8	8	2	2	6	6	6	
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	5.0
Minimum Split (s)	9.6	24.8	25.5	25.5	34.7	34.7	14.7	14.7	14.7	9.6
Total Split (s)	19.8	74.0	63.8	63.8	36.4	36.4	36.4	36.4	36.4	9.6
Total Split (%)	16.5%	61.7%	53.2%	53.2%	30.3%	30.3%	30.3%	30.3%	30.3%	8%
Yellow Time (s)	3.6	4.8	5.5	5.5	3.7	3.7	3.7	3.7	3.7	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.6	5.8	6.5	6.5	4.7	4.7		4.7	4.7	
Lead/Lag	Lead	Lag	Lag	Lag						Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes						Yes
Recall Mode	Max	None	None	None	Max	Max	Max	Max	Max	None
Act Effect Green (s)	15.2	74.3	53.8	53.8	31.8	31.8		31.8	31.8	
Actuated g/C Ratio	0.13	0.64	0.46	0.46	0.27	0.27		0.27	0.27	
v/c Ratio	0.67	0.91	0.82	0.21	0.01	0.01		0.74	0.19	
Control Delay	56.9	25.8	32.0	3.2	33.0	29.8		53.2	5.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	56.9	25.8	32.0	3.2	33.0	29.8		53.2	5.4	
LOS	E	C	C	A	C	C		D	A	
Approach Delay		29.7	28.8			30.4		40.5		
Approach LOS		C	C			C		D		

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 116.6

Natural Cycle: 120

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.91

Intersection Signal Delay: 30.3

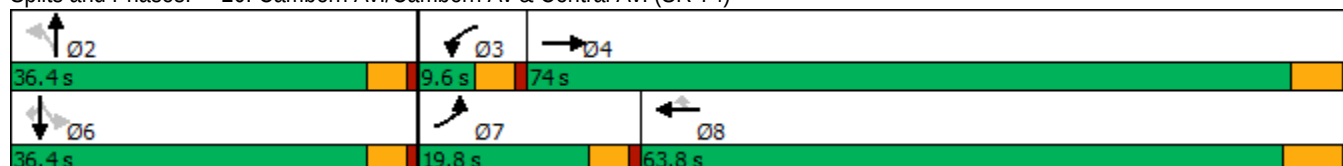
Intersection LOS: C

Intersection Capacity Utilization 92.5%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 20: Cambern Av./Cambern Av & Central Av. (SR-74)



HCM 6th Signalized Intersection Summary S. Nichols Mixed-Use Development (JN 10878)
 20: Cambern Av./Cambern Av & Central Av. (SR-74) 05/21/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	286	1974	1	0	1281	161	1	3	1	259	3	95
Future Volume (veh/h)	286	1974	1	0	1281	161	1	3	1	259	3	95
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	298	2056	1	0	1334	116	1	3	1	270	3	46
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	463	2267	1	2	1590	699	206	375	125	452	4	437
Arrive On Green	0.13	0.62	0.62	0.00	0.45	0.45	0.28	0.28	0.28	0.28	0.28	0.28
Sat Flow, veh/h	3456	3645	2	1781	3554	1562	1356	1342	447	1393	15	1565
Grp Volume(v), veh/h	298	1002	1055	0	1334	116	1	0	4	273	0	46
Grp Sat Flow(s),veh/h/ln	1728	1777	1870	1781	1777	1562	1356	0	1790	1408	0	1565
Q Serve(g_s), s	9.3	55.5	55.5	0.0	37.7	5.0	0.1	0.0	0.2	19.6	0.0	2.5
Cycle Q Clear(g_c), s	9.3	55.5	55.5	0.0	37.7	5.0	19.8	0.0	0.2	19.8	0.0	2.5
Prop In Lane	1.00		0.00	1.00		1.00	1.00		0.25	0.99		1.00
Lane Grp Cap(c), veh/h	463	1105	1163	2	1590	699	206	0	500	456	0	437
V/C Ratio(X)	0.64	0.91	0.91	0.00	0.84	0.17	0.00	0.00	0.01	0.60	0.00	0.11
Avail Cap(c_a), veh/h	463	1105	1163	78	1794	788	206	0	500	456	0	437
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	46.6	18.6	18.6	0.0	27.7	18.7	45.5	0.0	29.5	36.7	0.0	30.4
Incr Delay (d2), s/veh	6.7	10.9	10.5	0.0	3.6	0.2	0.0	0.0	0.0	5.7	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.3	22.6	23.7	0.0	15.1	1.7	0.0	0.0	0.1	7.4	0.0	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.3	29.5	29.1	0.0	31.3	18.9	45.5	0.0	29.6	42.4	0.0	30.9
LnGrp LOS	D	C	C	A	C	B	D	A	C	D	A	C
Approach Vol, veh/h		2355			1450			5			319	
Approach Delay, s/veh		32.4			30.3			32.8			40.7	
Approach LOS		C			C			C			D	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		36.4	0.0	77.1		36.4	19.8	57.3				
Change Period (Y+Rc), s		* 4.7	4.6	* 6.5		* 4.7	4.6	6.5				
Max Green Setting (Gmax), s		* 32	5.0	* 68		* 32	15.2	57.3				
Max Q Clear Time (g_c+I1), s		21.8	0.0	57.5		21.8	11.3	39.7				
Green Ext Time (p_c), s		0.0	0.0	9.8		1.2	0.2	11.1				
Intersection Summary												
HCM 6th Ctrl Delay			32.3									
HCM 6th LOS			C									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Intersection						
Int Delay, s/veh	0.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	220	276	0	219	0	7
Future Vol, veh/h	220	276	0	219	0	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	239	300	0	238	0	8
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	389
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.318
Pot Cap-1 Maneuver	-	-	0	-	0	659
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	659
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		10.5	
HCM LOS					B	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT		
Capacity (veh/h)	659	-	-	-		
HCM Lane V/C Ratio	0.012	-	-	-		
HCM Control Delay (s)	10.5	-	-	-		
HCM Lane LOS	B	-	-	-		
HCM 95th %tile Q(veh)	0	-	-	-		

APPENDIX 8.3:

EA (2024) CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = **EA (2024) Conditions - Weekday AM Peak Hour**

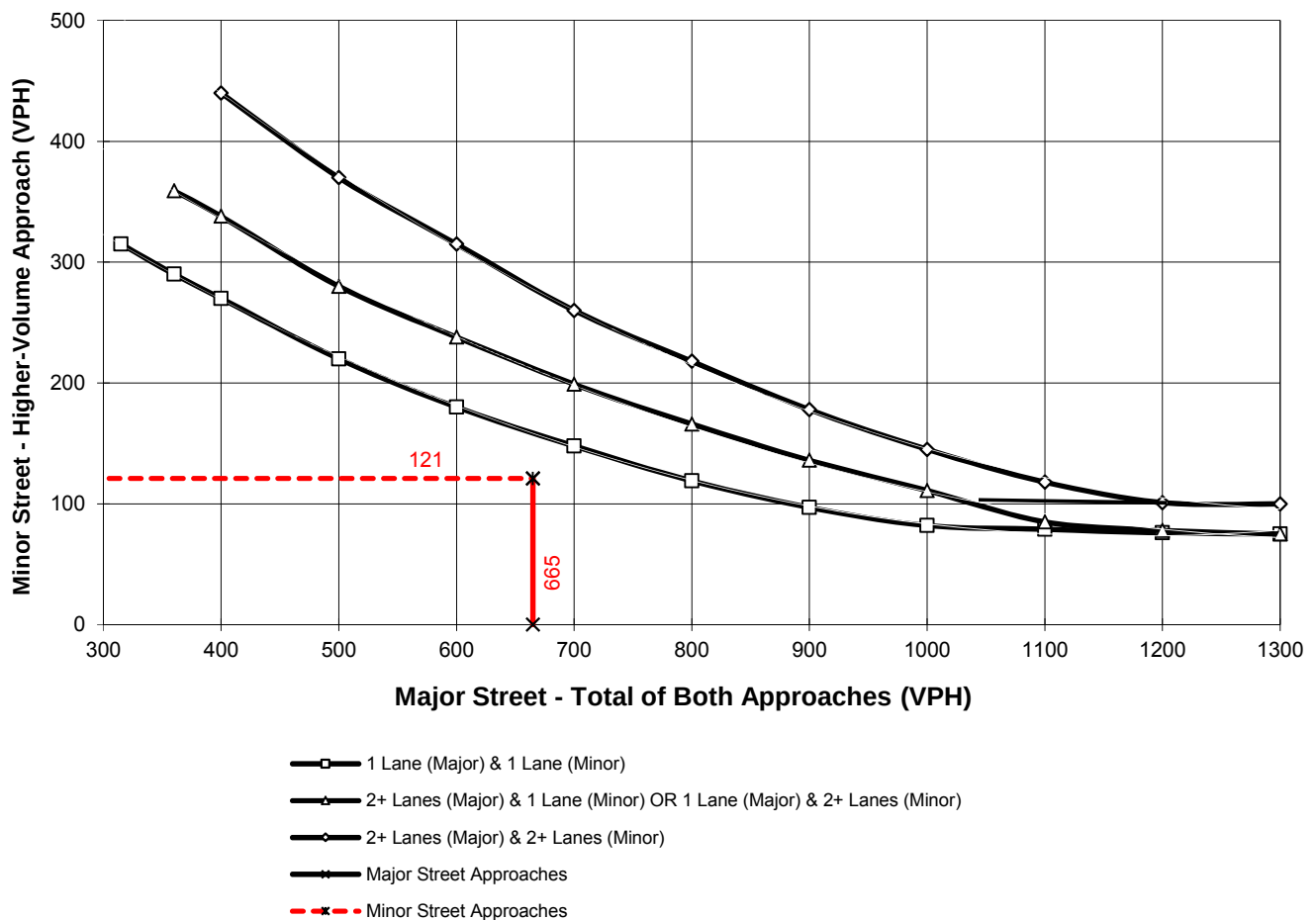
Major Street Name = **Nichols Rd.**

Total of Both Approaches (VPH) = **665**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Alberhill Ranch Rd.**

High Volume Approach (VPH) = **121**
Number of Approach Lanes Minor Street = **1**

SIGNAL WARRANT NOT SATISFIED



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes
and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-3. Warrant 3, Peak Hour

Traffic Conditions = **EA (2024) Conditions - Weekday AM Peak Hour**

Major Street Name = **Gunnerson St.**

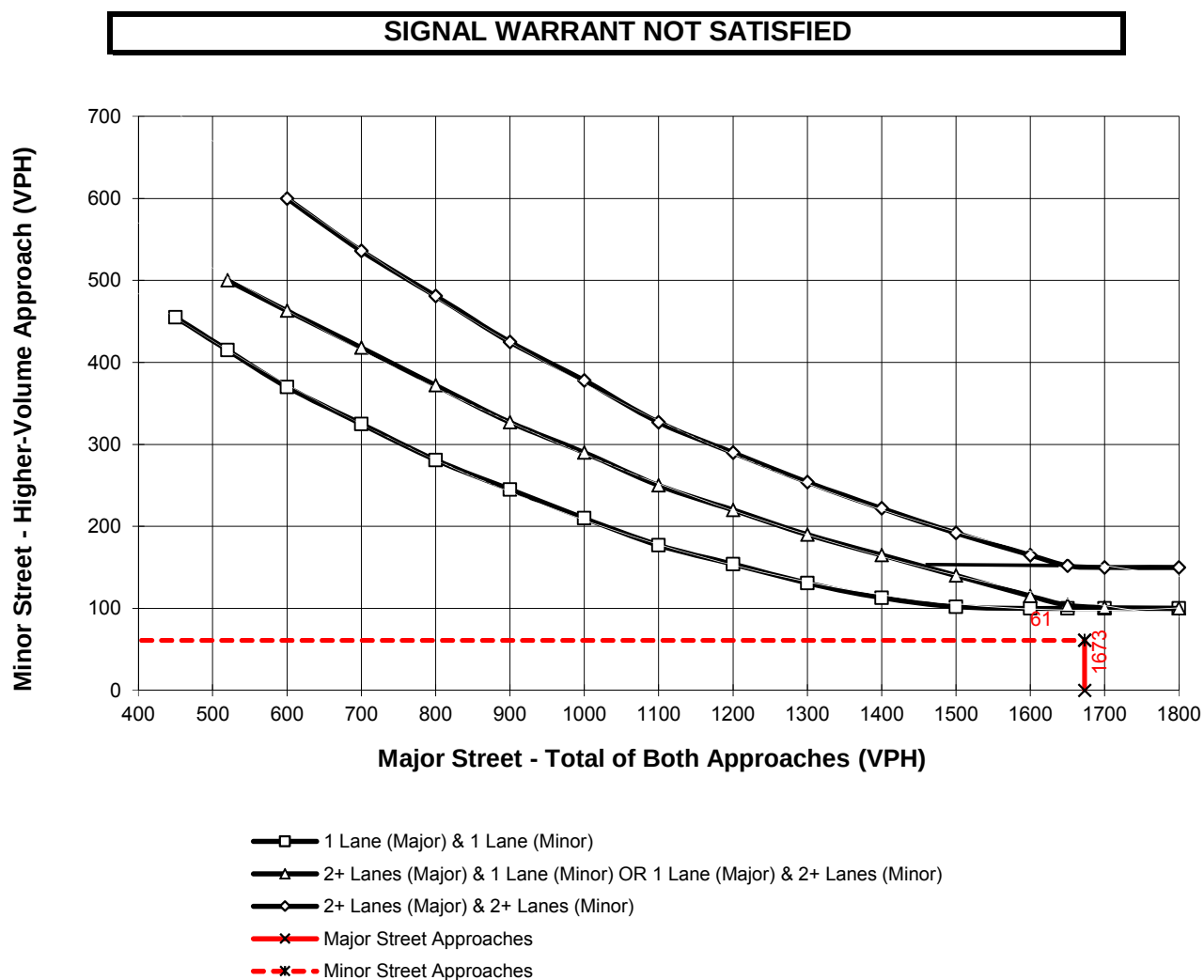
Total of Both Approaches (VPH) = **1673**

Number of Approach Lanes on Major Street = **1**

Minor Street Name = **Strickland Av./Riverside Dr.**

High Volume Approach (VPH) = **61**

Number of Approach Lanes On Minor Street = **1**



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes
and 100 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-3. Warrant 3, Peak Hour

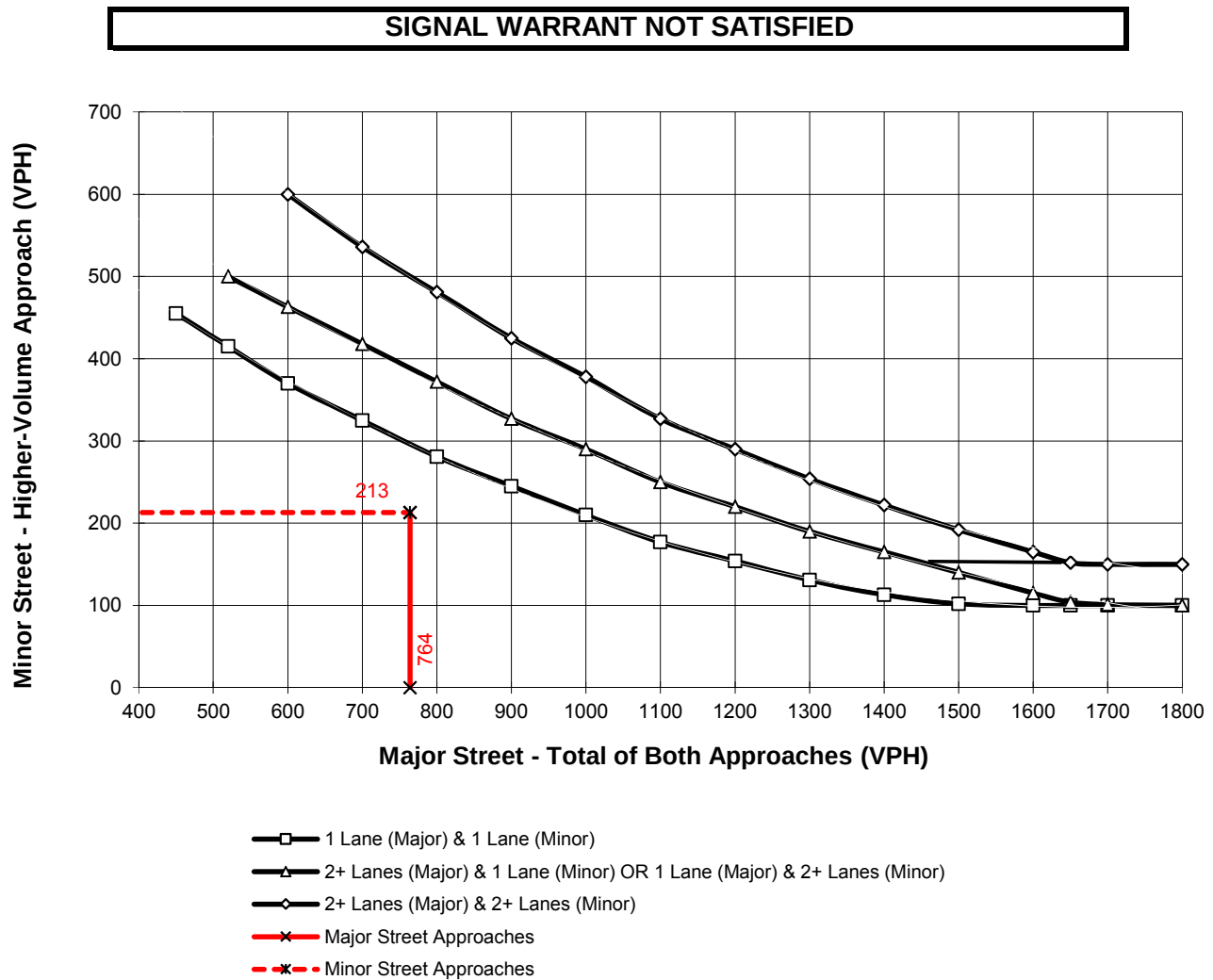
Traffic Conditions = **EA (2024) Conditions - Weekday AM Peak Hour**

Major Street Name = **El Toro Rd.**

Total of Both Approaches (VPH) = **764**
Number of Approach Lanes on Major Street = **1**

Minor Street Name = **Tereticornis Av.**

High Volume Approach (VPH) = **213**
Number of Approach Lanes On Minor Street = **1**



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes
and 100 vph applies as the lower threshold for a minor-street approach with one lane

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APPENDIX 8.4:

EAP (2024) CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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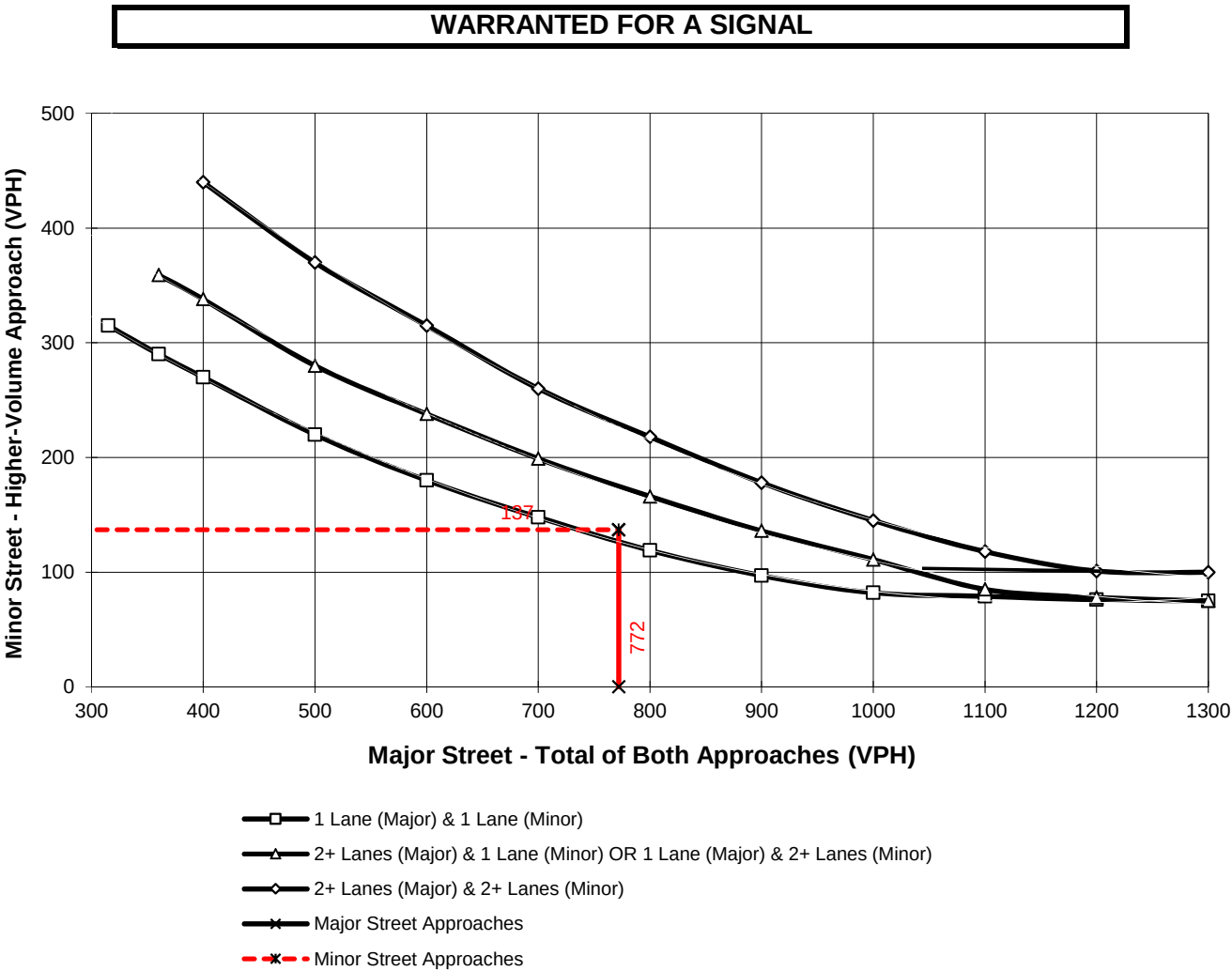
Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

Traffic Conditions = EAP (2024) Conditions - Weekday AM Peak Hour

Major Street Name = Nichols Rd. Total of Both Approaches (VPH) = 772
Number of Approach Lanes Major Street = 1

Minor Street Name = Alberhill Ranch Rd. High Volume Approach (VPH) = 137
Number of Approach Lanes Minor Street = 1



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes
and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-3. Warrant 3, Peak Hour

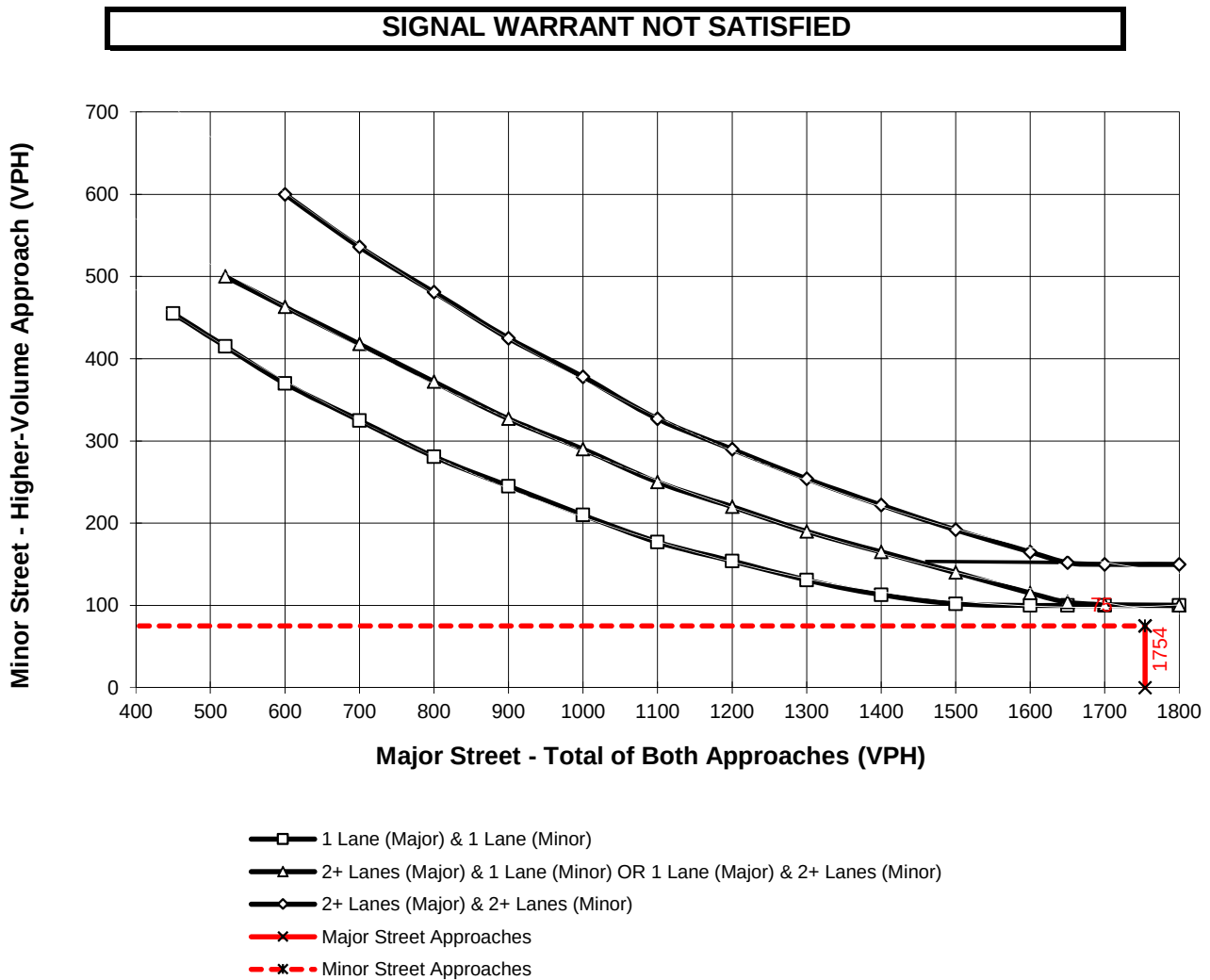
Traffic Conditions = **EAP (2024) Conditions - Weekday AM Peak Hour**

Major Street Name = **Gunnerson St.**

Total of Both Approaches (VPH) = **1754**
Number of Approach Lanes on Major Street = **1**

Minor Street Name = **Strickland Av./Riverside Dr.**

High Volume Approach (VPH) = **75**
Number of Approach Lanes On Minor Street = **1**



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes
and 100 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet (Average Traffic Estimate Form)

DIST	CO	RTE	PM	CALC	TRAFFIC CONDITIONS	EAP (2024)
Jurisdiction: <u>City of Lake Elsinore</u>				CHK <u>CH</u>		DATE <u>05/01/18</u>
Major Street: <u>Nichols Rd.</u>					Critical Approach Speed (Major)	<u>50</u> mph
Minor Street: <u>B St.</u>					Critical Approach Speed (Minor)	<u>25</u> mph
Major Street Approach Lanes = <u>1</u> lane				Minor Street Approach Lanes: <u>1</u> lane		
Major Street Future ADT = <u>5,007</u> vpd				Minor Street Future ADT = <u>2,325</u> vpd		
Speed limit or critical speed on major street traffic > 64 km/h (40 mph);						☒
						or
In built up area of isolated community of < 10,000 population						☐

RURAL (R)

(Based on Estimated Average Daily Traffic - See Note)

URBAN		RURAL		Minimum Requirements			
CONDITION A - Minimum Vehicular Volume		XX		EADT			
Satisfied		Not Satisfied		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Major Street	Minor Street	Major Street	Minor Street	Urban	Rural	Urban	Rural
1 5,007	1 2,325			8,000	5,600	2,400	1,680 *
2 +	1			9,600	6,720	2,400	1,680
2 +	2 +			9,600	6,720	3,200	2,240
1	2 +			8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic		XX		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied	Not Satisfied	Satisfied	Not Satisfied	Urban	Rural	Urban	Rural
Major Street	Minor Street	Major Street	Minor Street	Urban	Rural	Urban	Rural
1 5,007	1 2,325			12,000	8,400	1,200	850 *
2 +	1			14,400	10,080	1,200	850
2 +	2 +			14,400	10,080	1,600	1,120
1	2 +			12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B		XX		2 CONDITIONS		2 CONDITIONS	
Satisfied	Not Satisfied	Satisfied	Not Satisfied	80%		80%	
No one condition satisfied, but following conditions fulfilled 80% of more		A	B				
		89%	60%				

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet (Average Traffic Estimate Form)

DIST	CO	RTE	PM	CALC	TRAFFIC CONDITIONS	EAP (2024)
Jurisdiction: <u>City of Lake Elsinore</u>				CHK <u>CH</u>		DATE <u>05/01/18</u>
Major Street: <u>B St.</u>					Critical Approach Speed (Major)	<u>50</u> mph
Minor Street: <u>F St.</u>					Critical Approach Speed (Minor)	<u>25</u> mph
Major Street Approach Lanes = <u>1</u> lane				Minor Street Approach Lanes: <u>1</u> lane		
Major Street Future ADT = <u>2,548</u> vpd				Minor Street Future ADT = <u>343</u> vpd		
Speed limit or critical speed on major street traffic > 64 km/h (40 mph);						☒
						or
In built up area of isolated community of < 10,000 population						☐

RURAL (R)

(Based on Estimated Average Daily Traffic - See Note)

URBAN		RURAL		Minimum Requirements			
CONDITION A - Minimum Vehicular Volume		XX		EADT			
Satisfied		Not Satisfied		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Major Street		Minor Street		Urban	Rural	Urban	Rural
1 2,548		1 343		8,000	5,600	2,400	1,680
2 +		1		9,600	6,720	2,400	1,680
2 +		2 +		9,600	6,720	3,200	2,240
1		2 +		8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic		XX		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Satisfied		Not Satisfied		Urban	Rural	Urban	Rural
Major Street		Minor Street					
1 2,548		1 343		12,000	8,400	1,200	850
2 +		1		14,400	10,080	1,200	850
2 +		2 +		14,400	10,080	1,600	1,120
1		2 +		12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B		XX		2 CONDITIONS		2 CONDITIONS	
Satisfied		Not Satisfied		80%		80%	
No one condition satisfied, but following conditions fulfilled 80% of more		A					
		20%					
		B					
		30%					

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet (Average Traffic Estimate Form)

DIST	CO	RTE	PM	CALC	TRAFFIC CONDITIONS	EAP (2024)
Jurisdiction: <u>City of Lake Elsinore</u>				CHK <u>CH</u>		DATE <u>05/01/18</u>
Major Street: <u>H St.</u>					Critical Approach Speed (Major)	<u>25</u> mph
Minor Street: <u>B St.</u>					Critical Approach Speed (Minor)	<u>25</u> mph
Major Street Approach Lanes = <u>1</u> lane				Minor Street Approach Lanes: <u>1</u> lane		
Major Street Future ADT = <u>2,692</u> vpd				Minor Street Future ADT = <u>463</u> vpd		
Speed limit or critical speed on major street traffic > 64 km/h (40 mph);						
						or
In built up area of isolated community of < 10,000 population						
URBAN (U)						

(Based on Estimated Average Daily Traffic - See Note)

URBAN XX		RURAL		Minimum Requirements	
CONDITION A - Minimum Vehicular Volume				EADT	
<u>Satisfied</u>	<u>Not Satisfied</u> XX			Vehicles Per Day on Major Street (Total of Both Approaches)	Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)
Major Street	Minor Street	Urban	Rural	Urban	Rural
1 2,692	1 463	8,000	5,600	2,400	1,680
2 +	1	9,600	6,720	2,400	1,680
2 +	2 +	9,600	6,720	3,200	2,240
1	2 +	8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic				Vehicles Per Day on Major Street (Total of Both Approaches)	Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)
<u>Satisfied</u>	<u>Not Satisfied</u> XX	Urban	Rural	Urban	Rural
Major Street	Minor Street				
1 2,692	1 463	12,000	8,400	1,200	850
2 +	1	14,400	10,080	1,200	850
2 +	2 +	14,400	10,080	1,600	1,120
1	2 +	12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B					
<u>Satisfied</u>	<u>Not Satisfied</u> XX				
No one condition satisfied, but following conditions fulfilled 80% of more					
	A				
	19%				
	B				
	22%				

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

**Figure 4C-103 (CA). Traffic Signal Warrants Worksheet
(Average Traffic Estimate Form)**

DIST				CO		RTE		PM		CALC		CH		TRAFFIC CONDITIONS		EAP (2024)	
Jurisdiction:				City of Lake Elsinore						CHK		CH		DATE		05/01/18	
Major Street:				G St.										Critical Approach Speed (Major)		25 mph	
Minor Street:				B St.										Critical Approach Speed (Minor)		25 mph	
Major Street Approach Lanes =				1		lane						Minor Street Approach Lanes:				1 lane	
Major Street Future ADT =				3,156		vpd						Minor Street Future ADT =				159 vpd	
Speed limit or critical speed on major street traffic > 64 km/h (40 mph);														or		URBAN (U)	
In built up area of isolated community of < 10,000 population																	

(Based on Estimated Average Daily Traffic - See Note)

URBAN XX RURAL XX		Minimum Requirements			
CONDITION A - Minimum Vehicular Volume Satisfied Not Satisfied		EADT			
Number of lanes for moving traffic on each approach Major Street Minor Street		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
		Urban	Rural	Urban	Rural
1 3,156 1 159		8,000	5,600	2,400	1,680
2 + 1		9,600	6,720	2,400	1,680
2 + 2 +		9,600	6,720	3,200	2,240
1 2 +		8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic Satisfied Not Satisfied		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Number of lanes for moving traffic on each approach Major Street Minor Street		Urban	Rural	Urban	Rural
1 3,156 1 159		12,000	8,400	1,200	850
2 + 1		14,400	10,080	1,200	850
2 + 2 +		14,400	10,080	1,600	1,120
1 2 +		12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B Satisfied Not Satisfied					
No one condition satisfied, but following conditions fulfilled 80% of more A B		2 CONDITIONS 80%		2 CONDITIONS 80%	
7% 13%					

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet (Average Traffic Estimate Form)

DIST	CO	RTE	PM	CALC	TRAFFIC CONDITIONS	EAP (2024)
Jurisdiction: <u>City of Lake Elsinore</u>				CHK <u>CH</u>		DATE <u>05/01/18</u>
Major Street: <u>El Toro Rd.</u>					Critical Approach Speed (Major)	<u>25</u> mph
Minor Street: <u>B St.</u>					Critical Approach Speed (Minor)	<u>25</u> mph
Major Street Approach Lanes = <u>1</u> lane				Minor Street Approach Lanes: <u>1</u> lane		
Major Street Future ADT = <u>3,260</u> vpd				Minor Street Future ADT = <u>2,161</u> vpd		
Speed limit or critical speed on major street traffic > 64 km/h (40 mph);						 or
In built up area of isolated community of < 10,000 population						URBAN (U)

(Based on Estimated Average Daily Traffic - See Note)

URBAN XX		RURAL		Minimum Requirements	
CONDITION A - Minimum Vehicular Volume				EADT	
<u>Satisfied</u>	<u>Not Satisfied</u> XX			Vehicles Per Day on Major Street (Total of Both Approaches)	Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)
Major Street	Minor Street	Urban	Rural	Urban	Rural
1 3,260	1 2,161	8,000	5,600	2,400	1,680
2 +	1	9,600	6,720	2,400	1,680
2 +	2 +	9,600	6,720	3,200	2,240
1	2 +	8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic				Vehicles Per Day on Major Street (Total of Both Approaches)	Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)
<u>Satisfied</u>	<u>Not Satisfied</u> XX	Urban	Rural	Urban	Rural
Major Street	Minor Street				
1 3,260	1 2,161	12,000	8,400	1,200 *	850
2 +	1	14,400	10,080	1,200	850
2 +	2 +	14,400	10,080	1,600	1,120
1	2 +	12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B					
<u>Satisfied</u>	<u>Not Satisfied</u> XX				
No one condition satisfied, but following conditions fulfilled 80% of more					
	A				
	41%				
	B				
	27%				

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-3. Warrant 3, Peak Hour

Traffic Conditions = **EAP (2024) Conditions - Weekday AM Peak Hour**

Major Street Name = **El Toro Rd.**

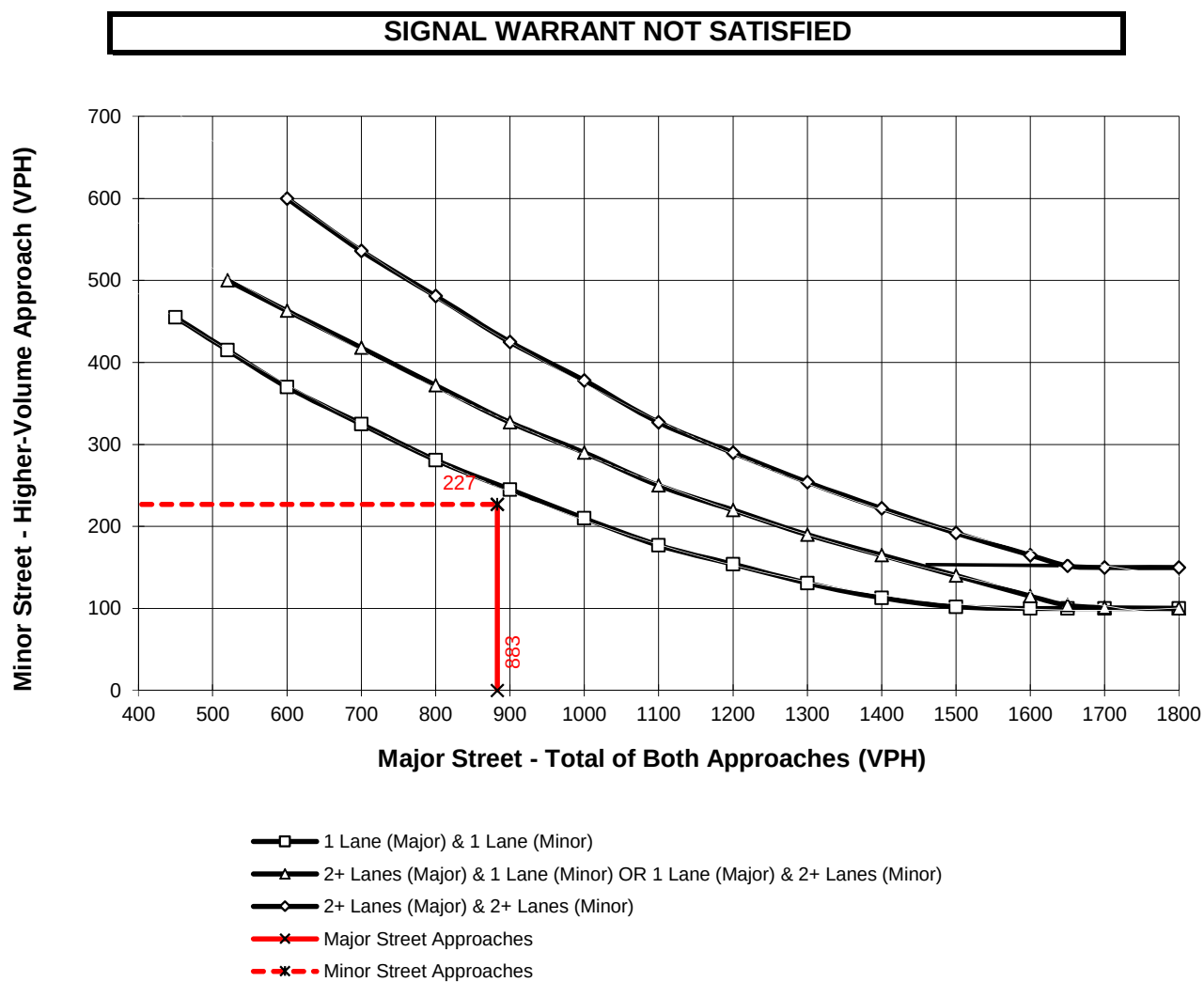
Total of Both Approaches (VPH) = **883**

Number of Approach Lanes on Major Street = **1**

Minor Street Name = **Tereticornis Av.**

High Volume Approach (VPH) = **227**

Number of Approach Lanes On Minor Street = **1**



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes
and 100 vph applies as the lower threshold for a minor-street approach with one lane

APPENDIX 8.5:

EA (2024) CONDITIONS OFF-RAMP QUEUEING ANALYSIS WORKSHEETS

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Intersection

Intersection Delay, s/veh19.1

Intersection LOS C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗	↖	↑						↕	
Traffic Vol, veh/h	0	257	301	63	242	0	0	0	0	185	7	70
Future Vol, veh/h	0	257	301	63	242	0	0	0	0	185	7	70
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles, %	0	3	3	25	3	0	0	0	0	8	67	13
Mvmt Flow	0	343	401	84	323	0	0	0	0	247	9	93
Number of Lanes	0	1	1	1	1	0	0	0	0	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	2
HCM Control Delay	18.9	18.3	20.5
HCM LOS	C	C	C

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	100%	0%	71%
Vol Thru, %	100%	0%	0%	100%	3%
Vol Right, %	0%	100%	0%	0%	27%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	257	301	63	242	262
LT Vol	0	0	63	0	185
Through Vol	257	0	0	242	7
RT Vol	0	301	0	0	70
Lane Flow Rate	343	401	84	323	349
Geometry Grp	7	7	7	7	2
Degree of Util (X)	0.618	0.644	0.18	0.612	0.636
Departure Headway (Hd)	6.49	5.775	7.723	6.828	6.55
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	552	622	462	526	548
Service Time	4.269	3.554	5.51	4.614	4.614
HCM Lane V/C Ratio	0.621	0.645	0.182	0.614	0.637
HCM Control Delay	19.3	18.5	12.2	19.9	20.5
HCM Lane LOS	C	C	B	C	C
HCM 95th-tile Q	4.2	4.6	0.6	4.1	4.4

Intersection												
Int Delay, s/veh	114.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	83	358	0	0	148	100	158	3	122	0	0	0
Future Vol, veh/h	83	358	0	0	148	100	158	3	122	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	230	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	62	62	62	62	62	62	62	62	62	62	62	62
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	134	577	0	0	239	161	255	5	197	0	0	0
Major/Minor	Major1		Major2			Minor1						
Conflicting Flow All	400	0	-	-	-	0	1165	1245	577			
Stage 1	-	-	-	-	-	-	845	845	-			
Stage 2	-	-	-	-	-	-	320	400	-			
Critical Hdwy	4.15	-	-	-	-	-	6.44	6.5	6.26			
Critical Hdwy Stg 1	-	-	-	-	-	-	5.44	5.5	-			
Critical Hdwy Stg 2	-	-	-	-	-	-	5.44	5.5	-			
Follow-up Hdwy	2.245	-	-	-	-	-	3.536	4	3.354			
Pot Cap-1 Maneuver	1143	-	0	0	-	-	~ 213	176	509			
Stage 1	-	-	0	0	-	-	418	382	-			
Stage 2	-	-	0	0	-	-	732	605	-			
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	1143	-	-	-	-	-	~ 188	0	509			
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 188	0	-			
Stage 1	-	-	-	-	-	-	369	0	-			
Stage 2	-	-	-	-	-	-	732	0	-			
Approach	EB		WB			NB						
HCM Control Delay, s	1.6			0			\$ 391.5					
HCM LOS	F											
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR							
Capacity (veh/h)	259	1143	-	-	-							
HCM Lane V/C Ratio	1.762	0.117	-	-	-							
HCM Control Delay (s)	\$ 391.5	8.6	-	-	-							
HCM Lane LOS	F	A	-	-	-							
HCM 95th %tile Q(veh)	30.3	0.4	-	-	-							
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s			+: Computation Not Defined				*: All major volume in platoon			

Intersection	
Intersection Delay, s/veh	56.3
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	83	358	0	0	148	100	158	3	122	0	0	0
Future Vol, veh/h	83	358	0	0	148	100	158	3	122	0	0	0
Peak Hour Factor	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	134	577	0	0	239	161	255	5	197	0	0	0
Number of Lanes	1	1	0	0	1	0	0	1	0	0	0	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	86.4	26.8	35.3
HCM LOS	F	D	E

Lane	NBLn1	EBLn1	EBLn2	WBLn1
Vol Left, %	56%	100%	0%	0%
Vol Thru, %	1%	0%	100%	60%
Vol Right, %	43%	0%	0%	40%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	283	83	358	248
LT Vol	158	83	0	0
Through Vol	3	0	358	148
RT Vol	122	0	0	100
Lane Flow Rate	456	134	577	400
Geometry Grp	2	7	7	5
Degree of Util (X)	0.833	0.279	1.123	0.737
Departure Headway (Hd)	6.832	7.514	7.001	6.899
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	534	477	520	528
Service Time	4.832	5.296	4.784	4.899
HCM Lane V/C Ratio	0.854	0.281	1.11	0.758
HCM Control Delay	35.3	13.2	103.4	26.8
HCM Lane LOS	E	B	F	D
HCM 95th-tile Q	8.5	1.1	19	6.2

Intersection

Intersection Delay, s/veh 16

Intersection LOS C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗	↖	↑						↕	
Traffic Vol, veh/h	0	269	302	28	382	0	0	0	0	88	2	149
Future Vol, veh/h	0	269	302	28	382	0	0	0	0	88	2	149
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	0	3	3	25	3	0	0	0	0	8	67	13
Mvmt Flow	0	286	321	30	406	0	0	0	0	94	2	159
Number of Lanes	0	1	1	1	1	0	0	0	0	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	2
HCM Control Delay	13.4	21	13.7
HCM LOS	B	C	B

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	100%	0%	37%
Vol Thru, %	100%	0%	0%	100%	1%
Vol Right, %	0%	100%	0%	0%	62%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	269	302	28	382	239
LT Vol	0	0	28	0	88
Through Vol	269	0	0	382	2
RT Vol	0	302	0	0	149
Lane Flow Rate	286	321	30	406	254
Geometry Grp	7	7	7	7	2
Degree of Util (X)	0.477	0.472	0.058	0.694	0.431
Departure Headway (Hd)	5.999	5.288	7.036	6.148	6.107
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	601	678	508	585	587
Service Time	3.748	3.036	4.789	3.9	4.161
HCM Lane V/C Ratio	0.476	0.473	0.059	0.694	0.433
HCM Control Delay	14.1	12.7	10.2	21.8	13.7
HCM Lane LOS	B	B	B	C	B
HCM 95th-tile Q	2.6	2.5	0.2	5.5	2.2

Intersection												
Int Delay, s/veh	21.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	158	199	0	0	126	44	284	1	34	0	0	0
Future Vol, veh/h	158	199	0	0	126	44	284	1	34	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	230	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	165	207	0	0	131	46	296	1	35	0	0	0

Major/Minor	Major1		Major2		Minor1					
Conflicting Flow All	177	0	-	-	-	0	691	714	207	
Stage 1	-	-	-	-	-	-	537	537	-	
Stage 2	-	-	-	-	-	-	154	177	-	
Critical Hdwy	4.15	-	-	-	-	-	6.44	6.5	6.26	
Critical Hdwy Stg 1	-	-	-	-	-	-	5.44	5.5	-	
Critical Hdwy Stg 2	-	-	-	-	-	-	5.44	5.5	-	
Follow-up Hdwy	2.245	-	-	-	-	-	3.536	4	3.354	
Pot Cap-1 Maneuver	1381	-	0	0	-	-	407	359	823	
Stage 1	-	-	0	0	-	-	582	526	-	
Stage 2	-	-	0	0	-	-	869	756	-	
Platoon blocked, %		-			-	-				
Mov Cap-1 Maneuver	1381	-	-	-	-	-	359	0	823	
Mov Cap-2 Maneuver	-	-	-	-	-	-	359	0	-	
Stage 1	-	-	-	-	-	-	513	0	-	
Stage 2	-	-	-	-	-	-	869	0	-	

Approach	EB	WB	NB
HCM Control Delay, s	3.5	0	52.6
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR
Capacity (veh/h)	382	1381	-	-	-
HCM Lane V/C Ratio	0.87	0.119	-	-	-
HCM Control Delay (s)	52.6	8	-	-	-
HCM Lane LOS	F	A	-	-	-
HCM 95th %tile Q(veh)	8.5	0.4	-	-	-

Intersection	
Intersection Delay, s/veh	12.4
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	158	199	0	0	126	44	284	1	34	0	0	0
Future Vol, veh/h	158	199	0	0	126	44	284	1	34	0	0	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	165	207	0	0	131	46	296	1	35	0	0	0
Number of Lanes	1	1	0	0	1	0	0	1	0	0	0	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	11.5	10.7	14.2
HCM LOS	B	B	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1
Vol Left, %	89%	100%	0%	0%
Vol Thru, %	0%	0%	100%	74%
Vol Right, %	11%	0%	0%	26%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	319	158	199	170
LT Vol	284	158	0	0
Through Vol	1	0	199	126
RT Vol	34	0	0	44
Lane Flow Rate	332	165	207	177
Geometry Grp	2	7	7	5
Degree of Util (X)	0.511	0.289	0.335	0.274
Departure Headway (Hd)	5.538	6.326	5.82	5.568
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	655	569	618	645
Service Time	3.538	4.056	3.549	3.601
HCM Lane V/C Ratio	0.507	0.29	0.335	0.274
HCM Control Delay	14.2	11.6	11.5	10.7
HCM Lane LOS	B	B	B	B
HCM 95th-tile Q	2.9	1.2	1.5	1.1

APPENDIX 8.6:

EAP (2024) CONDITIONS OFF-RAMP QUEUEING ANALYSIS WORKSHEETS

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Intersection

Intersection Delay, s/veh68.4

Intersection LOS F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗	↖	↑						↕	
Traffic Vol, veh/h	0	422	301	130	370	0	0	0	0	257	7	70
Future Vol, veh/h	0	422	301	130	370	0	0	0	0	257	7	70
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles, %	0	3	3	25	3	0	0	0	0	8	67	13
Mvmt Flow	0	563	401	173	493	0	0	0	0	343	9	93
Number of Lanes	0	1	1	1	1	0	0	0	0	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	2
HCM Control Delay	83	64	43.2
HCM LOS	F	F	E

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	100%	0%	77%
Vol Thru, %	100%	0%	0%	100%	2%
Vol Right, %	0%	100%	0%	0%	21%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	422	301	130	370	334
LT Vol	0	0	130	0	257
Through Vol	422	0	0	370	7
RT Vol	0	301	0	0	70
Lane Flow Rate	563	401	173	493	445
Geometry Grp	7	7	7	7	2
Degree of Util (X)	1.169	0.755	0.407	1.039	0.876
Departure Headway (Hd)	7.652	6.928	8.727	7.823	7.37
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	478	526	414	469	494
Service Time	5.352	4.628	6.427	5.523	5.37
HCM Lane V/C Ratio	1.178	0.762	0.418	1.051	0.901
HCM Control Delay	122.3	27.9	17.3	80.4	43.2
HCM Lane LOS	F	D	C	F	E
HCM 95th-tile Q	20.2	6.5	1.9	14.6	9.4

Intersection												
Int Delay, s/veh	469.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	83	596	0	0	343	164	158	3	200	0	0	0
Future Vol, veh/h	83	596	0	0	343	164	158	3	200	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	230	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	62	62	62	62	62	62	62	62	62	62	62	62
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	134	961	0	0	553	265	255	5	323	0	0	0
Major/Minor	Major1		Major2		Minor1							
Conflicting Flow All	818	0	-	-	-	0	1915	2047	961			
Stage 1	-	-	-	-	-	-	1229	1229	-			
Stage 2	-	-	-	-	-	-	686	818	-			
Critical Hdwy	4.15	-	-	-	-	-	6.44	6.5	6.26			
Critical Hdwy Stg 1	-	-	-	-	-	-	5.44	5.5	-			
Critical Hdwy Stg 2	-	-	-	-	-	-	5.44	5.5	-			
Follow-up Hdwy	2.245	-	-	-	-	-	3.536	4	3.354			
Pot Cap-1 Maneuver	797	-	0	0	-	-	~ 73	57	~ 305			
Stage 1	-	-	0	0	-	-	274	252	-			
Stage 2	-	-	0	0	-	-	496	393	-			
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	797	-	-	-	-	-	~ 61	0	~ 305			
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 61	0	-			
Stage 1	-	-	-	-	-	-	~ 228	0	-			
Stage 2	-	-	-	-	-	-	496	0	-			
Approach	EB		WB		NB							
HCM Control Delay, s	1.3			0			\$ 2009.2					
HCM LOS							F					
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR							
Capacity (veh/h)	110	797	-	-	-							
HCM Lane V/C Ratio	5.293	0.168	-	-	-							
HCM Control Delay (s)	\$ 2009.2	10.4	-	-	-							
HCM Lane LOS	F	B	-	-	-							
HCM 95th %tile Q(veh)	62.5	0.6	-	-	-							
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s			+: Computation Not Defined				*: All major volume in platoon			

Intersection	
Intersection Delay, s/veh	318.6
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	83	596	0	0	343	164	158	3	200	0	0	0
Future Vol, veh/h	83	596	0	0	343	164	158	3	200	0	0	0
Peak Hour Factor	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	134	961	0	0	553	265	255	5	323	0	0	0
Number of Lanes	1	1	0	0	1	0	0	1	0	0	0	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	442.1	306.7	103.2
HCM LOS	F	F	F

Lane	NBLn1	EBLn1	EBLn2	WBLn1
Vol Left, %	44%	100%	0%	0%
Vol Thru, %	1%	0%	100%	68%
Vol Right, %	55%	0%	0%	32%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	361	83	596	507
LT Vol	158	83	0	0
Through Vol	3	0	596	343
RT Vol	200	0	0	164
Lane Flow Rate	582	134	961	818
Geometry Grp	2	7	7	5
Degree of Util (X)	1.103	0.304	2.051	1.61
Departure Headway (Hd)	8.395	9.46	8.938	8.462
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	437	383	413	442
Service Time	6.395	7.16	6.638	6.462
HCM Lane V/C Ratio	1.332	0.35	2.327	1.851
HCM Control Delay	103.2	16.2	501.4	306.7
HCM Lane LOS	F	C	F	F
HCM 95th-tile Q	16.4	1.3	58.2	39

Intersection

Intersection Delay, s/veh37.2

Intersection LOS E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗	↖	↑						↕	
Traffic Vol, veh/h	0	395	302	87	496	0	0	0	0	155	2	149
Future Vol, veh/h	0	395	302	87	496	0	0	0	0	155	2	149
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	0	3	3	25	3	0	0	0	0	8	67	13
Mvmt Flow	0	420	321	93	528	0	0	0	0	165	2	159
Number of Lanes	0	1	1	1	1	0	0	0	0	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	2
HCM Control Delay	24.5	61.2	20.6
HCM LOS	C	F	C

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	100%	0%	51%
Vol Thru, %	100%	0%	0%	100%	1%
Vol Right, %	0%	100%	0%	0%	49%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	395	302	87	496	306
LT Vol	0	0	87	0	155
Through Vol	395	0	0	496	2
RT Vol	0	302	0	0	149
Lane Flow Rate	420	321	93	528	326
Geometry Grp	7	7	7	7	2
Degree of Util (X)	0.792	0.542	0.201	1.016	0.619
Departure Headway (Hd)	6.911	6.192	7.83	6.934	6.952
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	525	585	461	528	524
Service Time	4.611	3.892	5.53	4.634	4.952
HCM Lane V/C Ratio	0.8	0.549	0.202	1	0.622
HCM Control Delay	31	16	12.5	69.7	20.6
HCM Lane LOS	D	C	B	F	C
HCM 95th-tile Q	7.4	3.2	0.7	14.6	4.2

Intersection												
Int Delay, s/veh	103.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	158	392	0	0	299	99	284	1	104	0	0	0
Future Vol, veh/h	158	392	0	0	299	99	284	1	104	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	230	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	165	408	0	0	311	103	296	1	108	0	0	0
Major/Minor	Major1		Major2			Minor1						
Conflicting Flow All	414	0	-	-	-	0	1101	1152	408			
Stage 1	-	-	-	-	-	-	738	738	-			
Stage 2	-	-	-	-	-	-	363	414	-			
Critical Hdwy	4.15	-	-	-	-	-	6.44	6.5	6.26			
Critical Hdwy Stg 1	-	-	-	-	-	-	5.44	5.5	-			
Critical Hdwy Stg 2	-	-	-	-	-	-	5.44	5.5	-			
Follow-up Hdwy	2.245	-	-	-	-	-	3.536	4	3.354			
Pot Cap-1 Maneuver	1129	-	0	0	-	-	~ 232	199	635			
Stage 1	-	-	0	0	-	-	469	427	-			
Stage 2	-	-	0	0	-	-	699	597	-			
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	1129	-	-	-	-	-	~ 198	0	635			
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 198	0	-			
Stage 1	-	-	-	-	-	-	401	0	-			
Stage 2	-	-	-	-	-	-	699	0	-			
Approach	EB		WB			NB						
HCM Control Delay, s	2.5		0			\$ 353.5						
HCM LOS						F						
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR							
Capacity (veh/h)	243	1129	-	-	-							
HCM Lane V/C Ratio	1.668	0.146	-	-	-							
HCM Control Delay (s)	\$ 353.5	8.7	-	-	-							
HCM Lane LOS	F	A	-	-	-							
HCM 95th %tile Q(veh)	26.1	0.5	-	-	-							
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s			+: Computation Not Defined				*: All major volume in platoon			

Intersection	
Intersection Delay, s/veh	25.7
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	158	392	0	0	299	99	284	1	104	0	0	0
Future Vol, veh/h	158	392	0	0	299	99	284	1	104	0	0	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	165	408	0	0	311	103	296	1	108	0	0	0
Number of Lanes	1	1	0	0	1	0	0	1	0	0	0	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	24.8	26	26.6
HCM LOS	C	D	D

Lane	NBLn1	EBLn1	EBLn2	WBLn1
Vol Left, %	73%	100%	0%	0%
Vol Thru, %	0%	0%	100%	75%
Vol Right, %	27%	0%	0%	25%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	389	158	392	398
LT Vol	284	158	0	0
Through Vol	1	0	392	299
RT Vol	104	0	0	99
Lane Flow Rate	405	165	408	415
Geometry Grp	2	7	7	5
Degree of Util (X)	0.746	0.335	0.774	0.744
Departure Headway (Hd)	6.629	7.338	6.826	6.462
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	551	490	531	560
Service Time	4.629	5.084	4.572	4.503
HCM Lane V/C Ratio	0.735	0.337	0.768	0.741
HCM Control Delay	26.6	13.8	29.3	26
HCM Lane LOS	D	B	D	D
HCM 95th-tile Q	6.4	1.5	7	6.4

APPENDIX 8.7:

EA (2024) CONDITIONS BASIC FREEWAY SEGMENT ANALYSIS WORKSHEETS

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HCS7 Basic Freeway Report

Project Information

Analyst	CHS	Date	8/9/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EA 2024
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - N of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	4980	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1876
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.78
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	64.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	29.0
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CHS	Date	8/9/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EA 2024
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - S of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	5394	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	2032
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.85
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	62.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	32.8
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CHS	Date	8/9/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EA 2024
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - N of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	4596	Heavy Vehicle Adjustment Factor (f_{HV})	0.980
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1699
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.71
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	67.1
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	25.3
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CHS	Date	8/9/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EA 2024
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - S of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	4692	Heavy Vehicle Adjustment Factor (f_{HV})	0.980
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1735
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.72
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	66.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	26.0
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CHS	Date	8/9/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EA 2024
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - N of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	6029	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	2271
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.95
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	40.1
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CHS	Date	8/9/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EA 2024
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - S of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	6123	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	2306
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.96
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	41.3
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CHS	Date	8/9/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EA 2024
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - N of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	3565	Heavy Vehicle Adjustment Factor (f_{HV})	0.980
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1318
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.55
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	69.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	18.9
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CHS	Date	8/9/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EA 2024
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - S of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	3681	Heavy Vehicle Adjustment Factor (f_{HV})	0.990
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1347
Total Trucks, %	1.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.56
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	69.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	19.3
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

APPENDIX 8.8:

EAP (2024) CONDITIONS BASIC FREEWAY SEGMENT ANALYSIS WORKSHEETS

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HCS7 Basic Freeway Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAP 2024
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - N of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	5052	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1903
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.79
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	64.3
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	29.6
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAP 2024
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - S of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	5150	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1940
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.81
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	63.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	30.5
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAP 2024
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - N of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	4395	Heavy Vehicle Adjustment Factor (f_{HV})	0.980
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1625
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.68
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	67.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	23.9
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAP 2024
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - S of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	4499	Heavy Vehicle Adjustment Factor (f_{HV})	0.980
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1663
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.69
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	67.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	24.6
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAP 2024
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - N of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	6096	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	2296
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.96
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	56.1
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	40.9
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAP 2024
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - S of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	6182	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	2328
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.97
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	55.3
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	42.1
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAP 2024
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - N of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	3620	Heavy Vehicle Adjustment Factor (f_{HV})	0.980
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1338
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.56
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	69.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	19.2
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAP 2024
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - S of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	3751	Heavy Vehicle Adjustment Factor (f_{HV})	0.990
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1373
Total Trucks, %	1.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.57
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	69.7
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	19.7
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

APPENDIX 8.9:

EA (2024) CONDITIONS FREEWAY MERGE/DIVERGE ANALYSIS WORKSHEETS

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HCS7 Freeway Diverge Report

Project Information

Analyst	CHS	Date	8/9/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EA 2024
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - Off-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Deceleration Length (L _D), ft	1500	230
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V _i), veh/h	5285	261
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	4.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.962	0.909
Flow Rate (v _i), pc/h	5971	312
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.83	0.15

Speed and Density

Upstream Equilibrium Distance (L _{EQ}), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	33.9
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (D _s)	0.326
Downstream Equilibrium Distance (L _{EQ}), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	2286
Distance to Downstream Ramp (L _{DOWN}), ft	-	Off-Ramp Influence Area Speed (S _R), mi/h	60.9
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FD})	0.596	Outer Lanes Freeway Speed (S _O), mi/h	71.8
Flow in Lanes 1 and 2 (v ₁₂), pc/h	3685	Ramp Junction Speed (S), mi/h	64.7
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	-	Average Density (D), pc/mi/ln	30.8
Level of Service (LOS)	D	8.9-1	

HCS7 Freeway Merge Report

Project Information

Analyst	CHS	Date	8/9/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EA 2024
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - On-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Acceleration Length (LA), ft	1500	690
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi), veh/h	5024	371
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	4.00	7.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.962	0.935
Flow Rate (vi), pc/h	5677	431
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.85	0.21

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	30.8
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (M _s)	0.437
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	2288
Distance to Downstream Ramp (L _{DOWN}), ft	-	On-Ramp Influence Area Speed (S _R), mi/h	57.8
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FM})	0.597	Outer Lanes Freeway Speed (S _O), mi/h	63.6
Flow in Lanes 1 and 2 (v ₁₂), pc/h	3389	Ramp Junction Speed (S), mi/h	59.8
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	3820	Average Density (D), pc/mi/ln	34.0
Level of Service (LOS)	D	8.9-2	

HCS7 Freeway Merge Report

Project Information

Analyst	CHS	Date	8/9/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EA 2024
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - On-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Acceleration Length (LA), ft	1500	760
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi), veh/h	4409	187
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	6.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.980	0.943
Flow Rate (vi), pc/h	4890	216
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.71	0.10

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	25.2
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (M _s)	0.343
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	1961
Distance to Downstream Ramp (L _{DOWN}), ft	-	On-Ramp Influence Area Speed (S _R), mi/h	60.4
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FM})	0.599	Outer Lanes Freeway Speed (S _O), mi/h	64.7
Flow in Lanes 1 and 2 (v ₁₂), pc/h	2929	Ramp Junction Speed (S), mi/h	62.0
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	3145	Average Density (D), pc/mi/ln	27.5
Level of Service (LOS)	C	8.9-3	

HCS7 Freeway Diverge Report

Project Information

Analyst	CHS	Date	8/9/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EA 2024
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - Off-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Deceleration Length (L _D), ft	1500	260
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V _i), veh/h	4692	283
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	5.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.980	0.952
Flow Rate (v _i), pc/h	5204	323
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.72	0.15

Speed and Density

Upstream Equilibrium Distance (L _{EQ}), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	30.5
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (D _s)	0.327
Downstream Equilibrium Distance (L _{EQ}), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	1879
Distance to Downstream Ramp (L _{DOWN}), ft	-	Off-Ramp Influence Area Speed (S _R), mi/h	60.8
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FD})	0.615	Outer Lanes Freeway Speed (S _O), mi/h	73.4
Flow in Lanes 1 and 2 (v ₁₂), pc/h	3325	Ramp Junction Speed (S), mi/h	64.8
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	-	Average Density (D), pc/mi/ln	26.8
Level of Service (LOS)	D	8.9-4	

HCS7 Freeway Diverge Report

Project Information

Analyst	CHS	Date	8/9/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EA 2024
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - Off-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Deceleration Length (L _D), ft	1500	230
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V _i), veh/h	6029	239
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	4.00	4.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.962	0.962
Flow Rate (v _i), pc/h	6812	270
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.95	0.13

Speed and Density

Upstream Equilibrium Distance (L _{EQ}), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	37.5
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (D _s)	0.322
Downstream Equilibrium Distance (L _{EQ}), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	2700
Distance to Downstream Ramp (L _{DOWN}), ft	-	Off-Ramp Influence Area Speed (S _R), mi/h	61.0
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FD})	0.577	Outer Lanes Freeway Speed (S _O), mi/h	70.2
Flow in Lanes 1 and 2 (v ₁₂), pc/h	4112	Ramp Junction Speed (S), mi/h	64.3
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	-	Average Density (D), pc/mi/ln	35.3
Level of Service (LOS)	E	8.9-5	

HCS7 Freeway Merge Report

Project Information

Analyst	CHS	Date	8/9/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EA 2024
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - On-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Acceleration Length (LA), ft	1500	690
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi), veh/h	5791	332
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	4.00	4.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.962	0.962
Flow Rate (vi), pc/h	6543	375
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.96	0.18

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	34.4
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (M _s)	0.541
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	2637
Distance to Downstream Ramp (L _{DOWN}), ft	-	On-Ramp Influence Area Speed (S _R), mi/h	54.9
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FM})	0.597	Outer Lanes Freeway Speed (S _O), mi/h	61.4
Flow in Lanes 1 and 2 (v ₁₂), pc/h	3906	Ramp Junction Speed (S), mi/h	57.2
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	4281	Average Density (D), pc/mi/ln	40.3
Level of Service (LOS)	D	8.9-6	

HCS7 Freeway Merge Report

Project Information

Analyst	CHS	Date	8/9/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EA 2024
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - On-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Acceleration Length (LA), ft	1500	760
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi), veh/h	3362	203
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	15.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.980	0.870
Flow Rate (vi), pc/h	3729	254
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.55	0.12

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	20.1
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (M _s)	0.300
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	1495
Distance to Downstream Ramp (L _{DOWN}), ft	-	On-Ramp Influence Area Speed (S _R), mi/h	61.6
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FM})	0.599	Outer Lanes Freeway Speed (S _O), mi/h	66.4
Flow in Lanes 1 and 2 (v ₁₂), pc/h	2234	Ramp Junction Speed (S), mi/h	63.3
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	2488	Average Density (D), pc/mi/ln	21.0
Level of Service (LOS)	C	8.9-7	

HCS7 Freeway Diverge Report

Project Information

Analyst	CHS	Date	8/9/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EA 2024
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - Off-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Deceleration Length (L _D), ft	1500	260
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V _i), veh/h	3681	319
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	1.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.990	0.990
Flow Rate (v _i), pc/h	4042	350
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.56	0.17

Speed and Density

Upstream Equilibrium Distance (L _{EQ}), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	25.3
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (D _s)	0.330
Downstream Equilibrium Distance (L _{EQ}), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	1318
Distance to Downstream Ramp (L _{DOWN}), ft	-	Off-Ramp Influence Area Speed (S _R), mi/h	60.8
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FD})	0.643	Outer Lanes Freeway Speed (S _O), mi/h	75.5
Flow in Lanes 1 and 2 (v ₁₂), pc/h	2724	Ramp Junction Speed (S), mi/h	64.9
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	-	Average Density (D), pc/mi/ln	20.8
Level of Service (LOS)	C	8.9-8	

APPENDIX 8.10:

EAP (2024) CONDITIONS FREEWAY MERGE/DIVERGE ANALYSIS WORKSHEETS

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HCS7 Freeway Diverge Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAP 2024
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - Off-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Deceleration Length (L _D), ft	1500	230
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V _i), veh/h	5357	333
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	4.00	8.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.962	0.926
Flow Rate (v _i), pc/h	6053	391
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.84	0.19

Speed and Density

Upstream Equilibrium Distance (L _{EQ}), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	34.3
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (D _S)	0.333
Downstream Equilibrium Distance (L _{EQ}), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	2316
Distance to Downstream Ramp (L _{DOWN}), ft	-	Off-Ramp Influence Area Speed (S _R), mi/h	60.7
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FD})	0.591	Outer Lanes Freeway Speed (S _O), mi/h	71.7
Flow in Lanes 1 and 2 (v ₁₂), pc/h	3737	Ramp Junction Speed (S), mi/h	64.5
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	-	Average Density (D), pc/mi/ln	31.3
Level of Service (LOS)	D	6.15-1	

HCS7 Freeway Merge Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAP 2024
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - On-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Acceleration Length (LA), ft	1500	690
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi), veh/h	5024	438
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	4.00	6.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.962	0.943
Flow Rate (vi), pc/h	5677	505
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.86	0.24

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	31.4
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (M _s)	0.450
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	2288
Distance to Downstream Ramp (L _{DOWN}), ft	-	On-Ramp Influence Area Speed (S _R), mi/h	57.4
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FM})	0.597	Outer Lanes Freeway Speed (S _O), mi/h	63.6
Flow in Lanes 1 and 2 (v ₁₂), pc/h	3389	Ramp Junction Speed (S), mi/h	59.5
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	3894	Average Density (D), pc/mi/ln	34.6
Level of Service (LOS)	D	6.15-2	

HCS7 Freeway Merge Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAP 2024
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - On-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Acceleration Length (LA), ft	1500	760
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi), veh/h	4409	251
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	4.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.980	0.962
Flow Rate (vi), pc/h	4890	284
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.72	0.14

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	25.7
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (M _s)	0.350
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	1961
Distance to Downstream Ramp (L _{DOWN}), ft	-	On-Ramp Influence Area Speed (S _R), mi/h	60.2
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FM})	0.599	Outer Lanes Freeway Speed (S _O), mi/h	64.7
Flow in Lanes 1 and 2 (v ₁₂), pc/h	2929	Ramp Junction Speed (S), mi/h	61.8
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	3213	Average Density (D), pc/mi/ln	27.9
Level of Service (LOS)	C	6.15-3	

HCS7 Freeway Diverge Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAP 2024
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - Off-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Deceleration Length (L _D), ft	1500	260
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V _i), veh/h	4770	361
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	4.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.980	0.962
Flow Rate (v _i), pc/h	5291	408
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.73	0.19

Speed and Density

Upstream Equilibrium Distance (L _{EQ}), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	31.0
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (D _s)	0.335
Downstream Equilibrium Distance (L _{EQ}), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	1909
Distance to Downstream Ramp (L _{DOWN}), ft	-	Off-Ramp Influence Area Speed (S _R), mi/h	60.6
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FD})	0.609	Outer Lanes Freeway Speed (S _O), mi/h	73.2
Flow in Lanes 1 and 2 (v ₁₂), pc/h	3382	Ramp Junction Speed (S), mi/h	64.6
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	-	Average Density (D), pc/mi/ln	27.3
Level of Service (LOS)	D	6.15-4	

HCS7 Freeway Diverge Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAP 2024
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - Off-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Deceleration Length (L _D), ft	1500	230
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V _i), veh/h	6096	306
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	4.00	3.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.962	0.971
Flow Rate (v _i), pc/h	6888	343
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.96	0.16

Speed and Density

Upstream Equilibrium Distance (L _{EQ}), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	38.2
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (D _s)	0.329
Downstream Equilibrium Distance (L _{EQ}), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	2700
Distance to Downstream Ramp (L _{DOWN}), ft	-	Off-Ramp Influence Area Speed (S _R), mi/h	60.8
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FD})	0.572	Outer Lanes Freeway Speed (S _O), mi/h	70.2
Flow in Lanes 1 and 2 (v ₁₂), pc/h	4188	Ramp Junction Speed (S), mi/h	64.2
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	-	Average Density (D), pc/mi/ln	35.8
Level of Service (LOS)	E	6.15-5	

HCS7 Freeway Merge Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAP 2024
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - On-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Acceleration Length (LA), ft	1500	690
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi), veh/h	5791	391
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	4.00	4.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.962	0.962
Flow Rate (vi), pc/h	6543	442
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.97	0.21

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	34.9
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (M _s)	0.560
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	2637
Distance to Downstream Ramp (L _{DOWN}), ft	-	On-Ramp Influence Area Speed (S _R), mi/h	54.3
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FM})	0.597	Outer Lanes Freeway Speed (S _O), mi/h	61.4
Flow in Lanes 1 and 2 (v ₁₂), pc/h	3906	Ramp Junction Speed (S), mi/h	56.8
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	4348	Average Density (D), pc/mi/ln	41.0
Level of Service (LOS)	D	6.15-6	

HCS7 Freeway Merge Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAP 2024
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - On-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Acceleration Length (LA), ft	1500	760
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi), veh/h	3362	258
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	1.00	12.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.990	0.893
Flow Rate (vi), pc/h	3691	314
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.56	0.15

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	20.3
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (M _s)	0.301
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	1480
Distance to Downstream Ramp (L _{DOWN}), ft	-	On-Ramp Influence Area Speed (S _R), mi/h	61.6
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FM})	0.599	Outer Lanes Freeway Speed (S _O), mi/h	66.5
Flow in Lanes 1 and 2 (v ₁₂), pc/h	2211	Ramp Junction Speed (S), mi/h	63.3
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	2525	Average Density (D), pc/mi/ln	21.1
Level of Service (LOS)	C	6.15-7	

HCS7 Freeway Diverge Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAP 2024
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - Off-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Deceleration Length (L _D), ft	1500	260
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V _i), veh/h	3751	389
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	1.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.990	0.990
Flow Rate (v _i), pc/h	4118	427
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.57	0.20

Speed and Density

Upstream Equilibrium Distance (L _{EQ}), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	25.8
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (D _s)	0.336
Downstream Equilibrium Distance (L _{EQ}), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	1340
Distance to Downstream Ramp (L _{DOWN}), ft	-	Off-Ramp Influence Area Speed (S _R), mi/h	60.6
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FD})	0.637	Outer Lanes Freeway Speed (S _O), mi/h	75.5
Flow in Lanes 1 and 2 (v ₁₂), pc/h	2778	Ramp Junction Speed (S), mi/h	64.8
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	-	Average Density (D), pc/mi/ln	21.2
Level of Service (LOS)	C	6.15-8	

APPENDIX 8.11:

**EA (2024) CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS WITH
IMPROVEMENTS**

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Timings
4: Lakeshore Dr. & Riverside Dr. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

08/02/2018

										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	21	499	159	145	596	300	330	224	193	10
Future Volume (vph)	21	499	159	145	596	300	330	224	193	10
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA	Perm
Protected Phases	7	4		3	8	5	2	1	6	
Permitted Phases			4							6
Detector Phase	7	4	4	3	8	5	2	1	6	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	32.4	32.4	9.6	33.4	9.6	34.7	9.6	32.7	32.7
Total Split (s)	9.7	36.3	36.3	18.8	45.4	26.0	35.7	29.2	38.9	38.9
Total Split (%)	8.1%	30.3%	30.3%	15.7%	37.8%	21.7%	29.8%	24.3%	32.4%	32.4%
Yellow Time (s)	3.6	4.4	4.4	3.6	4.4	3.6	3.7	3.6	3.7	3.7
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.4	5.4	4.6	5.4	4.6	4.7	4.6	4.7	4.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	None	Max	Max
Act Effect Green (s)	5.1	26.0	26.0	12.9	38.0	21.5	36.1	19.8	34.4	34.4
Actuated g/C Ratio	0.04	0.23	0.23	0.11	0.33	0.19	0.32	0.17	0.30	0.30
v/c Ratio	0.30	0.70	0.36	0.81	0.92	1.01	0.46	0.82	0.20	0.02
Control Delay	65.7	45.3	7.3	80.2	46.0	100.1	32.4	67.5	31.7	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.7	45.3	7.3	80.2	46.0	100.1	32.4	67.5	31.7	0.1
LOS	E	D	A	F	D	F	C	E	C	A
Approach Delay		37.1			50.4		59.4		49.8	
Approach LOS		D			D		E		D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 114.2

Natural Cycle: 100

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.01

Intersection Signal Delay: 49.5

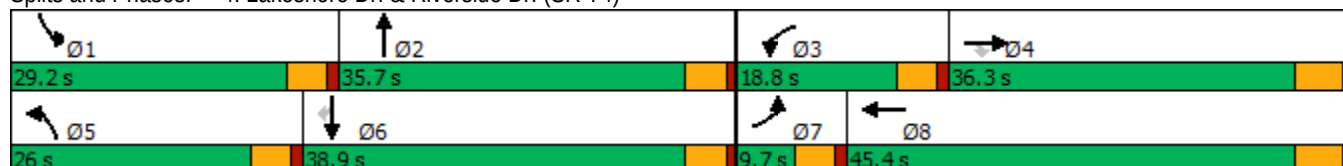
Intersection LOS: D

Intersection Capacity Utilization 86.4%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 4: Lakeshore Dr. & Riverside Dr. (SR-74)



HCM 6th Signalized Intersection Summary 4: Lakeshore Dr. & Riverside Dr. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

08/02/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	499	159	145	596	380	300	330	123	224	193	10
Future Volume (veh/h)	21	499	159	145	596	380	300	330	123	224	193	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	24	561	116	163	670	48	337	371	73	252	217	8
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	42	711	316	192	956	68	352	1051	205	283	1123	501
Arrive On Green	0.02	0.20	0.20	0.11	0.28	0.28	0.20	0.35	0.35	0.16	0.32	0.32
Sat Flow, veh/h	1781	3554	1580	1781	3363	241	1781	2964	577	1781	3554	1585
Grp Volume(v), veh/h	24	561	116	163	354	364	337	221	223	252	217	8
Grp Sat Flow(s),veh/h/ln	1781	1777	1580	1781	1777	1827	1781	1777	1765	1781	1777	1585
Q Serve(g_s), s	1.4	16.2	6.9	9.7	19.3	19.3	20.3	9.9	10.1	15.0	4.8	0.4
Cycle Q Clear(g_c), s	1.4	16.2	6.9	9.7	19.3	19.3	20.3	9.9	10.1	15.0	4.8	0.4
Prop In Lane	1.00		1.00	1.00		0.13	1.00		0.33	1.00		1.00
Lane Grp Cap(c), veh/h	42	711	316	192	505	519	352	630	626	283	1123	501
V/C Ratio(X)	0.57	0.79	0.37	0.85	0.70	0.70	0.96	0.35	0.36	0.89	0.19	0.02
Avail Cap(c_a), veh/h	84	1014	451	234	657	675	352	630	626	405	1123	501
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.3	41.1	37.4	47.4	34.6	34.6	43.0	25.7	25.8	44.6	27.0	25.5
Incr Delay (d2), s/veh	4.4	2.8	0.7	18.2	2.3	2.2	36.4	1.5	1.6	12.5	0.4	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	7.2	2.7	5.2	8.3	8.6	12.4	4.4	4.5	7.6	2.1	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.7	43.9	38.1	65.6	36.9	36.9	79.3	27.3	27.4	57.0	27.4	25.5
LnGrp LOS	E	D	D	E	D	D	E	C	C	E	C	C
Approach Vol, veh/h		701			881			781			477	
Approach Delay, s/veh		43.4			42.2			49.8			43.0	
Approach LOS		D			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	21.8	43.1	16.3	27.1	26.0	38.9	7.2	36.2				
Change Period (Y+Rc), s	4.6	* 4.7	4.6	5.4	4.6	* 4.7	4.6	5.4				
Max Green Setting (Gmax), s	24.6	* 31	14.2	30.9	21.4	* 34	5.1	40.0				
Max Q Clear Time (g_c+I1), s	17.0	12.1	11.7	18.2	22.3	6.8	3.4	21.3				
Green Ext Time (p_c), s	0.2	2.5	0.0	3.2	0.0	1.4	0.0	4.0				
Intersection Summary												
HCM 6th Ctrl Delay			44.7									
HCM 6th LOS			D									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Timings

S. Nichols Mixed-Use Development (JN 10878)

5: Strickland Av./Gunnerson St. & Riverside Dr. (SR-74)

08/02/2018



Lane Group	EBT	WBL	WBT	NBT	NBR	SBL	SBT	SBR
Lane Configurations	EB	WB	WB	EB	EB	SB	EB	EB
Traffic Volume (vph)	931	2	698	2	12	52	3	6
Future Volume (vph)	931	2	698	2	12	52	3	6
Turn Type	NA	Perm	NA	NA	Perm	Perm	NA	Perm
Protected Phases	4		8	2			6	
Permitted Phases		8			2	6		6
Detector Phase	4	8	8	2	2	6	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	24.5	23.4	23.4	22.6	22.6	23.4	23.4	23.4
Total Split (s)	93.0	93.0	93.0	27.0	27.0	27.0	27.0	27.0
Total Split (%)	77.5%	77.5%	77.5%	22.5%	22.5%	22.5%	22.5%	22.5%
Yellow Time (s)	4.4	4.4	4.4	3.6	3.6	4.4	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.4	5.4	5.4	4.6	4.6		5.4	5.4
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	Min	Min	Min	Min	Min
Act Effect Green (s)	36.9	36.9	36.9	12.4	12.4		11.6	11.6
Actuated g/C Ratio	0.62	0.62	0.62	0.21	0.21		0.19	0.19
v/c Ratio	0.84	0.01	0.67	0.01	0.03		0.22	0.02
Control Delay	16.6	4.5	10.3	25.5	8.1		27.6	2.7
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay	16.6	4.5	10.3	25.5	8.1		27.6	2.7
LOS	B	A	B	C	A		C	A
Approach Delay	16.6		10.3	10.6			25.2	
Approach LOS	B		B	B			C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 60

Natural Cycle: 70

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.84

Intersection Signal Delay: 14.2

Intersection LOS: B

Intersection Capacity Utilization 78.7%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 5: Strickland Av./Gunnerson St. & Riverside Dr. (SR-74)

EBT	WBL	WBT	NBT	NBR	SBL	SBT	SBR
27 s	93 s	93 s	93 s	93 s	93 s	93 s	93 s
27 s	93 s	93 s	93 s	93 s	93 s	93 s	93 s

HCM 6th Signalized Intersection Summary S. Nichols Mixed-Use Development (JN 10878)
 5: Strickland Av./Gunnerson St. & Riverside Dr. (SR-74) 08/02/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	931	3	2	698	39	0	2	12	52	3	6
Future Volume (veh/h)	0	931	3	2	698	39	0	2	12	52	3	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	960	3	2	720	40	0	2	0	54	3	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	132	1152	4	256	1085	60	0	344		375	18	
Arrive On Green	0.00	0.62	0.62	0.62	0.62	0.62	0.00	0.18	0.00	0.18	0.18	0.00
Sat Flow, veh/h	706	1863	6	583	1755	98	0	1870	1585	1343	95	1585
Grp Volume(v), veh/h	0	0	963	2	0	760	0	2	0	57	0	0
Grp Sat Flow(s),veh/h/ln	706	0	1869	583	0	1853	0	1870	1585	1438	0	1585
Q Serve(g_s), s	0.0	0.0	22.1	0.1	0.0	14.5	0.0	0.0	0.0	1.7	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	22.1	22.2	0.0	14.5	0.0	0.0	0.0	1.8	0.0	0.0
Prop In Lane	1.00		0.00	1.00		0.05	0.00		1.00	0.95		1.00
Lane Grp Cap(c), veh/h	132	0	1155	256	0	1145	0	344		393	0	
V/C Ratio(X)	0.00	0.00	0.83	0.01	0.00	0.66	0.00	0.01		0.15	0.00	
Avail Cap(c_a), veh/h	831	0	3007	834	0	2981	0	769		698	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	8.2	17.0	0.0	6.7	0.0	18.2	0.0	18.9	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	1.7	0.0	0.0	0.7	0.0	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	5.4	0.0	0.0	3.4	0.0	0.0	0.0	0.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	9.8	17.0	0.0	7.4	0.0	18.2	0.0	19.0	0.0	0.0
LnGrp LOS	A	A	A	B	A	A	A	B		B	A	
Approach Vol, veh/h	963			762			2			57		
Approach Delay, s/veh	9.8			7.4			18.2			19.0		
Approach LOS	A			A			B			B		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	15.4			39.0			15.4			39.0		
Change Period (Y+Rc), s	* 5.4			5.4			5.4			5.4		
Max Green Setting (Gmax), s	* 22			87.6			21.6			87.6		
Max Q Clear Time (g_c+I1), s	2.0			24.1			3.8			24.2		
Green Ext Time (p_c), s	0.0			9.5			0.2			6.2		

Intersection Summary

HCM 6th Ctrl Delay	9.1
HCM 6th LOS	A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Timings
6: Collier Av. & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

08/02/2018

	→	↖	←	↗	↘
Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Configurations	↗	↖	↗	↖	↗
Traffic Volume (vph)	454	105	207	42	102
Future Volume (vph)	454	105	207	42	102
Turn Type	NA	Perm	NA	Prot	Perm
Protected Phases	4		8	2	
Permitted Phases		8			2
Detector Phase	4	8	8	2	2
Switch Phase					
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	26.8	15.8	15.8	16.2	16.2
Total Split (s)	86.0	86.0	86.0	34.0	34.0
Total Split (%)	71.7%	71.7%	71.7%	28.3%	28.3%
Yellow Time (s)	4.8	4.8	4.8	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.8	5.8	6.2	6.2
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	None	None	None	Min	Min
Act Effct Green (s)	16.9	16.9	16.9	10.1	10.1
Actuated g/C Ratio	0.43	0.43	0.43	0.26	0.26
v/c Ratio	0.70	0.44	0.30	0.11	0.24
Control Delay	14.2	13.5	8.0	13.5	5.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	14.2	13.5	8.0	13.5	5.4
LOS	B	B	A	B	A
Approach Delay	14.2		9.8	7.7	
Approach LOS	B		A	A	
Intersection Summary					
Cycle Length: 120					
Actuated Cycle Length: 39.1					
Natural Cycle: 45					
Control Type: Actuated-Uncoordinated					
Maximum v/c Ratio: 0.70					
Intersection Signal Delay: 11.8			Intersection LOS: B		
Intersection Capacity Utilization 57.6%			ICU Level of Service B		
Analysis Period (min) 15					

Splits and Phases: 6: Collier Av. & Nichols Rd.



HCM 6th Signalized Intersection Summary
6: Collier Av. & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

08/02/2018

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗		↖	↗	↖	↗
Traffic Volume (veh/h)	454	36	105	207	42	102
Future Volume (veh/h)	454	36	105	207	42	102
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	522	41	121	238	48	117
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	794	62	369	868	434	386
Arrive On Green	0.46	0.46	0.46	0.46	0.24	0.24
Sat Flow, veh/h	1712	134	847	1870	1781	1585
Grp Volume(v), veh/h	0	563	121	238	48	117
Grp Sat Flow(s),veh/h/ln	0	1846	847	1870	1781	1585
Q Serve(g_s), s	0.0	9.7	5.3	3.2	0.9	2.5
Cycle Q Clear(g_c), s	0.0	9.7	14.9	3.2	0.9	2.5
Prop In Lane		0.07	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	0	857	369	868	434	386
V/C Ratio(X)	0.00	0.66	0.33	0.27	0.11	0.30
Avail Cap(c_a), veh/h	0	3606	1631	3654	1206	1073
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	8.5	14.2	6.8	12.1	12.7
Incr Delay (d2), s/veh	0.0	0.9	0.5	0.2	0.1	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.3	0.8	0.7	0.3	0.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	9.3	14.7	6.9	12.2	13.1
LnGrp LOS	A	A	B	A	B	B
Approach Vol, veh/h	563			359	165	
Approach Delay, s/veh	9.3			9.6	12.8	
Approach LOS	A			A	B	
Timer - Assigned Phs	2		4		8	
Phs Duration (G+Y+Rc), s	16.2		24.9		24.9	
Change Period (Y+Rc), s	6.2		5.8		5.8	
Max Green Setting (Gmax), s	27.8		80.2		80.2	
Max Q Clear Time (g_c+l1), s	4.5		11.7		16.9	
Green Ext Time (p_c), s	0.4		3.8		2.1	
Intersection Summary						
HCM 6th Ctrl Delay			9.9			
HCM 6th LOS			A			

Timings
10: I-15 NB Ramps & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

08/02/2018

					
Lane Group	EBL	EBT	WBT	NBT	NBR
Lane Configurations					
Traffic Volume (vph)	83	358	148	3	122
Future Volume (vph)	83	358	148	3	122
Turn Type	Prot	NA	NA	NA	Perm
Protected Phases	7	4	8	2	
Permitted Phases					2
Detector Phase	7	4	8	2	2
Switch Phase					
Minimum Initial (s)	5.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	22.8	22.8	22.8	22.8
Total Split (s)	18.0	89.0	71.0	31.0	31.0
Total Split (%)	15.0%	74.2%	59.2%	25.8%	25.8%
Yellow Time (s)	3.6	4.8	4.8	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	5.8	5.8	5.8
Lead/Lag	Lead		Lag		
Lead-Lag Optimize?	Yes		Yes		
Recall Mode	None	None	None	Min	Min
Act Effect Green (s)	11.0	36.7	20.9	15.6	15.6
Actuated g/C Ratio	0.17	0.57	0.32	0.24	0.24
v/c Ratio	0.46	0.56	0.71	0.62	0.39
Control Delay	33.1	11.6	25.4	30.5	6.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	33.1	11.6	25.4	30.5	6.4
LOS	C	B	C	C	A
Approach Delay		15.7	25.4	20.1	
Approach LOS		B	C	C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 64.4

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.71

Intersection Signal Delay: 19.5

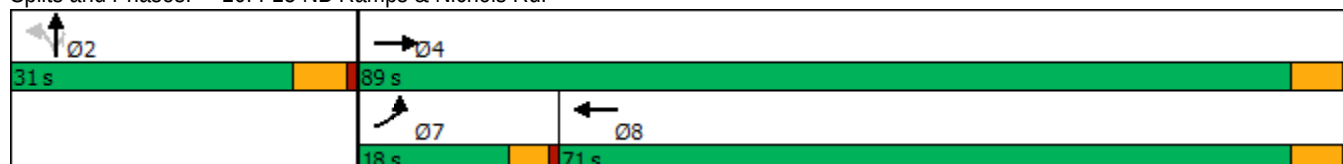
Intersection LOS: B

Intersection Capacity Utilization 46.6%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 10: I-15 NB Ramps & Nichols Rd.



HCM 6th Signalized Intersection Summary 10: I-15 NB Ramps & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

08/02/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	83	358	0	0	148	100	158	3	122	0	0	0
Future Volume (veh/h)	83	358	0	0	148	100	158	3	122	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1826	1826	0	0	1737	1737	1811	1900	1811			
Adj Flow Rate, veh/h	134	577	0	0	239	161	255	5	197			
Peak Hour Factor	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62			
Percent Heavy Veh, %	5	5	0	0	11	11	6	0	6			
Cap, veh/h	175	958	0	0	312	210	391	8	331			
Arrive On Green	0.10	0.52	0.00	0.00	0.32	0.32	0.22	0.22	0.22			
Sat Flow, veh/h	1739	1826	0	0	968	652	1776	35	1502			
Grp Volume(v), veh/h	134	577	0	0	0	400	260	0	197			
Grp Sat Flow(s),veh/h/ln	1739	1826	0	0	0	1620	1811	0	1502			
Q Serve(g_s), s	3.4	10.0	0.0	0.0	0.0	10.1	5.9	0.0	5.4			
Cycle Q Clear(g_c), s	3.4	10.0	0.0	0.0	0.0	10.1	5.9	0.0	5.4			
Prop In Lane	1.00		0.00	0.00		0.40	0.98		1.00			
Lane Grp Cap(c), veh/h	175	958	0	0	0	523	399	0	331			
V/C Ratio(X)	0.77	0.60	0.00	0.00	0.00	0.76	0.65	0.00	0.60			
Avail Cap(c_a), veh/h	513	3344	0	0	0	2325	1005	0	833			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	0.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	19.9	7.5	0.0	0.0	0.0	13.8	16.1	0.0	15.9			
Incr Delay (d2), s/veh	6.9	0.6	0.0	0.0	0.0	2.4	1.8	0.0	1.7			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.5	2.2	0.0	0.0	0.0	3.0	2.1	0.0	1.6			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.8	8.1	0.0	0.0	0.0	16.2	17.9	0.0	17.6			
LnGrp LOS	C	A	A	A	A	B	B	A	B			
Approach Vol, veh/h	711			400			457					
Approach Delay, s/veh	11.6			16.2			17.8					
Approach LOS	B			B			B					
Timer - Assigned Phs	2			4			7			8		
Phs Duration (G+Y+Rc), s	15.8			29.6			9.2			20.5		
Change Period (Y+Rc), s	5.8			5.8			4.6			5.8		
Max Green Setting (Gmax), s	25.2			83.2			13.4			65.2		
Max Q Clear Time (g_c+I1), s	7.9			12.0			5.4			12.1		
Green Ext Time (p_c), s	1.9			3.9			0.2			2.6		
Intersection Summary												
HCM 6th Ctrl Delay	14.6											
HCM 6th LOS	B											

Intersection

Intersection Delay, s/veh 73.7

Intersection LOS F

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	187	26	206	73	20	465
Future Vol, veh/h	187	26	206	73	20	465
Peak Hour Factor	0.66	0.66	0.66	0.66	0.66	0.66
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	283	39	312	111	30	705
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left NB			WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right SB		WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	20.5	22.6	126.5
HCM LOS	C	C	F

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	88%	4%
Vol Thru, %	74%	0%	96%
Vol Right, %	26%	12%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	279	213	485
LT Vol	0	187	20
Through Vol	206	0	465
RT Vol	73	26	0
Lane Flow Rate	423	323	735
Geometry Grp	1	1	1
Degree of Util (X)	0.701	0.603	1.201
Departure Headway (Hd)	6.272	7.18	5.883
Convergence, Y/N	Yes	Yes	Yes
Cap	579	507	625
Service Time	4.272	5.18	3.896
HCM Lane V/C Ratio	0.731	0.637	1.176
HCM Control Delay	22.6	20.5	126.5
HCM Lane LOS	C	C	F
HCM 95th-tile Q	5.6	3.9	25.9

Timings
18: El Toro Rd. & Carmela Ct.

S. Nichols Mixed-Use Development (JN 10878)

08/02/2018



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations		↔		↔	↔	↔		↔	↔
Traffic Volume (vph)	145	0	7	0	187	117	9	386	257
Future Volume (vph)	145	0	7	0	187	117	9	386	257
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm
Protected Phases		4		8		2		6	
Permitted Phases	4		8		2		6		6
Detector Phase	4	4	8	8	2	2	6	6	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6
Total Split (s)	54.0	54.0	54.0	54.0	66.0	66.0	66.0	66.0	66.0
Total Split (%)	45.0%	45.0%	45.0%	45.0%	55.0%	55.0%	55.0%	55.0%	55.0%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)		4.6		4.6	4.6	4.6		4.6	4.6
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	Min	Min	Min	Min	Min
Act Effect Green (s)		47.6		47.6	61.5	61.5		61.5	61.5
Actuated g/C Ratio		0.40		0.40	0.52	0.52		0.52	0.52
v/c Ratio		0.97		0.06	0.97	0.19		0.60	0.41
Control Delay		57.8		10.7	76.3	15.9		23.4	9.3
Queue Delay		0.0		0.0	0.0	0.0		0.0	0.0
Total Delay		57.8		10.7	76.3	15.9		23.4	9.3
LOS		E		B	E	B		C	A
Approach Delay		57.8		10.7		52.2		17.8	
Approach LOS		E		B		D		B	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 118.3

Natural Cycle: 50

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.97

Intersection Signal Delay: 37.5

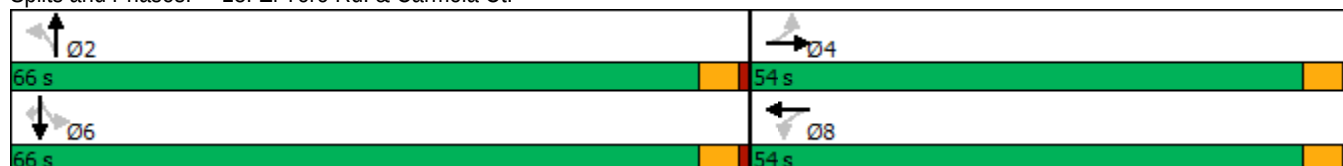
Intersection LOS: D

Intersection Capacity Utilization 77.0%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 18: El Toro Rd. & Carmela Ct.



HCM 6th Signalized Intersection Summary
18: El Toro Rd. & Carmela Ct.

S. Nichols Mixed-Use Development (JN 10878)

08/02/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	145	0	296	7	0	17	187	117	7	9	386	257
Future Volume (veh/h)	145	0	296	7	0	17	187	117	7	9	386	257
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		1.00	1.00		0.95	1.00		0.99	0.99		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	210	0	429	10	0	25	271	170	10	13	559	372
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	241	3	417	164	19	361	238	894	53	40	943	810
Arrive On Green	0.41	0.00	0.41	0.41	0.00	0.41	0.51	0.51	0.51	0.51	0.51	0.51
Sat Flow, veh/h	489	7	1014	305	46	877	601	1747	103	17	1843	1584
Grp Volume(v), veh/h	639	0	0	35	0	0	271	0	180	572	0	372
Grp Sat Flow(s),veh/h/ln	1510	0	0	1228	0	0	601	0	1850	1861	0	1584
Q Serve(g_s), s	47.8	0.0	0.0	0.0	0.0	0.0	35.6	0.0	6.3	0.0	0.0	18.0
Cycle Q Clear(g_c), s	49.4	0.0	0.0	1.6	0.0	0.0	61.4	0.0	6.3	25.8	0.0	18.0
Prop In Lane	0.33		0.67	0.29		0.71	1.00		0.06	0.02		1.00
Lane Grp Cap(c), veh/h	661	0	0	544	0	0	238	0	947	983	0	810
V/C Ratio(X)	0.97	0.00	0.00	0.06	0.00	0.00	1.14	0.00	0.19	0.58	0.00	0.46
Avail Cap(c_a), veh/h	661	0	0	544	0	0	238	0	947	983	0	810
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	35.8	0.0	0.0	21.2	0.0	0.0	46.7	0.0	15.9	20.6	0.0	18.7
Incr Delay (d2), s/veh	26.7	0.0	0.0	0.0	0.0	0.0	100.4	0.0	0.1	0.9	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	23.7	0.0	0.0	0.6	0.0	0.0	13.9	0.0	2.7	11.5	0.0	6.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.6	0.0	0.0	21.3	0.0	0.0	147.1	0.0	15.9	21.5	0.0	19.1
LnGrp LOS	E	A	A	C	A	A	F	A	B	C	A	B
Approach Vol, veh/h	639		35				451		944			
Approach Delay, s/veh	62.6		21.3				94.7		20.5			
Approach LOS	E		C				F		C			
Timer - Assigned Phs	2		4		6		8					
Phs Duration (G+Y+Rc), s	66.0		54.0		66.0		54.0					
Change Period (Y+Rc), s	4.6		4.6		4.6		4.6					
Max Green Setting (Gmax), s	61.4		49.4		61.4		49.4					
Max Q Clear Time (g_c+I1), s	63.4		51.4		27.8		3.6					
Green Ext Time (p_c), s	0.0		0.0		6.2		0.2					
Intersection Summary												
HCM 6th Ctrl Delay	49.7											
HCM 6th LOS	D											

Timings
18: El Toro Rd. & Carmela Ct.

S. Nichols Mixed-Use Development (JN 10878)

08/02/2018



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations		↔		↔	↔	↔		↔	↔
Traffic Volume (vph)	145	0	7	0	187	117	9	386	257
Future Volume (vph)	145	0	7	0	187	117	9	386	257
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm
Protected Phases		4		8		2		6	
Permitted Phases	4		8		2		6		6
Detector Phase	4	4	8	8	2	2	6	6	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6
Total Split (s)	54.0	54.0	54.0	54.0	66.0	66.0	66.0	66.0	66.0
Total Split (%)	45.0%	45.0%	45.0%	45.0%	55.0%	55.0%	55.0%	55.0%	55.0%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)		4.6		4.6	4.6	4.6		4.6	4.6
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	Min	Min	Min	Min	Min
Act Effect Green (s)		25.4		25.4	28.8	28.8		28.8	28.8
Actuated g/C Ratio		0.39		0.39	0.44	0.44		0.44	0.44
v/c Ratio		0.75		0.05	0.62	0.17		0.53	0.35
Control Delay		23.2		10.1	25.2	12.6		16.7	5.8
Queue Delay		0.0		0.0	0.0	0.0		0.0	0.0
Total Delay		23.2		10.1	25.2	12.6		16.7	5.8
LOS		C		B	C	B		B	A
Approach Delay		23.2		10.1		20.2		12.4	
Approach LOS		C		B		C		B	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 65.4

Natural Cycle: 45

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.75

Intersection Signal Delay: 17.4

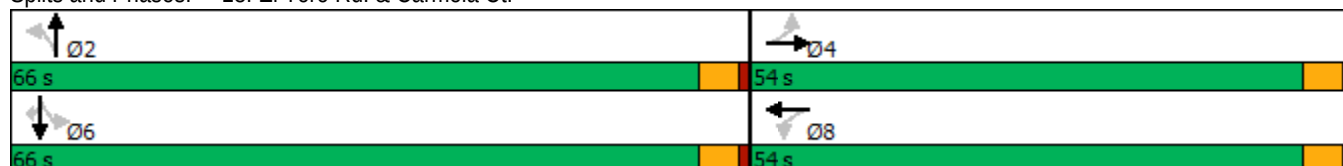
Intersection LOS: B

Intersection Capacity Utilization 77.0%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 18: El Toro Rd. & Carmela Ct.



HCM 6th Signalized Intersection Summary
18: El Toro Rd. & Carmela Ct.

S. Nichols Mixed-Use Development (JN 10878)

08/02/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	145	0	296	7	0	17	187	117	7	9	386	257
Future Volume (veh/h)	145	0	296	7	0	17	187	117	7	9	386	257
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		1.00	1.00		0.95	1.00		0.99	0.99		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	158	0	322	8	0	18	203	127	8	10	420	279
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	241	23	385	198	34	358	354	834	53	63	888	759
Arrive On Green	0.38	0.00	0.38	0.38	0.00	0.38	0.48	0.48	0.48	0.48	0.48	0.48
Sat Flow, veh/h	440	60	1020	331	91	949	747	1739	110	13	1852	1583
Grp Volume(v), veh/h	480	0	0	26	0	0	203	0	135	430	0	279
Grp Sat Flow(s),veh/h/ln	1521	0	0	1370	0	0	747	0	1849	1864	0	1583
Q Serve(g_s), s	15.7	0.0	0.0	0.0	0.0	0.0	16.2	0.0	2.6	0.0	0.0	7.1
Cycle Q Clear(g_c), s	18.3	0.0	0.0	0.7	0.0	0.0	26.2	0.0	2.6	10.0	0.0	7.1
Prop In Lane	0.33		0.67	0.31		0.69	1.00		0.06	0.02		1.00
Lane Grp Cap(c), veh/h	648	0	0	590	0	0	354	0	886	951	0	759
V/C Ratio(X)	0.74	0.00	0.00	0.04	0.00	0.00	0.57	0.00	0.15	0.45	0.00	0.37
Avail Cap(c_a), veh/h	1238	0	0	1114	0	0	711	0	1769	1833	0	1515
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	18.0	0.0	0.0	12.7	0.0	0.0	20.1	0.0	9.4	11.3	0.0	10.6
Incr Delay (d2), s/veh	1.7	0.0	0.0	0.0	0.0	0.0	1.5	0.0	0.1	0.3	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.2	0.0	0.0	0.2	0.0	0.0	2.8	0.0	1.0	3.8	0.0	2.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.7	0.0	0.0	12.7	0.0	0.0	21.6	0.0	9.5	11.6	0.0	10.9
LnGrp LOS	B	A	A	B	A	A	C	A	A	B	A	B
Approach Vol, veh/h		480			26			338			709	
Approach Delay, s/veh		19.7			12.7			16.8			11.3	
Approach LOS		B			B			B			B	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		35.4		28.8		35.4		28.8				
Change Period (Y+Rc), s		4.6		4.6		4.6		4.6				
Max Green Setting (Gmax), s		61.4		49.4		61.4		49.4				
Max Q Clear Time (g_c+I1), s		28.2		20.3		12.0		2.7				
Green Ext Time (p_c), s		2.6		3.9		4.4		0.1				
Intersection Summary												
HCM 6th Ctrl Delay				15.1								
HCM 6th LOS				B								

Timings
4: Lakeshore Dr. & Riverside Dr. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

08/02/2018

										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	33	536	296	132	668	218	283	298	347	17
Future Volume (vph)	33	536	296	132	668	218	283	298	347	17
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA	Perm
Protected Phases	7	4		3	8	5	2	1	6	
Permitted Phases			4							6
Detector Phase	7	4	4	3	8	5	2	1	6	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	32.4	32.4	9.6	33.4	9.6	34.7	9.6	32.7	32.7
Total Split (s)	9.7	36.3	36.3	18.8	45.4	26.0	35.7	29.2	38.9	38.9
Total Split (%)	8.1%	30.3%	30.3%	15.7%	37.8%	21.7%	29.8%	24.3%	32.4%	32.4%
Yellow Time (s)	3.6	4.4	4.4	3.6	4.4	3.6	3.7	3.6	3.7	3.7
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.4	5.4	4.6	5.4	4.6	4.7	4.6	4.7	4.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	None	Max	Max
Act Effect Green (s)	5.1	27.9	27.9	12.5	39.4	18.8	31.1	23.6	36.0	36.0
Actuated g/C Ratio	0.04	0.24	0.24	0.11	0.34	0.16	0.27	0.21	0.31	0.31
v/c Ratio	0.47	0.70	0.54	0.77	0.94	0.84	0.53	0.92	0.35	0.03
Control Delay	75.4	44.7	8.6	75.8	49.5	72.4	30.8	76.3	32.9	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	75.4	44.7	8.6	75.8	49.5	72.4	30.8	76.3	32.9	0.1
LOS	E	D	A	E	D	E	C	E	C	A
Approach Delay		33.5			52.6		44.2		51.6	
Approach LOS		C			D		D		D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 114.5

Natural Cycle: 110

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.94

Intersection Signal Delay: 45.7

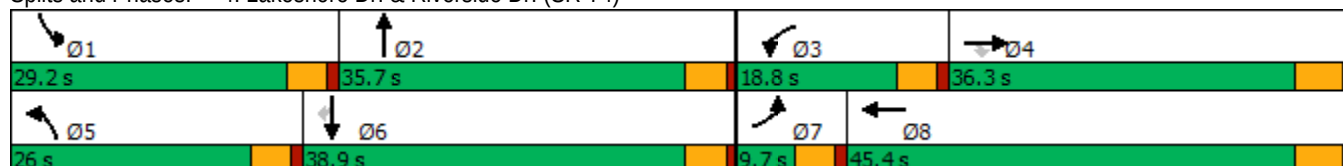
Intersection LOS: D

Intersection Capacity Utilization 91.0%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 4: Lakeshore Dr. & Riverside Dr. (SR-74)



HCM 6th Signalized Intersection Summary 4: Lakeshore Dr. & Riverside Dr. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

08/02/2018

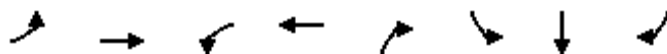
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	33	536	296	132	668	336	218	283	176	298	347	17
Future Volume (veh/h)	33	536	296	132	668	336	218	283	176	298	347	17
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No				No				No			
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	37	602	270	148	751	-1	245	318	133	335	390	16
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	56	774	344	178	1017	0	277	723	296	365	1222	545
Arrive On Green	0.03	0.22	0.22	0.10	0.29	0.00	0.16	0.29	0.29	0.20	0.34	0.34
Sat Flow, veh/h	1781	3554	1581	1781	3647	0	1781	2456	1006	1781	3554	1585
Grp Volume(v), veh/h	37	602	270	148	750	0	245	228	223	335	390	16
Grp Sat Flow(s),veh/h/ln	1781	1777	1581	1781	1777	0	1781	1777	1686	1781	1777	1585
Q Serve(g_s), s	2.2	16.8	17.0	8.6	20.1	0.0	14.2	11.0	11.3	19.4	8.5	0.7
Cycle Q Clear(g_c), s	2.2	16.8	17.0	8.6	20.1	0.0	14.2	11.0	11.3	19.4	8.5	0.7
Prop In Lane	1.00		1.00	1.00		0.00	1.00		0.60	1.00		1.00
Lane Grp Cap(c), veh/h	56	774	344	178	1017	0	277	523	496	365	1222	545
V/C Ratio(X)	0.66	0.78	0.78	0.83	0.74	0.00	0.89	0.44	0.45	0.92	0.32	0.03
Avail Cap(c_a), veh/h	86	1043	464	240	1350	0	362	523	496	416	1222	545
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.5	38.8	38.9	46.5	34.0	0.0	43.6	30.1	30.2	41.0	25.5	22.9
Incr Delay (d2), s/veh	4.9	2.7	6.2	12.7	1.5	0.0	15.7	2.6	2.9	22.1	0.7	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	7.4	7.0	4.3	8.5	0.0	7.4	5.0	5.0	10.7	3.7	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.4	41.5	45.0	59.2	35.5	0.0	59.3	32.7	33.1	63.1	26.1	23.0
LnGrp LOS	E	D	D	E	D	A	E	C	C	E	C	C
Approach Vol, veh/h	909				898				696			
Approach Delay, s/veh	43.1				39.4				42.2			
Approach LOS	D				D				D			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	26.2	35.7	15.1	28.3	21.0	40.9	7.9	35.5				
Change Period (Y+Rc), s	4.6	* 4.7	4.6	5.4	4.6	* 4.7	4.6	5.4				
Max Green Setting (Gmax), s	24.6	* 31	14.2	30.9	21.4	* 34	5.1	40.0				
Max Q Clear Time (g_c+I1), s	21.4	13.3	10.6	19.0	16.2	10.5	4.2	22.1				
Green Ext Time (p_c), s	0.2	2.6	0.1	3.8	0.2	2.6	0.0	4.6				
Intersection Summary												
HCM 6th Ctrl Delay			41.8									
HCM 6th LOS			D									
Notes												

Timings

S. Nichols Mixed-Use Development (JN 10878)

5: Strickland Av./Gunnerson St. & Riverside Dr. (SR-74)

08/02/2018



Lane Group	EBL	EBT	WBL	WBT	NBR	SBL	SBT	SBR
Lane Configurations	←	→	←	→	←	→	→	←
Traffic Volume (vph)	2	938	7	963	7	32	1	2
Future Volume (vph)	2	938	7	963	7	32	1	2
Turn Type	Perm	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		8			6	
Permitted Phases	4		8		2	6		6
Detector Phase	4	4	8	8	2	6	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	24.5	24.5	23.4	23.4	22.6	23.4	23.4	23.4
Total Split (s)	93.0	93.0	93.0	93.0	27.0	27.0	27.0	27.0
Total Split (%)	77.5%	77.5%	77.5%	77.5%	22.5%	22.5%	22.5%	22.5%
Yellow Time (s)	4.4	4.4	4.4	4.4	3.6	4.4	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.4	5.4	5.4	5.4	4.6		5.4	5.4
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	Min	Min	Min	Min
Act Effect Green (s)	51.7	51.7	51.7	51.7	12.5		11.7	11.7
Actuated g/C Ratio	0.69	0.69	0.69	0.69	0.17		0.16	0.16
v/c Ratio	0.02	0.76	0.03	0.89	0.02		0.16	0.01
Control Delay	3.5	11.5	3.6	18.8	0.0		36.8	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay	3.5	11.5	3.6	18.8	0.0		36.8	0.0
LOS	A	B	A	B	A		D	A
Approach Delay		11.4		18.7			34.8	
Approach LOS		B		B			C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 75

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.89

Intersection Signal Delay: 15.6

Intersection LOS: B

Intersection Capacity Utilization 79.2%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 5: Strickland Av./Gunnerson St. & Riverside Dr. (SR-74)

← 02	→ 04
27 s	93 s
↓ 06	← 08
27 s	93 s

HCM 6th Signalized Intersection Summary S. Nichols Mixed-Use Development (JN 10878)
 5: Strickland Av./Gunnerson St. & Riverside Dr. (SR-74) 08/02/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	938	5	7	963	130	0	0	7	32	1	2
Future Volume (veh/h)	2	938	5	7	963	130	0	0	7	32	1	2
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	2	967	5	7	993	134	0	0	0	33	1	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	216	1306	7	323	1134	153	0	267		298	8	
Arrive On Green	0.70	0.70	0.70	0.70	0.70	0.70	0.00	0.00	0.00	0.14	0.14	0.00
Sat Flow, veh/h	500	1859	10	578	1613	218	0	1870	1585	1377	53	1585
Grp Volume(v), veh/h	2	0	972	7	0	1127	0	0	0	34	0	0
Grp Sat Flow(s),veh/h/ln	500	0	1869	578	0	1831	0	1870	1585	1430	0	1585
Q Serve(g_s), s	0.2	0.0	22.5	0.5	0.0	33.3	0.0	0.0	0.0	1.4	0.0	0.0
Cycle Q Clear(g_c), s	33.5	0.0	22.5	23.1	0.0	33.3	0.0	0.0	0.0	1.4	0.0	0.0
Prop In Lane	1.00		0.01	1.00		0.12	0.00		1.00	0.97		1.00
Lane Grp Cap(c), veh/h	216	0	1313	323	0	1287	0	267		306	0	
V/C Ratio(X)	0.01	0.00	0.74	0.02	0.00	0.88	0.00	0.00		0.11	0.00	
Avail Cap(c_a), veh/h	491	0	2340	641	0	2294	0	599		543	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	21.0	0.0	6.4	13.6	0.0	8.0	0.0	0.0	0.0	26.3	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.8	0.0	0.0	2.1	0.0	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	5.3	0.1	0.0	7.9	0.0	0.0	0.0	0.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.0	0.0	7.3	13.6	0.0	10.1	0.0	0.0	0.0	26.5	0.0	0.0
LnGrp LOS	C	A	A	B	A	B	A	A		C	A	
Approach Vol, veh/h		974			1134			0	A		34	A
Approach Delay, s/veh		7.3			10.1			0.0			26.5	
Approach LOS		A			B						C	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		15.4		54.5		15.4		54.5				
Change Period (Y+Rc), s		* 5.4		5.4		5.4		5.4				
Max Green Setting (Gmax), s		* 22		87.6		21.6		87.6				
Max Q Clear Time (g_c+I1), s		0.0		35.5		3.4		35.3				
Green Ext Time (p_c), s		0.0		9.6		0.1		13.8				

Intersection Summary

HCM 6th Ctrl Delay	9.1
HCM 6th LOS	A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Timings
6: Collier Av. & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

08/02/2018

	→	↖	←	↗	↘
Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Configurations	↗	↖	↗	↖	↗
Traffic Volume (vph)	211	250	280	88	286
Future Volume (vph)	211	250	280	88	286
Turn Type	NA	Perm	NA	Prot	Perm
Protected Phases	4		8	2	
Permitted Phases		8			2
Detector Phase	4	8	8	2	2
Switch Phase					
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	26.8	15.8	15.8	16.2	16.2
Total Split (s)	86.0	86.0	86.0	34.0	34.0
Total Split (%)	71.7%	71.7%	71.7%	28.3%	28.3%
Yellow Time (s)	4.8	4.8	4.8	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.8	5.8	6.2	6.2
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	None	None	None	Min	Min
Act Effct Green (s)	16.9	16.9	16.9	10.4	10.4
Actuated g/C Ratio	0.43	0.43	0.43	0.26	0.26
v/c Ratio	0.40	0.63	0.41	0.22	0.50
Control Delay	8.3	15.6	9.1	15.2	5.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	8.3	15.6	9.1	15.2	5.7
LOS	A	B	A	B	A
Approach Delay	8.3		12.1	7.9	
Approach LOS	A		B	A	
Intersection Summary					
Cycle Length: 120					
Actuated Cycle Length: 39.6					
Natural Cycle: 50					
Control Type: Actuated-Uncoordinated					
Maximum v/c Ratio: 0.63					
Intersection Signal Delay: 9.9			Intersection LOS: A		
Intersection Capacity Utilization 51.8%			ICU Level of Service A		
Analysis Period (min) 15					

Splits and Phases: 6: Collier Av. & Nichols Rd.



HCM 6th Signalized Intersection Summary
6: Collier Av. & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

08/02/2018

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↰		↰	↰	↰	↰
Traffic Volume (veh/h)	211	61	250	280	88	286
Future Volume (veh/h)	211	61	250	280	88	286
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	243	70	287	322	101	329
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	652	188	539	874	472	420
Arrive On Green	0.47	0.47	0.47	0.47	0.26	0.26
Sat Flow, veh/h	1396	402	1067	1870	1781	1585
Grp Volume(v), veh/h	0	313	287	322	101	329
Grp Sat Flow(s),veh/h/ln	0	1798	1067	1870	1781	1585
Q Serve(g_s), s	0.0	5.0	10.6	5.0	2.0	8.6
Cycle Q Clear(g_c), s	0.0	5.0	15.7	5.0	2.0	8.6
Prop In Lane		0.22	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	0	840	539	874	472	420
V/C Ratio(X)	0.00	0.37	0.53	0.37	0.21	0.78
Avail Cap(c_a), veh/h	0	3217	1949	3346	1105	983
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	7.7	12.8	7.7	12.8	15.3
Incr Delay (d2), s/veh	0.0	0.3	0.8	0.3	0.2	3.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.2	1.9	1.3	0.6	2.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	8.0	13.6	7.9	13.1	18.5
LnGrp LOS	A	A	B	A	B	B
Approach Vol, veh/h	313			609	430	
Approach Delay, s/veh	8.0			10.6	17.2	
Approach LOS	A			B	B	
Timer - Assigned Phs	2		4		8	
Phs Duration (G+Y+Rc), s	18.1		26.7		26.7	
Change Period (Y+Rc), s	6.2		5.8		5.8	
Max Green Setting (Gmax), s	27.8		80.2		80.2	
Max Q Clear Time (g_c+l1), s	10.6		7.0		17.7	
Green Ext Time (p_c), s	1.2		1.9		3.3	
Intersection Summary						
HCM 6th Ctrl Delay			12.1			
HCM 6th LOS			B			

Timings
10: I-15 NB Ramps & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

08/02/2018

					
Lane Group	EBL	EBT	WBT	NBT	NBR
Lane Configurations					
Traffic Volume (vph)	158	199	126	1	34
Future Volume (vph)	158	199	126	1	34
Turn Type	Prot	NA	NA	NA	Perm
Protected Phases	7	4	8	2	
Permitted Phases					2
Detector Phase	7	4	8	2	2
Switch Phase					
Minimum Initial (s)	5.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	22.8	22.8	22.8	22.8
Total Split (s)	18.0	89.0	71.0	31.0	31.0
Total Split (%)	15.0%	74.2%	59.2%	25.8%	25.8%
Yellow Time (s)	3.6	4.8	4.8	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	5.8	5.8	5.8
Lead/Lag	Lead		Lag		
Lead-Lag Optimize?	Yes		Yes		
Recall Mode	None	None	None	Min	Min
Act Effect Green (s)	13.4	33.9	15.8	25.3	25.3
Actuated g/C Ratio	0.19	0.48	0.22	0.36	0.36
v/c Ratio	0.78	0.37	0.70	0.74	0.10
Control Delay	47.5	12.9	33.3	30.1	4.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	47.5	12.9	33.3	30.1	4.5
LOS	D	B	C	C	A
Approach Delay		28.2	33.3	27.3	
Approach LOS		C	C	C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 70.8

Natural Cycle: 70

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 28.9

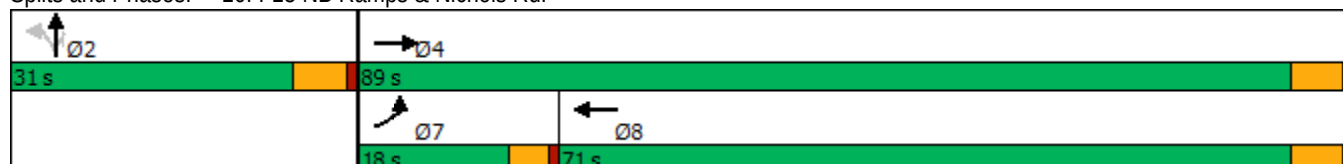
Intersection LOS: C

Intersection Capacity Utilization 47.3%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 10: I-15 NB Ramps & Nichols Rd.



HCM 6th Signalized Intersection Summary 10: I-15 NB Ramps & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

08/02/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	158	199	0	0	126	44	284	1	34	0	0	0
Future Volume (veh/h)	158	199	0	0	126	44	284	1	34	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach	No				No				No			
Adj Sat Flow, veh/h/ln	1826	1826	0	0	1737	1737	1811	1900	1811			
Adj Flow Rate, veh/h	255	321	0	0	203	71	458	2	55			
Peak Hour Factor	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62			
Percent Heavy Veh, %	5	5	0	0	11	11	6	0	6			
Cap, veh/h	310	879	0	0	270	95	557	2	464			
Arrive On Green	0.18	0.48	0.00	0.00	0.22	0.22	0.31	0.31	0.31			
Sat Flow, veh/h	1739	1826	0	0	1230	430	1802	8	1502			
Grp Volume(v), veh/h	255	321	0	0	0	274	460	0	55			
Grp Sat Flow(s),veh/h/ln	1739	1826	0	0	0	1660	1810	0	1502			
Q Serve(g_s), s	7.8	6.1	0.0	0.0	0.0	8.5	13.0	0.0	1.5			
Cycle Q Clear(g_c), s	7.8	6.1	0.0	0.0	0.0	8.5	13.0	0.0	1.5			
Prop In Lane	1.00		0.00	0.00		0.26	1.00		1.00			
Lane Grp Cap(c), veh/h	310	879	0	0	0	365	559	0	464			
V/C Ratio(X)	0.82	0.37	0.00	0.00	0.00	0.75	0.82	0.00	0.12			
Avail Cap(c_a), veh/h	422	2748	0	0	0	1957	825	0	685			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	0.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	21.9	9.0	0.0	0.0	0.0	20.2	17.7	0.0	13.7			
Incr Delay (d2), s/veh	9.2	0.3	0.0	0.0	0.0	3.1	4.3	0.0	0.1			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	3.5	1.8	0.0	0.0	0.0	3.1	5.0	0.0	0.4			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.1	9.3	0.0	0.0	0.0	23.3	22.0	0.0	13.8			
LnGrp LOS	C	A	A	A	A	C	C	A	B			
Approach Vol, veh/h	576				274				515			
Approach Delay, s/veh	18.9				23.3				21.2			
Approach LOS	B				C				C			
Timer - Assigned Phs	2				4				7 8			
Phs Duration (G+Y+Rc), s	22.9				32.4				14.5 18.0			
Change Period (Y+Rc), s	5.8				5.8				4.6 5.8			
Max Green Setting (Gmax), s	25.2				83.2				13.4 65.2			
Max Q Clear Time (g_c+l1), s	15.0				8.1				9.8 10.5			
Green Ext Time (p_c), s	2.1				1.9				0.2 1.6			
Intersection Summary												
HCM 6th Ctrl Delay	20.6											
HCM 6th LOS	C											

Intersection

Intersection Delay, s/veh 9.8

Intersection LOS A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	14	19	142	27	54	169
Future Vol, veh/h	14	19	142	27	54	169
Peak Hour Factor	0.66	0.66	0.66	0.66	0.66	0.66
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	21	29	215	41	82	256
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left NB			WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right SB		WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	8.4	9.2	10.4
HCM LOS	A	A	B

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	42%	24%
Vol Thru, %	84%	0%	76%
Vol Right, %	16%	58%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	169	33	223
LT Vol	0	14	54
Through Vol	142	0	169
RT Vol	27	19	0
Lane Flow Rate	256	50	338
Geometry Grp	1	1	1
Degree of Util (X)	0.307	0.069	0.41
Departure Headway (Hd)	4.31	4.951	4.366
Convergence, Y/N	Yes	Yes	Yes
Cap	835	723	828
Service Time	2.327	2.985	2.383
HCM Lane V/C Ratio	0.307	0.069	0.408
HCM Control Delay	9.2	8.4	10.4
HCM Lane LOS	A	A	B
HCM 95th-tile Q	1.3	0.2	2

Timings
18: El Toro Rd. & Carmela Ct.

S. Nichols Mixed-Use Development (JN 10878)

08/02/2018

									
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	16	0	6	0	15	152	7	164	11
Future Volume (vph)	16	0	6	0	15	152	7	164	11
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm
Protected Phases		4		8		2		6	
Permitted Phases	4		8		2		6		6
Detector Phase	4	4	8	8	2	2	6	6	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6
Total Split (s)	54.0	54.0	54.0	54.0	66.0	66.0	66.0	66.0	66.0
Total Split (%)	45.0%	45.0%	45.0%	45.0%	55.0%	55.0%	55.0%	55.0%	55.0%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)		4.6		4.6	4.6	4.6		4.6	4.6
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	Min	Min	Min	Min	Min
Act Effct Green (s)		11.4		11.4	24.1	24.1		24.1	24.1
Actuated g/C Ratio		0.32		0.32	0.68	0.68		0.68	0.68
v/c Ratio		0.14		0.02	0.03	0.18		0.20	0.02
Control Delay		5.6		4.3	7.1	6.6		6.8	4.4
Queue Delay		0.0		0.0	0.0	0.0		0.0	0.0
Total Delay		5.6		4.3	7.1	6.6		6.8	4.4
LOS		A		A	A	A		A	A
Approach Delay		5.6		4.3		6.7		6.6	
Approach LOS		A		A		A		A	
Intersection Summary									
Cycle Length: 120									
Actuated Cycle Length: 35.7									
Natural Cycle: 45									
Control Type: Actuated-Uncoordinated									
Maximum v/c Ratio: 0.20									
Intersection Signal Delay: 6.5					Intersection LOS: A				
Intersection Capacity Utilization 41.8%					ICU Level of Service A				
Analysis Period (min) 15									

Splits and Phases: 18: El Toro Rd. & Carmela Ct.

	
Ø2	Ø4
66 s	54 s
	
Ø6	Ø8
66 s	54 s

HCM 6th Signalized Intersection Summary
18: El Toro Rd. & Carmela Ct.

S. Nichols Mixed-Use Development (JN 10878)

08/02/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	0	33	6	0	1	15	152	5	7	164	11
Future Volume (veh/h)	16	0	33	6	0	1	15	152	5	7	164	11
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.95		1.00	1.00		0.95	1.00		0.98	0.99		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	23	0	48	9	0	1	22	220	7	10	238	16
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	256	43	221	533	15	30	662	755	24	161	768	663
Arrive On Green	0.21	0.00	0.21	0.21	0.00	0.21	0.42	0.42	0.42	0.42	0.42	0.42
Sat Flow, veh/h	302	204	1056	1229	71	144	1125	1802	57	23	1832	1583
Grp Volume(v), veh/h	71	0	0	10	0	0	22	0	227	248	0	16
Grp Sat Flow(s),veh/h/ln	1562	0	0	1443	0	0	1125	0	1859	1856	0	1583
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	2.0	0.0	0.0	0.1
Cycle Q Clear(g_c), s	0.9	0.0	0.0	0.1	0.0	0.0	2.5	0.0	2.0	2.2	0.0	0.1
Prop In Lane	0.32		0.68	0.90		0.10	1.00		0.03	0.04		1.00
Lane Grp Cap(c), veh/h	519	0	0	578	0	0	662	0	779	929	0	663
V/C Ratio(X)	0.14	0.00	0.00	0.02	0.00	0.00	0.03	0.00	0.29	0.27	0.00	0.02
Avail Cap(c_a), veh/h	3200	0	0	3031	0	0	2984	0	4616	4692	0	3931
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	8.1	0.0	0.0	7.8	0.0	0.0	5.7	0.0	4.8	4.8	0.0	4.2
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	8.2	0.0	0.0	7.8	0.0	0.0	5.7	0.0	5.0	5.0	0.0	4.2
LnGrp LOS	A	A	A	A	A	A	A	A	A	A	A	A
Approach Vol, veh/h	71			10			249			264		
Approach Delay, s/veh	8.2			7.8			5.0			4.9		
Approach LOS	A			A			A			A		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	15.0			9.8			15.0			9.8		
Change Period (Y+Rc), s	4.6			4.6			4.6			4.6		
Max Green Setting (Gmax), s	61.4			49.4			61.4			49.4		
Max Q Clear Time (g_c+I1), s	4.5			2.9			4.2			2.1		
Green Ext Time (p_c), s	1.6			0.5			1.8			0.0		
Intersection Summary												
HCM 6th Ctrl Delay	5.4											
HCM 6th LOS	A											

APPENDIX 8.12:

**EAP (2024) CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS WITH
IMPROVEMENTS**

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Timings
4: Lakeshore Dr. & Riverside Dr. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

05/24/2018

										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	21	513	159	152	609	300	330	234	193	10
Future Volume (vph)	21	513	159	152	609	300	330	234	193	10
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA	Perm
Protected Phases	7	4		3	8	5	2	1	6	
Permitted Phases			4							6
Detector Phase	7	4	4	3	8	5	2	1	6	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	32.4	32.4	9.6	33.4	9.6	34.7	9.6	32.7	32.7
Total Split (s)	9.7	36.3	36.3	18.8	45.4	26.0	35.7	29.2	38.9	38.9
Total Split (%)	8.1%	30.3%	30.3%	15.7%	37.8%	21.7%	29.8%	24.3%	32.4%	32.4%
Yellow Time (s)	3.6	4.4	4.4	3.6	4.4	3.6	3.7	3.6	3.7	3.7
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.4	5.4	4.6	5.4	4.6	4.7	4.6	4.7	4.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	None	Max	Max
Act Effect Green (s)	5.1	26.5	26.5	13.3	38.9	21.5	35.3	20.4	34.3	34.3
Actuated g/C Ratio	0.04	0.23	0.23	0.12	0.34	0.19	0.31	0.18	0.30	0.30
v/c Ratio	0.31	0.71	0.36	0.83	0.93	1.02	0.49	0.84	0.21	0.02
Control Delay	66.0	45.7	7.5	82.5	46.8	102.5	33.1	68.7	31.9	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.0	45.7	7.5	82.5	46.8	102.5	33.1	68.7	31.9	0.1
LOS	E	D	A	F	D	F	C	E	C	A
Approach Delay		37.6			51.5		60.5		50.9	
Approach LOS		D			D		E		D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 115

Natural Cycle: 100

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.02

Intersection Signal Delay: 50.5

Intersection LOS: D

Intersection Capacity Utilization 87.5%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 4: Lakeshore Dr. & Riverside Dr. (SR-74)

			
Ø1	Ø2	Ø3	Ø4
29.2 s	35.7 s	18.8 s	36.3 s
			
Ø5	Ø6	Ø7	Ø8
26 s	38.9 s	9.7 s	45.4 s

HCM 6th Signalized Intersection Summary 4: Lakeshore Dr. & Riverside Dr. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

05/24/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	513	159	152	609	387	300	330	131	234	193	10
Future Volume (veh/h)	21	513	159	152	609	387	300	330	131	234	193	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No				No				No			
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	24	576	116	171	684	56	337	371	82	263	217	8
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	42	723	321	200	971	79	348	994	217	294	1110	495
Arrive On Green	0.02	0.20	0.20	0.11	0.29	0.29	0.20	0.34	0.34	0.16	0.31	0.31
Sat Flow, veh/h	1781	3554	1580	1781	3326	272	1781	2898	634	1781	3554	1585
Grp Volume(v), veh/h	24	576	116	171	365	375	337	226	227	263	217	8
Grp Sat Flow(s),veh/h/ln	1781	1777	1580	1781	1777	1821	1781	1777	1754	1781	1777	1585
Q Serve(g_s), s	1.5	16.9	6.9	10.3	20.0	20.1	20.5	10.5	10.7	15.8	4.9	0.4
Cycle Q Clear(g_c), s	1.5	16.9	6.9	10.3	20.0	20.1	20.5	10.5	10.7	15.8	4.9	0.4
Prop In Lane	1.00		1.00	1.00		0.15	1.00		0.36	1.00		1.00
Lane Grp Cap(c), veh/h	42	723	321	200	519	532	348	609	602	294	1110	495
V/C Ratio(X)	0.57	0.80	0.36	0.85	0.70	0.70	0.97	0.37	0.38	0.90	0.20	0.02
Avail Cap(c_a), veh/h	83	1003	446	231	649	665	348	609	602	400	1110	495
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.9	41.4	37.5	47.7	34.5	34.5	43.7	27.1	27.1	44.8	27.6	26.0
Incr Delay (d2), s/veh	4.4	3.1	0.7	20.9	2.5	2.5	39.3	1.7	1.8	14.7	0.4	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	7.5	2.7	5.6	8.7	8.9	12.8	4.7	4.8	8.1	2.1	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.3	44.6	38.2	68.6	37.1	37.0	83.0	28.8	28.9	59.5	27.9	26.1
LnGrp LOS	E	D	D	E	D	D	F	C	C	E	C	C
Approach Vol, veh/h	716				911				790			
Approach Delay, s/veh	44.0				43.0				52.0			
Approach LOS	D				D				D			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	22.7	42.2	16.9	27.7	26.0	38.9	7.2	37.4				
Change Period (Y+Rc), s	4.6	* 4.7	4.6	5.4	4.6	* 4.7	4.6	5.4				
Max Green Setting (Gmax), s	24.6	* 31	14.2	30.9	21.4	* 34	5.1	40.0				
Max Q Clear Time (g_c+I1), s	17.8	12.7	12.3	18.9	22.5	6.9	3.5	22.1				
Green Ext Time (p_c), s	0.2	2.6	0.0	3.2	0.0	1.4	0.0	4.1				
Intersection Summary												
HCM 6th Ctrl Delay	46.0											
HCM 6th LOS	D											
Notes												

Timings

S. Nichols Mixed-Use Development (JN 10878)

5: Strickland Av./Gunnerson St. & Riverside Dr. (SR-74)

05/24/2018



Lane Group	EBT	WBL	WBT	NBT	NBR	SBL	SBT	SBR
Lane Configurations	EB	WB	WB	EB	EB	SB	EB	EB
Traffic Volume (vph)	963	12	725	2	26	66	3	6
Future Volume (vph)	963	12	725	2	26	66	3	6
Turn Type	NA	Perm	NA	NA	Perm	Perm	NA	Perm
Protected Phases	4		8	2			6	
Permitted Phases		8			2	6		6
Detector Phase	4	8	8	2	2	6	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	24.5	23.4	23.4	22.6	22.6	23.4	23.4	23.4
Total Split (s)	93.0	93.0	93.0	27.0	27.0	27.0	27.0	27.0
Total Split (%)	77.5%	77.5%	77.5%	22.5%	22.5%	22.5%	22.5%	22.5%
Yellow Time (s)	4.4	4.4	4.4	3.6	3.6	4.4	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.4	5.4	5.4	4.6	4.6		5.4	5.4
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	Min	Min	Min	Min	Min
Act Effect Green (s)	40.0	40.0	40.0	12.6	12.6		11.8	11.8
Actuated g/C Ratio	0.63	0.63	0.63	0.20	0.20		0.19	0.19
v/c Ratio	0.85	0.08	0.68	0.01	0.08		0.28	0.02
Control Delay	16.7	5.3	10.4	28.0	12.8		30.6	2.2
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay	16.7	5.3	10.4	28.0	12.8		30.6	2.2
LOS	B	A	B	C	B		C	A
Approach Delay	16.7		10.4	13.9			28.4	
Approach LOS	B		B	B			C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 63.3

Natural Cycle: 75

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.85

Intersection Signal Delay: 14.5

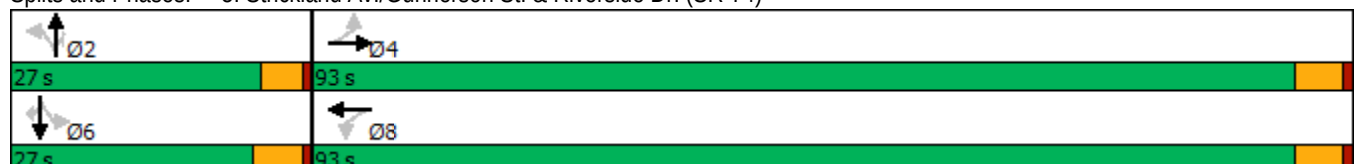
Intersection LOS: B

Intersection Capacity Utilization 80.4%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 5: Strickland Av./Gunnerson St. & Riverside Dr. (SR-74)



												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	963	3	12	725	49	0	2	26	66	3	6
Future Volume (veh/h)	0	963	3	12	725	49	0	2	26	66	3	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	993	3	12	747	51	0	2	0	68	3	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	127	1181	4	249	1097	75	0	329		363	13	
Arrive On Green	0.00	0.63	0.63	0.63	0.63	0.63	0.00	0.18	0.00	0.18	0.18	0.00
Sat Flow, veh/h	681	1864	6	565	1731	118	0	1870	1585	1357	76	1585
Grp Volume(v), veh/h	0	0	996	12	0	798	0	2	0	71	0	0
Grp Sat Flow(s),veh/h/ln	681	0	1869	565	0	1849	0	1870	1585	1434	0	1585
Q Serve(g_s), s	0.0	0.0	23.7	1.0	0.0	15.8	0.0	0.1	0.0	2.3	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	23.7	24.7	0.0	15.8	0.0	0.1	0.0	2.4	0.0	0.0
Prop In Lane	1.00		0.00	1.00		0.06	0.00		1.00	0.96		1.00
Lane Grp Cap(c), veh/h	127	0	1184	249	0	1172	0	329		377	0	
V/C Ratio(X)	0.00	0.00	0.84	0.05	0.00	0.68	0.00	0.01		0.19	0.00	
Avail Cap(c_a), veh/h	746	0	2884	763	0	2853	0	738		669	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	8.2	17.8	0.0	6.7	0.0	19.3	0.0	20.3	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	1.7	0.1	0.0	0.7	0.0	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	5.8	0.1	0.0	3.7	0.0	0.0	0.0	0.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	9.9	17.9	0.0	7.4	0.0	19.3	0.0	20.5	0.0	0.0
LnGrp LOS	A	A	A	B	A	A	A	B		C	A	
Approach Vol, veh/h		996			810			2	A		71	A
Approach Delay, s/veh		9.9			7.6			19.3			20.5	
Approach LOS		A			A			B			C	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		15.4		41.4		15.4		41.4				
Change Period (Y+Rc), s		* 5.4		5.4		5.4		5.4				
Max Green Setting (Gmax), s		* 22		87.6		21.6		87.6				
Max Q Clear Time (g_c+I1), s		2.1		25.7		4.4		26.7				
Green Ext Time (p_c), s		0.0		10.3		0.2		6.9				
Intersection Summary												
HCM 6th Ctrl Delay			9.3									
HCM 6th LOS			A									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												
Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.												

Timings
6: Collier Av. & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

05/24/2018

	→	↖	←	↗	↘
Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Configurations	↗	↖	↗	↖	↗
Traffic Volume (vph)	524	180	260	42	198
Future Volume (vph)	524	180	260	42	198
Turn Type	NA	Perm	NA	Prot	Perm
Protected Phases	4		8	2	
Permitted Phases		8			2
Detector Phase	4	8	8	2	2
Switch Phase					
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	26.8	15.8	15.8	16.2	16.2
Total Split (s)	86.0	86.0	86.0	34.0	34.0
Total Split (%)	71.7%	71.7%	71.7%	28.3%	28.3%
Yellow Time (s)	4.8	4.8	4.8	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.8	5.8	6.2	6.2
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	None	None	None	Min	Min
Act Efect Green (s)	20.8	20.8	20.8	10.4	10.4
Actuated g/C Ratio	0.48	0.48	0.48	0.24	0.24
v/c Ratio	0.72	0.81	0.34	0.11	0.42
Control Delay	13.9	36.2	7.7	16.8	6.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	13.9	36.2	7.7	16.8	6.2
LOS	B	D	A	B	A
Approach Delay	13.9		19.3	8.0	
Approach LOS	B		B	A	
Intersection Summary					
Cycle Length: 120					
Actuated Cycle Length: 43.5					
Natural Cycle: 55					
Control Type: Actuated-Uncoordinated					
Maximum v/c Ratio: 0.81					
Intersection Signal Delay: 14.7			Intersection LOS: B		
Intersection Capacity Utilization 62.9%			ICU Level of Service B		
Analysis Period (min) 15					

Splits and Phases: 6: Collier Av. & Nichols Rd.

↖ Ø2	→ Ø4
34 s	86 s
	← Ø8
	86 s

HCM 6th Signalized Intersection Summary
6: Collier Av. & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

05/24/2018

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗		↖	↗	↖	↗
Traffic Volume (veh/h)	524	36	180	260	42	198
Future Volume (veh/h)	524	36	180	260	42	198
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	602	41	207	299	48	228
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	986	67	409	1066	348	310
Arrive On Green	0.57	0.57	0.57	0.57	0.20	0.20
Sat Flow, veh/h	1731	118	787	1870	1781	1585
Grp Volume(v), veh/h	0	643	207	299	48	228
Grp Sat Flow(s),veh/h/ln	0	1849	787	1870	1781	1585
Q Serve(g_s), s	0.0	11.7	12.0	4.2	1.1	6.9
Cycle Q Clear(g_c), s	0.0	11.7	23.8	4.2	1.1	6.9
Prop In Lane		0.06	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	0	1054	409	1066	348	310
V/C Ratio(X)	0.00	0.61	0.51	0.28	0.14	0.74
Avail Cap(c_a), veh/h	0	2900	1194	2934	968	862
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	7.3	15.1	5.6	17.0	19.3
Incr Delay (d2), s/veh	0.0	0.6	1.0	0.1	0.2	3.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.7	1.7	0.9	0.4	2.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	7.8	16.1	5.8	17.2	22.7
LnGrp LOS	A	A	B	A	B	C
Approach Vol, veh/h	643			506	276	
Approach Delay, s/veh	7.8			10.0	21.8	
Approach LOS	A			A	C	
Timer - Assigned Phs		2		4		8
Phs Duration (G+Y+Rc), s		16.2		34.9		34.9
Change Period (Y+Rc), s		6.2		5.8		5.8
Max Green Setting (Gmax), s		27.8		80.2		80.2
Max Q Clear Time (g_c+l1), s		8.9		13.7		25.8
Green Ext Time (p_c), s		0.8		4.5		3.4
Intersection Summary						
HCM 6th Ctrl Delay			11.3			
HCM 6th LOS			B			

Timings
9: I-15 SB Ramps & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

05/24/2018

	→	↘	↙	←	↘	↓
Lane Group	EBT	EBR	WBL	WBT	SBL	SBT
Lane Configurations	↑	↑	↘	↑	↘	↑
Traffic Volume (vph)	422	301	130	370	257	7
Future Volume (vph)	422	301	130	370	257	7
Turn Type	NA	Perm	Prot	NA	Perm	NA
Protected Phases	4		3	8		6
Permitted Phases		4			6	
Detector Phase	4	4	3	8	6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0	10.0
Minimum Split (s)	22.8	22.8	9.6	22.8	26.8	26.8
Total Split (s)	52.0	52.0	27.0	79.0	41.0	41.0
Total Split (%)	43.3%	43.3%	22.5%	65.8%	34.2%	34.2%
Yellow Time (s)	4.8	4.8	3.6	4.8	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.8	4.6	5.8	5.8	5.8
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Recall Mode	None	None	None	None	Min	Min
Act Effect Green (s)	35.5	35.5	16.7	57.1	25.2	25.2
Actuated g/C Ratio	0.37	0.37	0.18	0.60	0.27	0.27
v/c Ratio	0.81	0.49	0.68	0.44	0.77	0.23
Control Delay	38.9	5.3	54.8	12.1	47.1	9.7
Queue Delay	0.7	0.1	0.0	0.1	0.0	0.0
Total Delay	39.6	5.4	54.8	12.3	47.1	9.7
LOS	D	A	D	B	D	A
Approach Delay	25.4			23.3		38.5
Approach LOS	C			C		D

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 94.7

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 27.5

Intersection LOS: C

Intersection Capacity Utilization 57.2%

ICU Level of Service B

Analysis Period (min) 15

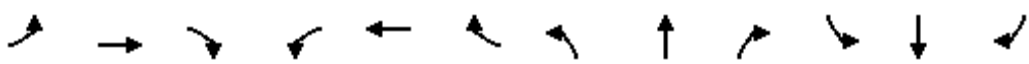
Splits and Phases: 9: I-15 SB Ramps & Nichols Rd.



HCM 6th Signalized Intersection Summary
9: I-15 SB Ramps & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

05/24/2018

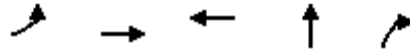
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↶	↶	↑					↶	↶	
Traffic Volume (veh/h)	0	422	301	130	370	0	0	0	0	257	7	70
Future Volume (veh/h)	0	422	301	130	370	0	0	0	0	257	7	70
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1856	1856	1530	1856	0				1781	907	1781
Adj Flow Rate, veh/h	0	563	401	173	493	0				343	9	93
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75				0.75	0.75	0.75
Percent Heavy Veh, %	0	3	3	25	3	0				8	67	8
Cap, veh/h	0	696	590	210	1089	0				413	17	173
Arrive On Green	0.00	0.38	0.38	0.14	0.59	0.00				0.24	0.24	0.24
Sat Flow, veh/h	0	1856	1572	1457	1856	0				1697	69	710
Grp Volume(v), veh/h	0	563	401	173	493	0				343	0	102
Grp Sat Flow(s),veh/h/ln	0	1856	1572	1457	1856	0				1697	0	779
Q Serve(g_s), s	0.0	18.6	14.6	7.9	10.2	0.0				13.1	0.0	7.8
Cycle Q Clear(g_c), s	0.0	18.6	14.6	7.9	10.2	0.0				13.1	0.0	7.8
Prop In Lane	0.00		1.00	1.00		0.00				1.00		0.91
Lane Grp Cap(c), veh/h	0	696	590	210	1089	0				413	0	190
V/C Ratio(X)	0.00	0.81	0.68	0.82	0.45	0.00				0.83	0.00	0.54
Avail Cap(c_a), veh/h	0	1255	1064	478	1989	0				874	0	402
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	19.1	17.9	28.4	7.9	0.0				24.5	0.0	22.5
Incr Delay (d2), s/veh	0.0	2.3	1.4	7.9	0.3	0.0				4.4	0.0	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	7.2	4.7	2.9	3.0	0.0				5.1	0.0	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	21.4	19.3	36.3	8.2	0.0				28.8	0.0	24.8
LnGrp LOS	A	C	B	D	A	A				C	A	C
Approach Vol, veh/h		964			666						445	
Approach Delay, s/veh		20.5			15.5						27.9	
Approach LOS		C			B						C	
Timer - Assigned Phs			3	4		6		8				
Phs Duration (G+Y+Rc), s			14.4	31.4		22.4		45.9				
Change Period (Y+Rc), s			4.6	5.8		5.8		5.8				
Max Green Setting (Gmax), s			22.4	46.2		35.2		73.2				
Max Q Clear Time (g_c+I1), s			9.9	20.6		15.1		12.2				
Green Ext Time (p_c), s			0.3	5.0		1.5		3.1				
Intersection Summary												
HCM 6th Ctrl Delay			20.5									
HCM 6th LOS			C									

Timings

S. Nichols Mixed-Use Development (JN 10878)

10: I-15 NB Ramps & Nichols Rd.

05/24/2018

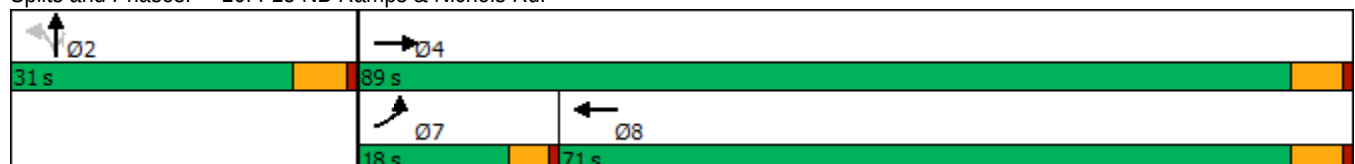


Lane Group	EBL	EBT	WBT	NBT	NBR
Lane Configurations	←	→	←	→	←
Traffic Volume (vph)	83	596	343	3	200
Future Volume (vph)	83	596	343	3	200
Turn Type	Prot	NA	NA	NA	Perm
Protected Phases	7	4	8	2	
Permitted Phases					2
Detector Phase	7	4	8	2	2
Switch Phase					
Minimum Initial (s)	5.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	22.8	22.8	22.8	22.8
Total Split (s)	18.0	89.0	71.0	31.0	31.0
Total Split (%)	15.0%	74.2%	59.2%	25.8%	25.8%
Yellow Time (s)	3.6	4.8	4.8	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	5.8	5.8	5.8
Lead/Lag	Lead		Lag		
Lead-Lag Optimize?	Yes		Yes		
Recall Mode	None	None	None	Min	Min
Act Effect Green (s)	12.1	72.0	55.1	20.5	20.5
Actuated g/C Ratio	0.12	0.69	0.53	0.20	0.20
v/c Ratio	0.68	0.77	0.92	0.76	0.75
Control Delay	66.3	16.4	39.5	57.4	30.6
Queue Delay	0.0	1.3	0.0	0.0	0.0
Total Delay	66.3	17.8	39.5	57.4	30.6
LOS	E	B	D	E	C
Approach Delay		23.7	39.5	42.6	
Approach LOS		C	D	D	

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 104.6
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 33.3
Intersection Capacity Utilization 57.2%
Analysis Period (min) 15
Intersection LOS: C
ICU Level of Service B

Splits and Phases: 10: I-15 NB Ramps & Nichols Rd.



HCM 6th Signalized Intersection Summary
10: I-15 NB Ramps & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

05/24/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	83	596	0	0	343	164	158	3	200	0	0	0
Future Volume (veh/h)	83	596	0	0	343	164	158	3	200	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1826	1826	0	0	1737	1737	1811	1900	1811			
Adj Flow Rate, veh/h	134	961	0	0	553	265	255	5	323			
Peak Hour Factor	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62			
Percent Heavy Veh, %	5	5	0	0	11	11	6	0	6			
Cap, veh/h	162	1212	0	0	586	281	409	8	345			
Arrive On Green	0.09	0.66	0.00	0.00	0.53	0.53	0.23	0.23	0.23			
Sat Flow, veh/h	1739	1826	0	0	1110	532	1776	35	1502			
Grp Volume(v), veh/h	134	961	0	0	0	818	260	0	323			
Grp Sat Flow(s),veh/h/ln	1739	1826	0	0	0	1641	1811	0	1502			
Q Serve(g_s), s	8.3	40.7	0.0	0.0	0.0	51.1	14.1	0.0	23.0			
Cycle Q Clear(g_c), s	8.3	40.7	0.0	0.0	0.0	51.1	14.1	0.0	23.0			
Prop In Lane	1.00		0.00	0.00		0.32	0.98		1.00			
Lane Grp Cap(c), veh/h	162	1212	0	0	0	867	417	0	345			
V/C Ratio(X)	0.83	0.79	0.00	0.00	0.00	0.94	0.62	0.00	0.94			
Avail Cap(c_a), veh/h	214	1394	0	0	0	982	419	0	347			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	0.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	48.5	13.0	0.0	0.0	0.0	24.2	37.7	0.0	41.2			
Incr Delay (d2), s/veh	17.9	2.8	0.0	0.0	0.0	15.8	2.9	0.0	32.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	4.3	14.4	0.0	0.0	0.0	21.3	6.3	0.0	11.2			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.4	15.9	0.0	0.0	0.0	40.0	40.6	0.0	73.2			
LnGrp LOS	E	B	A	A	A	D	D	A	E			
Approach Vol, veh/h	1095			818			583					
Approach Delay, s/veh	22.0			40.0			58.6					
Approach LOS	C			D			E					
Timer - Assigned Phs	2			4			7			8		
Phs Duration (G+Y+Rc), s	30.9			78.1			14.8			63.4		
Change Period (Y+Rc), s	5.8			5.8			4.6			5.8		
Max Green Setting (Gmax), s	25.2			83.2			13.4			65.2		
Max Q Clear Time (g_c+l1), s	25.0			42.7			10.3			53.1		
Green Ext Time (p_c), s	0.1			8.6			0.1			4.5		
Intersection Summary												
HCM 6th Ctrl Delay	36.5											
HCM 6th LOS	D											

Intersection

Intersection Delay, s/veh 21.3

Intersection LOS F

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	187	40	265	73	30	514
Future Vol, veh/h	187	40	265	73	30	514
Peak Hour Factor	0.66	0.66	0.66	0.66	0.66	0.66
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	283	61	402	111	45	779
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left NB			WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right SB		WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	24.2	38.9	213.1
HCM LOS	C	E	F

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	82%	6%
Vol Thru, %	78%	0%	94%
Vol Right, %	22%	18%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	338	227	544
LT Vol	0	187	30
Through Vol	265	0	514
RT Vol	73	40	0
Lane Flow Rate	512	344	824
Geometry Grp	1	1	1
Degree of Util (X)	0.867	0.66	1.41
Departure Headway (Hd)	6.674	7.608	6.158
Convergence, Y/N	Yes	Yes	Yes
Cap	548	478	593
Service Time	4.674	5.608	4.214
HCM Lane V/C Ratio	0.934	0.72	1.39
HCM Control Delay	38.9	24.2	213.1
HCM Lane LOS	E	C	F
HCM 95th-tile Q	9.5	4.7	37.8

Intersection	
Intersection Delay, s/veh	24.5
Intersection LOS	C

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	187	40	265	73	30	514
Future Vol, veh/h	187	40	265	73	30	514
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	203	43	288	79	33	559
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	14.4	15.4	34.3
HCM LOS	B	C	D

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	82%	6%
Vol Thru, %	78%	0%	94%
Vol Right, %	22%	18%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	338	227	544
LT Vol	0	187	30
Through Vol	265	0	514
RT Vol	73	40	0
Lane Flow Rate	367	247	591
Geometry Grp	1	1	1
Degree of Util (X)	0.561	0.439	0.876
Departure Headway (Hd)	5.5	6.4	5.332
Convergence, Y/N	Yes	Yes	Yes
Cap	654	560	680
Service Time	3.562	4.466	3.384
HCM Lane V/C Ratio	0.561	0.441	0.869
HCM Control Delay	15.4	14.4	34.3
HCM Lane LOS	C	B	D
HCM 95th-tile Q	3.5	2.2	10.5

Timings
18: El Toro Rd. & Carmela Ct.

S. Nichols Mixed-Use Development (JN 10878)

05/24/2018

									
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	145	0	7	0	187	176	9	435	257
Future Volume (vph)	145	0	7	0	187	176	9	435	257
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm
Protected Phases		4		8		2		6	
Permitted Phases	4		8		2		6		6
Detector Phase	4	4	8	8	2	2	6	6	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6
Total Split (s)	54.0	54.0	54.0	54.0	66.0	66.0	66.0	66.0	66.0
Total Split (%)	45.0%	45.0%	45.0%	45.0%	55.0%	55.0%	55.0%	55.0%	55.0%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)		4.6		4.6	4.6	4.6		4.6	4.6
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	Min	Min	Min	Min	Min
Act Effct Green (s)		47.6		47.6	61.5	61.5		61.5	61.5
Actuated g/C Ratio		0.40		0.40	0.52	0.52		0.52	0.52
v/c Ratio		0.97		0.06	1.19	0.28		0.67	0.42
Control Delay		57.8		10.7	148.5	17.2		25.7	10.4
Queue Delay		0.0		0.0	0.0	0.0		0.0	0.0
Total Delay		57.8		10.7	148.5	17.2		25.7	10.4
LOS		E		B	F	B		C	B
Approach Delay		57.8		10.7		83.6		20.1	
Approach LOS		E		B		F		C	
Intersection Summary									
Cycle Length: 120									
Actuated Cycle Length: 118.3									
Natural Cycle: 55									
Control Type: Actuated-Uncoordinated									
Maximum v/c Ratio: 1.19									
Intersection Signal Delay: 46.1					Intersection LOS: D				
Intersection Capacity Utilization 79.6%					ICU Level of Service D				
Analysis Period (min) 15									

Splits and Phases: 18: El Toro Rd. & Carmela Ct.

			
Ø2		Ø4	
66 s		54 s	
			
Ø6		Ø8	
66 s		54 s	

HCM 6th Signalized Intersection Summary
18: El Toro Rd. & Carmela Ct.

S. Nichols Mixed-Use Development (JN 10878)

05/24/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	145	0	296	7	0	17	187	176	7	9	435	257
Future Volume (veh/h)	145	0	296	7	0	17	187	176	7	9	435	257
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		1.00	1.00		0.95	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	210	0	429	10	0	25	271	255	10	13	630	372
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	241	3	417	164	19	361	204	914	36	39	944	810
Arrive On Green	0.41	0.00	0.41	0.41	0.00	0.41	0.51	0.51	0.51	0.51	0.51	0.51
Sat Flow, veh/h	489	7	1014	305	46	877	562	1787	70	16	1844	1584
Grp Volume(v), veh/h	639	0	0	35	0	0	271	0	265	643	0	372
Grp Sat Flow(s),veh/h/ln	1510	0	0	1228	0	0	562	0	1857	1860	0	1584
Q Serve(g_s), s	47.8	0.0	0.0	0.0	0.0	0.0	30.7	0.0	9.8	0.0	0.0	18.0
Cycle Q Clear(g_c), s	49.4	0.0	0.0	1.6	0.0	0.0	61.4	0.0	9.8	30.7	0.0	18.0
Prop In Lane	0.33		0.67	0.29		0.71	1.00		0.04	0.02		1.00
Lane Grp Cap(c), veh/h	661	0	0	544	0	0	204	0	950	982	0	810
V/C Ratio(X)	0.97	0.00	0.00	0.06	0.00	0.00	1.33	0.00	0.28	0.65	0.00	0.46
Avail Cap(c_a), veh/h	661	0	0	544	0	0	204	0	950	982	0	810
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	35.8	0.0	0.0	21.2	0.0	0.0	49.2	0.0	16.7	21.8	0.0	18.7
Incr Delay (d2), s/veh	26.7	0.0	0.0	0.0	0.0	0.0	177.9	0.0	0.2	1.6	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	23.7	0.0	0.0	0.6	0.0	0.0	16.3	0.0	4.2	13.8	0.0	6.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.6	0.0	0.0	21.3	0.0	0.0	227.1	0.0	16.8	23.4	0.0	19.1
LnGrp LOS	E	A	A	C	A	A	F	A	B	C	A	B
Approach Vol, veh/h	639		35				536				1015	
Approach Delay, s/veh	62.6		21.3				123.1				21.8	
Approach LOS	E		C				F				C	
Timer - Assigned Phs	2		4		6		8					
Phs Duration (G+Y+Rc), s	66.0		54.0		66.0		54.0					
Change Period (Y+Rc), s	4.6		4.6		4.6		4.6					
Max Green Setting (Gmax), s	61.4		49.4		61.4		49.4					
Max Q Clear Time (g_c+I1), s	63.4		51.4		32.7		3.6					
Green Ext Time (p_c), s	0.0		0.0		6.9		0.2					
Intersection Summary												
HCM 6th Ctrl Delay	57.9											
HCM 6th LOS	E											

Timings
18: El Toro Rd. & Carmela Ct.

S. Nichols Mixed-Use Development (JN 10878)

05/24/2018



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations		↔		↔	↔	↔		↔	↔
Traffic Volume (vph)	145	0	7	0	187	176	9	435	257
Future Volume (vph)	145	0	7	0	187	176	9	435	257
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm
Protected Phases		4		8		2		6	
Permitted Phases	4		8		2		6		6
Detector Phase	4	4	8	8	2	2	6	6	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6
Total Split (s)	54.0	54.0	54.0	54.0	66.0	66.0	66.0	66.0	66.0
Total Split (%)	45.0%	45.0%	45.0%	45.0%	55.0%	55.0%	55.0%	55.0%	55.0%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)		4.6		4.6	4.6	4.6		4.6	4.6
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	Min	Min	Min	Min	Min
Act Effect Green (s)		25.6		25.6	29.7	29.7		29.7	29.7
Actuated g/C Ratio		0.39		0.39	0.45	0.45		0.45	0.45
v/c Ratio		0.75		0.05	0.69	0.24		0.58	0.35
Control Delay		23.8		10.3	30.5	13.1		17.8	6.6
Queue Delay		0.0		0.0	0.0	0.0		0.0	0.0
Total Delay		23.8		10.3	30.5	13.1		17.8	6.6
LOS		C		B	C	B		B	A
Approach Delay		23.8		10.3		21.9		13.7	
Approach LOS		C		B		C		B	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 66.3

Natural Cycle: 50

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.75

Intersection Signal Delay: 18.5

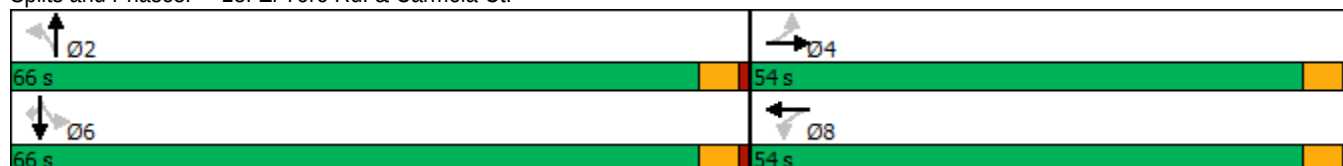
Intersection LOS: B

Intersection Capacity Utilization 79.6%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 18: El Toro Rd. & Carmela Ct.



HCM 6th Signalized Intersection Summary
18: El Toro Rd. & Carmela Ct.

S. Nichols Mixed-Use Development (JN 10878)

05/24/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	145	0	296	7	0	17	187	176	7	9	435	257
Future Volume (veh/h)	145	0	296	7	0	17	187	176	7	9	435	257
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		1.00	1.00		0.95	1.00		0.99	0.99		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	158	0	322	8	0	18	203	191	8	10	473	279
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	230	19	376	185	30	340	335	902	38	56	938	802
Arrive On Green	0.37	0.00	0.37	0.37	0.00	0.37	0.51	0.51	0.51	0.51	0.51	0.51
Sat Flow, veh/h	449	50	1018	329	81	922	711	1781	75	11	1852	1583
Grp Volume(v), veh/h	480	0	0	26	0	0	203	0	199	483	0	279
Grp Sat Flow(s),veh/h/ln	1517	0	0	1331	0	0	711	0	1856	1864	0	1583
Q Serve(g_s), s	19.0	0.0	0.0	0.0	0.0	0.0	19.7	0.0	4.4	0.0	0.0	7.8
Cycle Q Clear(g_c), s	21.5	0.0	0.0	0.8	0.0	0.0	32.3	0.0	4.4	12.7	0.0	7.8
Prop In Lane	0.33		0.67	0.31		0.69	1.00		0.04	0.02		1.00
Lane Grp Cap(c), veh/h	625	0	0	555	0	0	335	0	940	994	0	802
V/C Ratio(X)	0.77	0.00	0.00	0.05	0.00	0.00	0.61	0.00	0.21	0.49	0.00	0.35
Avail Cap(c_a), veh/h	1075	0	0	954	0	0	566	0	1542	1593	0	1316
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.4	0.0	0.0	15.0	0.0	0.0	22.9	0.0	10.1	12.1	0.0	10.9
Incr Delay (d2), s/veh	2.0	0.0	0.0	0.0	0.0	0.0	1.8	0.0	0.1	0.4	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.6	0.0	0.0	0.3	0.0	0.0	3.3	0.0	1.7	5.0	0.0	2.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.4	0.0	0.0	15.0	0.0	0.0	24.6	0.0	10.2	12.5	0.0	11.2
LnGrp LOS	C	A	A	B	A	A	C	A	B	B	A	B
Approach Vol, veh/h	480			26			402			762		
Approach Delay, s/veh	23.4			15.0			17.5			12.0		
Approach LOS	C			B			B			B		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	42.0			31.9			42.0			31.9		
Change Period (Y+Rc), s	4.6			4.6			4.6			4.6		
Max Green Setting (Gmax), s	61.4			49.4			61.4			49.4		
Max Q Clear Time (g_c+l1), s	34.3			23.5			14.7			2.8		
Green Ext Time (p_c), s	3.1			3.8			4.9			0.1		
Intersection Summary												
HCM 6th Ctrl Delay	16.7											
HCM 6th LOS	B											

Timings
4: Lakeshore Dr. & Riverside Dr. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

05/24/2018

										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	33	550	296	138	679	218	283	305	347	17
Future Volume (vph)	33	550	296	138	679	218	283	305	347	17
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA	Perm
Protected Phases	7	4		3	8	5	2	1	6	
Permitted Phases			4							6
Detector Phase	7	4	4	3	8	5	2	1	6	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	32.4	32.4	9.6	33.4	9.6	34.7	9.6	32.7	32.7
Total Split (s)	9.7	36.3	36.3	18.8	45.4	26.0	35.7	29.2	38.9	38.9
Total Split (%)	8.1%	30.3%	30.3%	15.7%	37.8%	21.7%	29.8%	24.3%	32.4%	32.4%
Yellow Time (s)	3.6	4.4	4.4	3.6	4.4	3.6	3.7	3.6	3.7	3.7
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.4	5.4	4.6	5.4	4.6	4.7	4.6	4.7	4.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	None	Max	Max
Act Effect Green (s)	5.1	28.5	28.5	12.8	40.3	18.9	31.1	24.0	36.2	36.2
Actuated g/C Ratio	0.04	0.25	0.25	0.11	0.35	0.16	0.27	0.21	0.31	0.31
v/c Ratio	0.47	0.71	0.54	0.79	0.94	0.85	0.54	0.94	0.35	0.03
Control Delay	75.9	45.1	9.2	78.9	50.4	73.3	30.5	79.8	33.1	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	75.9	45.1	9.2	78.9	50.4	73.3	30.5	79.8	33.1	0.1
LOS	E	D	A	E	D	E	C	E	C	A
Approach Delay		34.1			53.8		44.1		53.6	
Approach LOS		C			D		D		D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 115.7

Natural Cycle: 110

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.94

Intersection Signal Delay: 46.7

Intersection LOS: D

Intersection Capacity Utilization 91.9%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 4: Lakeshore Dr. & Riverside Dr. (SR-74)

			
Ø1	Ø2	Ø3	Ø4
29.2 s	35.7 s	18.8 s	36.3 s
			
Ø5	Ø6	Ø7	Ø8
26 s	38.9 s	9.7 s	45.4 s

HCM 6th Signalized Intersection Summary 4: Lakeshore Dr. & Riverside Dr. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

05/24/2018

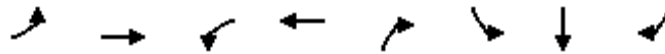
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	33	550	296	138	679	343	218	283	183	305	347	17
Future Volume (veh/h)	33	550	296	138	679	343	218	283	183	305	347	17
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	37	618	270	155	763	6	245	318	141	343	390	16
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	55	779	347	184	1054	8	276	696	302	372	1217	543
Arrive On Green	0.03	0.22	0.22	0.10	0.29	0.29	0.15	0.29	0.29	0.21	0.34	0.34
Sat Flow, veh/h	1781	3554	1581	1781	3614	28	1781	2409	1046	1781	3554	1585
Grp Volume(v), veh/h	37	618	270	155	375	394	245	233	226	343	390	16
Grp Sat Flow(s),veh/h/ln	1781	1777	1581	1781	1777	1865	1781	1777	1678	1781	1777	1585
Q Serve(g_s), s	2.2	17.6	17.3	9.2	20.4	20.4	14.5	11.5	11.9	20.3	8.7	0.7
Cycle Q Clear(g_c), s	2.2	17.6	17.3	9.2	20.4	20.4	14.5	11.5	11.9	20.3	8.7	0.7
Prop In Lane	1.00		1.00	1.00		0.02	1.00		0.62	1.00		1.00
Lane Grp Cap(c), veh/h	55	779	347	184	518	544	276	513	484	372	1217	543
V/C Ratio(X)	0.67	0.79	0.78	0.84	0.72	0.72	0.89	0.45	0.47	0.92	0.32	0.03
Avail Cap(c_a), veh/h	85	1023	455	236	662	695	355	513	484	408	1217	543
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.5	39.6	39.5	47.3	34.1	34.1	44.5	31.3	31.4	41.6	26.1	23.4
Incr Delay (d2), s/veh	5.1	3.2	6.2	15.6	2.9	2.7	16.7	2.9	3.2	24.1	0.7	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	7.8	7.1	4.8	8.9	9.3	7.6	5.3	5.2	11.3	3.8	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.5	42.9	45.7	62.9	37.0	36.9	61.2	34.1	34.6	65.7	26.8	23.5
LnGrp LOS	E	D	D	E	D	D	E	C	C	E	C	C
Approach Vol, veh/h		925			924			704			749	
Approach Delay, s/veh		44.2			41.3			43.7			44.5	
Approach LOS		D			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	27.0	35.7	15.7	28.9	21.2	41.5	7.9	36.7				
Change Period (Y+Rc), s	4.6	* 4.7	4.6	5.4	4.6	* 4.7	4.6	5.4				
Max Green Setting (Gmax), s	24.6	* 31	14.2	30.9	21.4	* 34	5.1	40.0				
Max Q Clear Time (g_c+I1), s	22.3	13.9	11.2	19.6	16.5	10.7	4.2	22.4				
Green Ext Time (p_c), s	0.2	2.6	0.1	3.7	0.2	2.6	0.0	4.2				
Intersection Summary												
HCM 6th Ctrl Delay			43.4									
HCM 6th LOS			D									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Timings

S. Nichols Mixed-Use Development (JN 10878)

5: Strickland Av./Gunnerson St. & Riverside Dr. (SR-74)

05/24/2018



Lane Group	EBL	EBT	WBL	WBT	NBR	SBL	SBT	SBR
Lane Configurations								
Traffic Volume (vph)	2	966	16	987	16	41	1	2
Future Volume (vph)	2	966	16	987	16	41	1	2
Turn Type	Perm	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		8			6	
Permitted Phases	4		8		2	6		6
Detector Phase	4	4	8	8	2	6	6	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	24.5	24.5	23.4	23.4	22.6	23.4	23.4	23.4
Total Split (s)	93.0	93.0	93.0	93.0	27.0	27.0	27.0	27.0
Total Split (%)	77.5%	77.5%	77.5%	77.5%	22.5%	22.5%	22.5%	22.5%
Yellow Time (s)	4.4	4.4	4.4	4.4	3.6	4.4	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.4	5.4	5.4	5.4	4.6		5.4	5.4
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	Min	Min	Min	Min
Act Effect Green (s)	55.8	55.8	55.8	55.8	12.5		11.7	11.7
Actuated g/C Ratio	0.71	0.71	0.71	0.71	0.16		0.15	0.15
v/c Ratio	0.02	0.76	0.07	0.90	0.04		0.21	0.01
Control Delay	3.5	11.4	3.9	19.1	0.2		39.5	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay	3.5	11.4	3.9	19.1	0.2		39.5	0.0
LOS	A	B	A	B	A		D	A
Approach Delay		11.3		18.9			37.7	
Approach LOS		B		B			D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 79

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 15.8

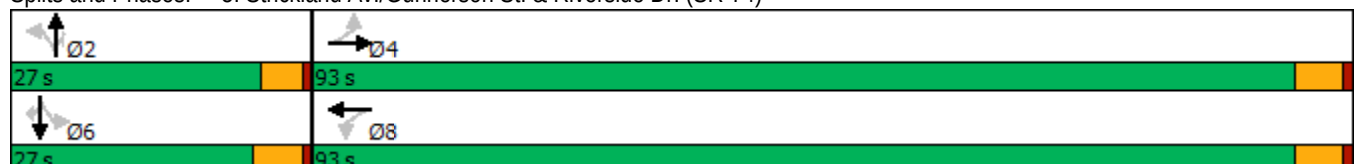
Intersection LOS: B

Intersection Capacity Utilization 80.6%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 5: Strickland Av./Gunnerson St. & Riverside Dr. (SR-74)



												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	966	5	16	987	139	0	0	16	41	1	2
Future Volume (veh/h)	2	966	5	16	987	139	0	0	16	41	1	2
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	2	996	5	16	1018	143	0	0	0	42	1	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	208	1336	7	319	1153	162	0	253		284	6	
Arrive On Green	0.72	0.72	0.72	0.72	0.72	0.72	0.00	0.00	0.00	0.14	0.14	0.00
Sat Flow, veh/h	484	1859	9	563	1604	225	0	1870	1585	1386	42	1585
Grp Volume(v), veh/h	2	0	1001	16	0	1161	0	0	0	43	0	0
Grp Sat Flow(s),veh/h/ln	484	0	1869	563	0	1830	0	1870	1585	1428	0	1585
Q Serve(g_s), s	0.2	0.0	24.0	1.3	0.0	36.1	0.0	0.0	0.0	1.9	0.0	0.0
Cycle Q Clear(g_c), s	36.3	0.0	24.0	25.3	0.0	36.1	0.0	0.0	0.0	2.0	0.0	0.0
Prop In Lane	1.00		0.00	1.00		0.12	0.00		1.00	0.98		1.00
Lane Grp Cap(c), veh/h	208	0	1342	319	0	1314	0	253		290	0	
V/C Ratio(X)	0.01	0.00	0.75	0.05	0.00	0.88	0.00	0.00		0.15	0.00	
Avail Cap(c_a), veh/h	435	0	2217	582	0	2171	0	567		514	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	22.0	0.0	6.3	14.0	0.0	8.0	0.0	0.0	0.0	28.4	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.8	0.1	0.0	2.7	0.0	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	5.6	0.2	0.0	8.8	0.0	0.0	0.0	0.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.0	0.0	7.2	14.0	0.0	10.7	0.0	0.0	0.0	28.7	0.0	0.0
LnGrp LOS	C	A	A	B	A	B	A	A		C	A	
Approach Vol, veh/h	1003			1177			0		A		43	
Approach Delay, s/veh	7.2			10.7			0.0				28.7	
Approach LOS	A			B							C	
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	15.4			58.4			15.4			58.4		
Change Period (Y+Rc), s	* 5.4			5.4			5.4			5.4		
Max Green Setting (Gmax), s	* 22			87.6			21.6			87.6		
Max Q Clear Time (g_c+I1), s	0.0			38.3			4.0			38.1		
Green Ext Time (p_c), s	0.0			10.2			0.1			14.9		

Intersection Summary

HCM 6th Ctrl Delay 9.5

HCM 6th LOS A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Timings
6: Collier Av. & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

05/24/2018

	→	↖	←	↗	↘
Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Configurations	↗	↖	↗	↖	↗
Traffic Volume (vph)	262	317	327	88	361
Future Volume (vph)	262	317	327	88	361
Turn Type	NA	Perm	NA	Prot	Perm
Protected Phases	4		8	2	
Permitted Phases		8			2
Detector Phase	4	8	8	2	2
Switch Phase					
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	26.8	15.8	15.8	16.2	16.2
Total Split (s)	86.0	86.0	86.0	34.0	34.0
Total Split (%)	71.7%	71.7%	71.7%	28.3%	28.3%
Yellow Time (s)	4.8	4.8	4.8	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.8	5.8	6.2	6.2
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	None	None	None	Min	Min
Act Efect Green (s)	24.6	24.6	24.6	11.3	11.3
Actuated g/C Ratio	0.51	0.51	0.51	0.23	0.23
v/c Ratio	0.40	0.72	0.40	0.25	0.61
Control Delay	7.7	18.0	8.2	20.8	7.3
Queue Delay	0.0	0.2	0.0	0.0	0.0
Total Delay	7.7	18.2	8.2	20.8	7.3
LOS	A	B	A	C	A
Approach Delay	7.7		13.1	9.9	
Approach LOS	A		B	A	
Intersection Summary					
Cycle Length: 120					
Actuated Cycle Length: 48.7					
Natural Cycle: 60					
Control Type: Actuated-Uncoordinated					
Maximum v/c Ratio: 0.72					
Intersection Signal Delay: 10.9			Intersection LOS: B		
Intersection Capacity Utilization 58.2%			ICU Level of Service B		
Analysis Period (min) 15					

Splits and Phases: 6: Collier Av. & Nichols Rd.



HCM 6th Signalized Intersection Summary
6: Collier Av. & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

05/24/2018

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗		↖	↗	↖	↗
Traffic Volume (veh/h)	262	61	317	327	88	361
Future Volume (veh/h)	262	61	317	327	88	361
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	301	70	364	376	101	415
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	787	183	523	1003	525	467
Arrive On Green	0.54	0.54	0.54	0.54	0.29	0.29
Sat Flow, veh/h	1468	341	1011	1870	1781	1585
Grp Volume(v), veh/h	0	371	364	376	101	415
Grp Sat Flow(s),veh/h/ln	0	1809	1011	1870	1781	1585
Q Serve(g_s), s	0.0	8.5	23.3	8.3	3.0	17.8
Cycle Q Clear(g_c), s	0.0	8.5	31.8	8.3	3.0	17.8
Prop In Lane		0.19	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	0	970	523	1003	525	467
V/C Ratio(X)	0.00	0.38	0.70	0.37	0.19	0.89
Avail Cap(c_a), veh/h	0	2043	1122	2112	697	620
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	9.6	18.9	9.6	18.7	23.9
Incr Delay (d2), s/veh	0.0	0.2	1.7	0.2	0.2	12.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.7	4.8	2.7	1.1	7.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	9.8	20.6	9.8	18.9	35.9
LnGrp LOS	A	A	C	A	B	D
Approach Vol, veh/h	371			740	516	
Approach Delay, s/veh	9.8			15.1	32.6	
Approach LOS	A			B	C	
Timer - Assigned Phs	2		4		8	
Phs Duration (G+Y+Rc), s	27.1		43.9		43.9	
Change Period (Y+Rc), s	6.2		5.8		5.8	
Max Green Setting (Gmax), s	27.8		80.2		80.2	
Max Q Clear Time (g_c+l1), s	19.8		10.5		33.8	
Green Ext Time (p_c), s	1.2		2.3		4.3	
Intersection Summary						
HCM 6th Ctrl Delay			19.4			
HCM 6th LOS			B			

Timings
9: I-15 SB Ramps & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

05/24/2018

	→	↘	↙	←	↘	↓
Lane Group	EBT	EBR	WBL	WBT	SBL	SBT
Lane Configurations	↑	↑	↙	↑	↘	↑
Traffic Volume (vph)	395	302	87	496	155	2
Future Volume (vph)	395	302	87	496	155	2
Turn Type	NA	Perm	Prot	NA	Perm	NA
Protected Phases	4		3	8		6
Permitted Phases		4			6	
Detector Phase	4	4	3	8	6	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0	10.0
Minimum Split (s)	22.8	22.8	9.6	22.8	26.8	26.8
Total Split (s)	52.0	52.0	27.0	79.0	41.0	41.0
Total Split (%)	43.3%	43.3%	22.5%	65.8%	34.2%	34.2%
Yellow Time (s)	4.8	4.8	3.6	4.8	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.8	4.6	5.8	5.8	5.8
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Recall Mode	None	None	None	None	Min	Min
Act Effect Green (s)	29.6	29.6	12.6	42.9	16.8	16.8
Actuated g/C Ratio	0.41	0.41	0.17	0.59	0.23	0.23
v/c Ratio	0.70	0.46	0.47	0.61	0.54	0.42
Control Delay	25.9	3.9	39.6	11.7	35.1	8.2
Queue Delay	0.1	0.0	0.0	0.1	0.0	0.0
Total Delay	26.0	3.9	39.6	11.8	35.1	8.2
LOS	C	A	D	B	D	A
Approach Delay	16.4			15.9		21.8
Approach LOS	B			B		C

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 72.8

Natural Cycle: 70

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.70

Intersection Signal Delay: 17.3

Intersection LOS: B

Intersection Capacity Utilization 59.8%

ICU Level of Service B

Analysis Period (min) 15

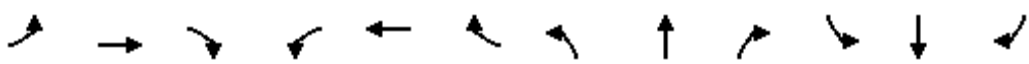
Splits and Phases: 9: I-15 SB Ramps & Nichols Rd.



HCM 6th Signalized Intersection Summary
9: I-15 SB Ramps & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

05/24/2018

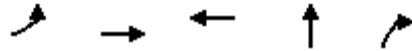
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↑	↑	↑					↑	↑	
Traffic Volume (veh/h)	0	395	302	87	496	0	0	0	0	155	2	149
Future Volume (veh/h)	0	395	302	87	496	0	0	0	0	155	2	149
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1856	1856	1530	1856	0				1781	907	1781
Adj Flow Rate, veh/h	0	527	403	116	661	0				207	3	199
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75				0.75	0.75	0.75
Percent Heavy Veh, %	0	3	3	25	3	0				8	67	8
Cap, veh/h	0	662	561	143	972	0				513	3	229
Arrive On Green	0.00	0.36	0.36	0.10	0.52	0.00				0.30	0.30	0.30
Sat Flow, veh/h	0	1856	1572	1457	1856	0				1697	11	759
Grp Volume(v), veh/h	0	527	403	116	661	0				207	0	202
Grp Sat Flow(s),veh/h/ln	0	1856	1572	1457	1856	0				1697	0	770
Q Serve(g_s), s	0.0	17.1	14.8	5.2	17.6	0.0				6.5	0.0	16.6
Cycle Q Clear(g_c), s	0.0	17.1	14.8	5.2	17.6	0.0				6.5	0.0	16.6
Prop In Lane	0.00		1.00	1.00		0.00				1.00		0.99
Lane Grp Cap(c), veh/h	0	662	561	143	972	0				513	0	233
V/C Ratio(X)	0.00	0.80	0.72	0.81	0.68	0.00				0.40	0.00	0.87
Avail Cap(c_a), veh/h	0	1283	1087	488	2033	0				894	0	406
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	19.3	18.6	29.5	11.8	0.0				18.5	0.0	22.0
Incr Delay (d2), s/veh	0.0	2.2	1.7	10.3	0.8	0.0				0.5	0.0	9.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	6.6	4.8	2.1	5.6	0.0				2.3	0.0	3.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	21.5	20.3	39.8	12.6	0.0				19.0	0.0	31.5
LnGrp LOS	A	C	C	D	B	A				B	A	C
Approach Vol, veh/h		930			777						409	
Approach Delay, s/veh		21.0			16.7						25.2	
Approach LOS		C			B						C	
Timer - Assigned Phs			3	4		6		8				
Phs Duration (G+Y+Rc), s			11.2	29.6		26.0		40.8				
Change Period (Y+Rc), s			4.6	5.8		5.8		5.8				
Max Green Setting (Gmax), s			22.4	46.2		35.2		73.2				
Max Q Clear Time (g_c+I1), s			7.2	19.1		18.6		19.6				
Green Ext Time (p_c), s			0.2	4.8		1.6		4.7				
Intersection Summary												
HCM 6th Ctrl Delay			20.2									
HCM 6th LOS			C									

Timings

S. Nichols Mixed-Use Development (JN 10878)

10: I-15 NB Ramps & Nichols Rd.

05/24/2018

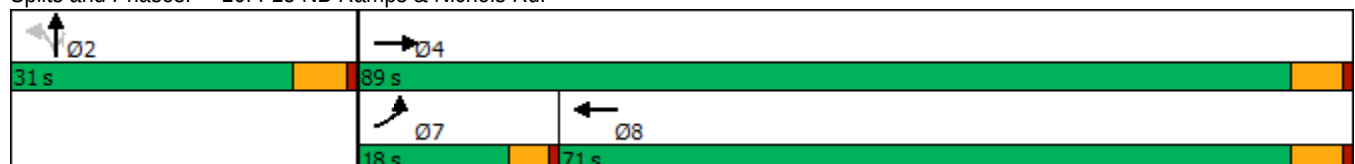


Lane Group	EBL	EBT	WBT	NBT	NBR
Lane Configurations	↰	↑	↱	↑	↱
Traffic Volume (vph)	158	392	299	1	104
Future Volume (vph)	158	392	299	1	104
Turn Type	Prot	NA	NA	NA	Perm
Protected Phases	7	4	8	2	
Permitted Phases					2
Detector Phase	7	4	8	2	2
Switch Phase					
Minimum Initial (s)	5.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	22.8	22.8	22.8	22.8
Total Split (s)	18.0	89.0	71.0	31.0	31.0
Total Split (%)	15.0%	74.2%	59.2%	25.8%	25.8%
Yellow Time (s)	3.6	4.8	4.8	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	5.8	5.8	5.8
Lead/Lag	Lead		Lag		
Lead-Lag Optimize?	Yes		Yes		
Recall Mode	None	None	None	Min	Min
Act Effect Green (s)	13.6	59.9	41.6	25.6	25.6
Actuated g/C Ratio	0.14	0.62	0.43	0.26	0.26
v/c Ratio	1.06	0.57	0.88	1.01	0.35
Control Delay	118.6	12.8	38.9	82.2	13.1
Queue Delay	0.0	0.1	0.0	0.0	0.0
Total Delay	118.6	13.0	38.9	82.2	13.1
LOS	F	B	D	F	B
Approach Delay		43.4	38.9	63.7	
Approach LOS		D	D	E	

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 97.2
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.06
Intersection Signal Delay: 48.0
Intersection Capacity Utilization 59.8%
Analysis Period (min) 15
Intersection LOS: D
ICU Level of Service B

Splits and Phases: 10: I-15 NB Ramps & Nichols Rd.



HCM 6th Signalized Intersection Summary
10: I-15 NB Ramps & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

05/24/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	158	392	0	0	299	99	284	1	104	0	0	0
Future Volume (veh/h)	158	392	0	0	299	99	284	1	104	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1826	1826	0	0	1737	1737	1811	1900	1811			
Adj Flow Rate, veh/h	255	632	0	0	482	160	458	2	168			
Peak Hour Factor	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62			
Percent Heavy Veh, %	5	5	0	0	11	11	6	0	6			
Cap, veh/h	243	1124	0	0	533	177	475	2	395			
Arrive On Green	0.14	0.62	0.00	0.00	0.43	0.43	0.26	0.26	0.26			
Sat Flow, veh/h	1739	1826	0	0	1248	414	1802	8	1502			
Grp Volume(v), veh/h	255	632	0	0	0	642	460	0	168			
Grp Sat Flow(s),veh/h/ln	1739	1826	0	0	0	1662	1810	0	1502			
Q Serve(g_s), s	13.4	19.5	0.0	0.0	0.0	34.5	24.0	0.0	8.9			
Cycle Q Clear(g_c), s	13.4	19.5	0.0	0.0	0.0	34.5	24.0	0.0	8.9			
Prop In Lane	1.00		0.00	0.00		0.25	1.00		1.00			
Lane Grp Cap(c), veh/h	243	1124	0	0	0	710	477	0	395			
V/C Ratio(X)	1.05	0.56	0.00	0.00	0.00	0.90	0.97	0.00	0.42			
Avail Cap(c_a), veh/h	243	1587	0	0	0	1133	477	0	395			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	0.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	41.2	10.8	0.0	0.0	0.0	25.6	34.8	0.0	29.2			
Incr Delay (d2), s/veh	70.6	0.4	0.0	0.0	0.0	6.6	32.3	0.0	0.7			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	10.2	6.6	0.0	0.0	0.0	13.5	14.2	0.0	3.1			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	111.8	11.3	0.0	0.0	0.0	32.2	67.1	0.0	30.0			
LnGrp LOS	F	B	A	A	A	C	E	A	C			
Approach Vol, veh/h	887		642			628						
Approach Delay, s/veh	40.2		32.2			57.2						
Approach LOS	D		C			E						
Timer - Assigned Phs	2		4			7			8			
Phs Duration (G+Y+Rc), s	31.0		64.7			18.0			46.7			
Change Period (Y+Rc), s	5.8		5.8			4.6			5.8			
Max Green Setting (Gmax), s	25.2		83.2			13.4			65.2			
Max Q Clear Time (g_c+l1), s	26.0		21.5			15.4			36.5			
Green Ext Time (p_c), s	0.0		4.4			0.0			4.4			
Intersection Summary												
HCM 6th Ctrl Delay			42.7									
HCM 6th LOS			D									

Intersection

Intersection Delay, s/veh 11.3

Intersection LOS B

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	14	28	191	27	63	211
Future Vol, veh/h	14	28	191	27	63	211
Peak Hour Factor	0.66	0.66	0.66	0.66	0.66	0.66
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	21	42	289	41	95	320
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left NB			WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right SB		WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	8.8	10.6	12.3
HCM LOS	A	B	B

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	33%	23%
Vol Thru, %	88%	0%	77%
Vol Right, %	12%	67%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	218	42	274
LT Vol	0	14	63
Through Vol	191	0	211
RT Vol	27	28	0
Lane Flow Rate	330	64	415
Geometry Grp	1	1	1
Degree of Util (X)	0.409	0.092	0.518
Departure Headway (Hd)	4.462	5.208	4.489
Convergence, Y/N	Yes	Yes	Yes
Cap	806	685	801
Service Time	2.492	3.262	2.518
HCM Lane V/C Ratio	0.409	0.093	0.518
HCM Control Delay	10.6	8.8	12.3
HCM Lane LOS	B	A	B
HCM 95th-tile Q	2	0.3	3

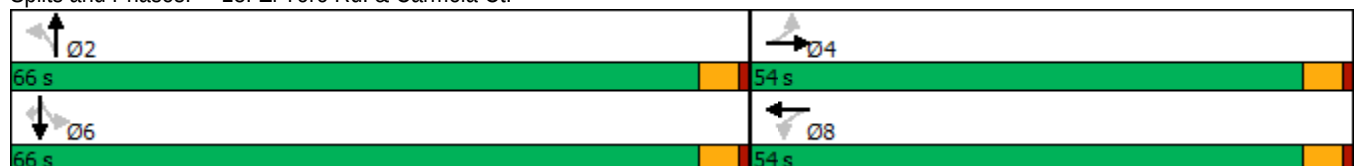
Timings
18: El Toro Rd. & Carmela Ct.

S. Nichols Mixed-Use Development (JN 10878)

05/24/2018

									
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	16	0	6	0	15	201	7	206	11
Future Volume (vph)	16	0	6	0	15	201	7	206	11
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm
Protected Phases		4		8		2		6	
Permitted Phases	4		8		2		6		6
Detector Phase	4	4	8	8	2	2	6	6	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6
Total Split (s)	54.0	54.0	54.0	54.0	66.0	66.0	66.0	66.0	66.0
Total Split (%)	45.0%	45.0%	45.0%	45.0%	55.0%	55.0%	55.0%	55.0%	55.0%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)		4.6		4.6	4.6	4.6		4.6	4.6
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	Min	Min	Min	Min	Min
Act Effct Green (s)		11.4		11.4	24.2	24.2		24.2	24.2
Actuated g/C Ratio		0.32		0.32	0.68	0.68		0.68	0.68
v/c Ratio		0.14		0.02	0.03	0.24		0.25	0.02
Control Delay		5.6		4.4	7.1	6.9		7.0	4.4
Queue Delay		0.0		0.0	0.0	0.0		0.0	0.0
Total Delay		5.6		4.4	7.1	6.9		7.0	4.4
LOS		A		A	A	A		A	A
Approach Delay		5.6		4.4		6.9		6.8	
Approach LOS		A		A		A		A	
Intersection Summary									
Cycle Length: 120									
Actuated Cycle Length: 35.8									
Natural Cycle: 45									
Control Type: Actuated-Uncoordinated									
Maximum v/c Ratio: 0.25									
Intersection Signal Delay: 6.7					Intersection LOS: A				
Intersection Capacity Utilization 43.4%					ICU Level of Service A				
Analysis Period (min) 15									

Splits and Phases: 18: El Toro Rd. & Carmela Ct.



HCM 6th Signalized Intersection Summary
18: El Toro Rd. & Carmela Ct.

S. Nichols Mixed-Use Development (JN 10878)

05/24/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	0	33	6	0	1	15	201	5	7	206	11
Future Volume (veh/h)	16	0	33	6	0	1	15	201	5	7	206	11
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.95		1.00	1.00		0.95	1.00		0.98	0.99		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	23	0	48	9	0	1	22	291	7	10	299	16
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	256	43	221	533	15	30	614	761	18	158	770	663
Arrive On Green	0.21	0.00	0.21	0.21	0.00	0.21	0.42	0.42	0.42	0.42	0.42	0.42
Sat Flow, veh/h	302	204	1056	1229	71	144	1064	1818	44	19	1838	1583
Grp Volume(v), veh/h	71	0	0	10	0	0	22	0	298	309	0	16
Grp Sat Flow(s),veh/h/ln	1562	0	0	1443	0	0	1064	0	1862	1856	0	1583
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	2.7	0.0	0.0	0.1
Cycle Q Clear(g_c), s	0.9	0.0	0.0	0.1	0.0	0.0	3.2	0.0	2.7	2.8	0.0	0.1
Prop In Lane	0.32		0.68	0.90		0.10	1.00		0.02	0.03		1.00
Lane Grp Cap(c), veh/h	519	0	0	578	0	0	614	0	780	928	0	663
V/C Ratio(X)	0.14	0.00	0.00	0.02	0.00	0.00	0.04	0.00	0.38	0.33	0.00	0.02
Avail Cap(c_a), veh/h	3200	0	0	3031	0	0	2810	0	4622	4697	0	3931
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	8.1	0.0	0.0	7.8	0.0	0.0	6.1	0.0	5.0	5.0	0.0	4.2
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.5	0.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	8.2	0.0	0.0	7.8	0.0	0.0	6.1	0.0	5.3	5.2	0.0	4.2
LnGrp LOS	A	A	A	A	A	A	A	A	A	A	A	A
Approach Vol, veh/h		71			10			320			325	
Approach Delay, s/veh		8.2			7.8			5.3			5.2	
Approach LOS		A			A			A			A	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		15.0		9.8		15.0		9.8				
Change Period (Y+Rc), s		4.6		4.6		4.6		4.6				
Max Green Setting (Gmax), s		61.4		49.4		61.4		49.4				
Max Q Clear Time (g_c+I1), s		5.2		2.9		4.8		2.1				
Green Ext Time (p_c), s		2.2		0.5		2.3		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			5.6									
HCM 6th LOS			A									

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APPENDIX 8.13:

**EAP (2024) CONDITIONS OFF-RAMP QUEUING ANALYSIS WORKSHEETS WITH
IMPROVEMENTS**

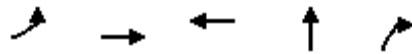
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Queues

S. Nichols Mixed-Use Development (JN 10878)

10: I-15 NB Ramps & Nichols Rd.

07/02/2018



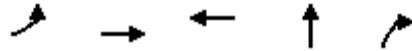
Lane Group	EBL	EBT	WBT	NBT	NBR
Lane Group Flow (vph)	134	961	818	260	323
v/c Ratio	0.68	0.77	0.92	0.76	0.75
Control Delay	66.3	16.4	39.5	57.4	30.6
Queue Delay	0.0	1.3	0.0	0.0	0.0
Total Delay	66.3	17.8	39.5	57.4	30.6
Queue Length 50th (ft)	99	417	509	187	105
Queue Length 95th (ft)	113	286	359	181	87
Internal Link Dist (ft)		541	958	1472	
Turn Bay Length (ft)	230				200
Base Capacity (vph)	229	1437	1087	437	507
Starvation Cap Reductn	0	268	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.59	0.82	0.75	0.59	0.64
Intersection Summary					

Queues

S. Nichols Mixed-Use Development (JN 10878)

10: I-15 NB Ramps & Nichols Rd.

07/02/2018



Lane Group	EBL	EBT	WBT	NBT	NBR
Lane Group Flow (vph)	255	632	642	460	168
v/c Ratio	1.06	0.57	0.88	1.01	0.35
Control Delay	118.6	12.8	38.9	82.2	13.1
Queue Delay	0.0	0.1	0.0	0.0	0.0
Total Delay	118.6	13.0	38.9	82.2	13.1
Queue Length 50th (ft)	~172	208	341	~283	20
Queue Length 95th (ft)	#234	162	260	#340	32
Internal Link Dist (ft)		541	958	1472	
Turn Bay Length (ft)	230				200
Base Capacity (vph)	240	1563	1142	457	484
Starvation Cap Reductn	0	249	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.06	0.48	0.56	1.01	0.35

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

APPENDIX 9.1:

EAPC (2020) CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

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Timings

S. Nichols Mixed-Use Development (JN 10878)

1: Lake St. & Nichols Rd.

06/28/2018

									
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	86	89	193	48	38	719	383	19	289
Future Volume (vph)	86	89	193	48	38	719	383	19	289
Turn Type	Perm	NA	Perm	NA	Prot	NA	Perm	Prot	NA
Protected Phases		4		8	5	2		1	6
Permitted Phases	4		8				2		
Detector Phase	4	4	8	8	5	2	2	1	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	14.6	14.6	16.2	16.2	9.6	16.2	16.2	9.6	16.2
Total Split (s)	42.2	42.2	42.2	42.2	35.6	42.2	42.2	35.6	42.2
Total Split (%)	35.2%	35.2%	35.2%	35.2%	29.7%	35.2%	35.2%	29.7%	35.2%
Yellow Time (s)	3.6	3.6	5.2	5.2	3.6	5.2	5.2	3.6	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.6		6.2	4.6	6.2	6.2	4.6	6.2
Lead/Lag					Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	None	Max
Act Effect Green (s)		30.5		28.8	6.7	39.6	39.6	5.8	36.9
Actuated g/C Ratio		0.36		0.34	0.08	0.47	0.47	0.07	0.43
v/c Ratio		0.44		0.76	0.29	0.89	0.51	0.17	0.45
Control Delay		23.5		38.2	46.5	38.8	14.8	45.5	22.4
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		23.5		38.2	46.5	38.8	14.8	45.5	22.4
LOS		C		D	D	D	B	D	C
Approach Delay		23.5		38.2		31.0			23.6
Approach LOS		C		D		C			C

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 85.1

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.89

Intersection Signal Delay: 29.9

Intersection LOS: C

Intersection Capacity Utilization 74.1%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 1: Lake St. & Nichols Rd.



HCM 6th Signalized Intersection Summary

1: Lake St. & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

06/28/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	86	89	36	193	48	40	38	719	383	19	289	40
Future Volume (veh/h)	86	89	36	193	48	40	38	719	383	19	289	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	92	96	39	208	52	31	41	773	0	20	311	43
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	211	208	73	321	65	36	68	921		40	767	106
Arrive On Green	0.26	0.26	0.26	0.26	0.26	0.26	0.04	0.49	0.00	0.02	0.48	0.48
Sat Flow, veh/h	554	801	281	920	250	139	1781	1870	1585	1781	1608	222
Grp Volume(v), veh/h	227	0	0	291	0	0	41	773	0	20	0	354
Grp Sat Flow(s),veh/h/ln	1636	0	0	1309	0	0	1781	1870	1585	1781	0	1830
Q Serve(g_s), s	0.0	0.0	0.0	7.5	0.0	0.0	1.7	27.0	0.0	0.8	0.0	9.5
Cycle Q Clear(g_c), s	8.7	0.0	0.0	16.2	0.0	0.0	1.7	27.0	0.0	0.8	0.0	9.5
Prop In Lane	0.41		0.17	0.71		0.11	1.00		1.00	1.00		0.12
Lane Grp Cap(c), veh/h	492	0	0	422	0	0	68	921		40	0	873
V/C Ratio(X)	0.46	0.00	0.00	0.69	0.00	0.00	0.60	0.84		0.49	0.00	0.41
Avail Cap(c_a), veh/h	863	0	0	718	0	0	731	921		731	0	873
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	23.8	0.0	0.0	26.8	0.0	0.0	35.7	16.6	0.0	36.5	0.0	12.8
Incr Delay (d2), s/veh	0.7	0.0	0.0	2.0	0.0	0.0	3.2	9.1	0.0	3.4	0.0	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	0.0	0.0	4.7	0.0	0.0	0.7	11.4	0.0	0.4	0.0	3.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.5	0.0	0.0	28.8	0.0	0.0	38.9	25.7	0.0	39.9	0.0	14.2
LnGrp LOS	C	A	A	C	A	A	D	C		D	A	B
Approach Vol, veh/h		227			291			814	A		374	
Approach Delay, s/veh		24.5			28.8			26.3			15.6	
Approach LOS		C			C			C			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.3	43.4		25.8	7.5	42.2		25.8				
Change Period (Y+Rc), s	4.6	6.2		* 6.2	4.6	6.2		6.2				
Max Green Setting (Gmax), s	31.0	36.0		* 38	31.0	36.0		36.0				
Max Q Clear Time (g_c+I1), s	2.8	29.0		10.7	3.7	11.5		18.2				
Green Ext Time (p_c), s	0.0	3.5		1.5	0.0	2.7		1.5				
Intersection Summary												
HCM 6th Ctrl Delay				24.2								
HCM 6th LOS				C								
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.												

Timings
2: Lake St. & Alberhill Ranch Rd.

S. Nichols Mixed-Use Development (JN 10878)

06/28/2018

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	60	49	1132	51	19	482
Future Volume (vph)	60	49	1132	51	19	482
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2		
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	15.1	15.1	16.2	16.2	11.2	16.2
Total Split (s)	15.1	15.1	93.7	93.7	11.2	104.9
Total Split (%)	12.6%	12.6%	78.1%	78.1%	9.3%	87.4%
Yellow Time (s)	4.1	4.1	5.2	5.2	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	6.2	6.2	6.2	6.2
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	Max	Max	None	Max
Act Effect Green (s)	10.0	10.0	98.5	98.5	5.0	103.0
Actuated g/C Ratio	0.08	0.08	0.82	0.82	0.04	0.86
v/c Ratio	0.44	0.29	0.79	0.04	0.27	0.32
Control Delay	62.1	18.4	13.8	1.6	65.3	2.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.1	18.4	13.8	1.6	65.3	2.9
LOS	E	B	B	A	E	A
Approach Delay	42.5		13.3			5.2
Approach LOS	D		B			A

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.79
 Intersection Signal Delay: 12.8
 Intersection LOS: B
 Intersection Capacity Utilization 77.3%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 2: Lake St. & Alberhill Ranch Rd.



HCM 6th Signalized Intersection Summary
2: Lake St. & Alberhill Ranch Rd.

S. Nichols Mixed-Use Development (JN 10878)

06/28/2018

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	60	49	1132	51	19	482
Future Volume (veh/h)	60	49	1132	51	19	482
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	64	28	1204	45	20	513
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	142	126	1409	1192	36	1544
Arrive On Green	0.08	0.08	0.75	0.75	0.02	0.83
Sat Flow, veh/h	1781	1585	1870	1582	1781	1870
Grp Volume(v), veh/h	64	28	1204	45	20	513
Grp Sat Flow(s),veh/h/ln	1781	1585	1870	1582	1781	1870
Q Serve(g_s), s	4.1	2.0	53.2	0.9	1.3	7.9
Cycle Q Clear(g_c), s	4.1	2.0	53.2	0.9	1.3	7.9
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	142	126	1409	1192	36	1544
V/C Ratio(X)	0.45	0.22	0.85	0.04	0.55	0.33
Avail Cap(c_a), veh/h	149	133	1409	1192	75	1544
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.5	51.5	10.2	3.7	58.0	2.5
Incr Delay (d2), s/veh	0.8	0.3	6.8	0.1	4.8	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	0.8	17.5	0.2	0.6	1.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	53.3	51.9	17.0	3.8	62.8	3.1
LnGrp LOS	D	D	B	A	E	A
Approach Vol, veh/h	92		1249			533
Approach Delay, s/veh	52.9		16.5			5.3
Approach LOS	D		B			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	8.6	96.3			104.9	14.6
Change Period (Y+Rc), s	6.2	6.2			6.2	5.1
Max Green Setting (Gmax), s	5.0	87.5			98.7	10.0
Max Q Clear Time (g_c+l1), s	3.3	55.2			9.9	6.1
Green Ext Time (p_c), s	0.0	12.7			3.1	0.0
Intersection Summary						
HCM 6th Ctrl Delay			15.1			
HCM 6th LOS			B			

Intersection

Intersection Delay, s/veh 16

Intersection LOS C

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	481	17	37	240	40	73
Future Vol, veh/h	481	17	37	240	40	73
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	547	19	42	273	45	83
Number of Lanes	1	0	0	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	1
HCM Control Delay	19.6	11.9	9.9
HCM LOS	C	B	A

Lane	NBLn1	NBLn2	EBLn1	WBLn1
Vol Left, %	100%	0%	0%	13%
Vol Thru, %	0%	0%	97%	87%
Vol Right, %	0%	100%	3%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	40	73	498	277
LT Vol	40	0	0	37
Through Vol	0	0	481	240
RT Vol	0	73	17	0
Lane Flow Rate	45	83	566	315
Geometry Grp	7	7	2	2
Degree of Util (X)	0.09	0.136	0.733	0.435
Departure Headway (Hd)	7.118	5.896	4.661	4.97
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	506	612	770	718
Service Time	4.818	3.596	2.734	3.059
HCM Lane V/C Ratio	0.089	0.136	0.735	0.439
HCM Control Delay	10.5	9.5	19.6	11.9
HCM Lane LOS	B	A	C	B
HCM 95th-tile Q	0.3	0.5	6.5	2.2

Timings
4: Lakeshore Dr. & Riverside Dr. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

06/28/2018

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	21	482	147	136	571	358	277	306	216	179	11
Future Volume (vph)	21	482	147	136	571	358	277	306	216	179	11
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2	1	6	
Permitted Phases			4			8					6
Detector Phase	7	4	4	3	8	8	5	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	32.4	32.4	9.6	33.4	33.4	9.6	34.7	9.6	32.7	32.7
Total Split (s)	9.6	35.0	35.0	22.6	48.0	48.0	28.0	38.4	24.0	34.4	34.4
Total Split (%)	8.0%	29.2%	29.2%	18.8%	40.0%	40.0%	23.3%	32.0%	20.0%	28.7%	28.7%
Yellow Time (s)	3.6	4.4	4.4	3.6	4.4	4.4	3.6	3.7	3.6	3.7	3.7
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.4	5.4	4.6	5.4	5.4	4.6	4.7	4.6	4.7	4.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	None	Max	Max
Act Effect Green (s)	5.0	28.9	28.9	13.8	41.8	41.8	22.1	34.0	17.9	29.9	29.9
Actuated g/C Ratio	0.04	0.25	0.25	0.12	0.37	0.37	0.19	0.30	0.16	0.26	0.26
v/c Ratio	0.31	0.61	0.32	0.72	0.94	0.52	0.91	0.45	0.87	0.22	0.02
Control Delay	66.2	41.4	7.2	67.8	59.2	9.2	76.0	31.9	77.8	35.1	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.2	41.4	7.2	67.8	59.2	9.2	76.0	31.9	77.8	35.1	0.1
LOS	E	D	A	E	E	A	E	C	E	D	A
Approach Delay		34.5			43.5			49.4		56.9	
Approach LOS		C			D			D		E	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 114

Natural Cycle: 110

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.94

Intersection Signal Delay: 44.8

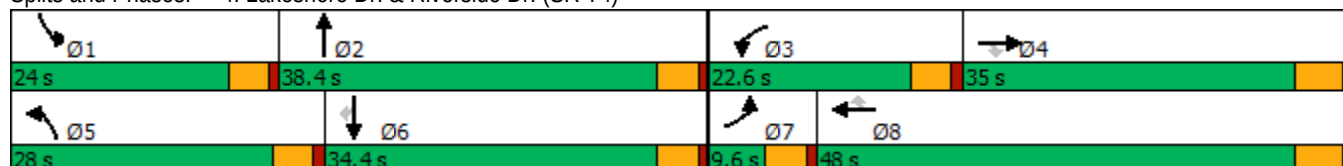
Intersection LOS: D

Intersection Capacity Utilization 87.3%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 4: Lakeshore Dr. & Riverside Dr. (SR-74)



HCM 6th Signalized Intersection Summary 4: Lakeshore Dr. & Riverside Dr. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

06/28/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	482	147	136	571	358	277	306	115	216	179	11
Future Volume (veh/h)	21	482	147	136	571	358	277	306	115	216	179	11
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	24	542	102	153	642	23	311	344	64	243	201	9
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	42	1000	445	181	673	570	338	888	163	271	920	410
Arrive On Green	0.02	0.28	0.28	0.10	0.36	0.36	0.19	0.30	0.30	0.15	0.26	0.26
Sat Flow, veh/h	1781	3554	1582	1781	1870	1584	1781	2995	551	1781	3554	1585
Grp Volume(v), veh/h	24	542	102	153	642	23	311	203	205	243	201	9
Grp Sat Flow(s),veh/h/ln	1781	1777	1582	1781	1870	1584	1781	1777	1769	1781	1777	1585
Q Serve(g_s), s	1.5	14.8	5.7	9.7	38.4	1.1	19.7	10.4	10.6	15.4	5.1	0.5
Cycle Q Clear(g_c), s	1.5	14.8	5.7	9.7	38.4	1.1	19.7	10.4	10.6	15.4	5.1	0.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.31	1.00		1.00
Lane Grp Cap(c), veh/h	42	1000	445	181	673	570	338	527	525	271	920	410
V/C Ratio(X)	0.58	0.54	0.23	0.84	0.95	0.04	0.92	0.38	0.39	0.90	0.22	0.02
Avail Cap(c_a), veh/h	78	1000	445	279	694	588	363	527	525	301	920	410
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.5	35.0	31.7	50.6	35.8	23.9	45.6	32.0	32.1	47.8	33.4	31.7
Incr Delay (d2), s/veh	4.7	0.6	0.3	8.0	23.1	0.0	26.1	2.1	2.2	24.5	0.5	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	6.3	2.2	4.6	21.0	0.4	11.1	4.8	4.9	8.6	2.3	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.1	35.6	31.9	58.6	58.8	23.9	71.8	34.2	34.3	72.2	33.9	31.8
LnGrp LOS	E	D	C	E	E	C	E	C	C	E	C	C
Approach Vol, veh/h	668			818			719			453		
Approach Delay, s/veh	35.9			57.8			50.5			54.4		
Approach LOS	D			E			D			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	22.0	38.7	16.3	37.7	26.4	34.4	7.3	46.7				
Change Period (Y+Rc), s	4.6	* 4.7	4.6	5.4	4.6	* 4.7	4.6	5.4				
Max Green Setting (Gmax), s	19.4	* 34	18.0	29.6	23.4	* 30	5.0	42.6				
Max Q Clear Time (g_c+I1), s	17.4	12.6	11.7	16.8	21.7	7.1	3.5	40.4				
Green Ext Time (p_c), s	0.1	2.4	0.1	3.0	0.1	1.2	0.0	0.9				
Intersection Summary												
HCM 6th Ctrl Delay			49.7									
HCM 6th LOS			D									
Notes												

Intersection												
Int Delay, s/veh	4.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕	↕		↕	↕
Traffic Vol, veh/h	1	892	4	3	673	38	1	2	13	50	3	6
Future Vol, veh/h	1	892	4	3	673	38	1	2	13	50	3	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Stop	-	-	Stop
Storage Length	-	-	-	-	-	-	-	-	75	-	-	75
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	920	4	3	694	39	1	2	13	52	3	6
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	733	0	0	924	0	0	1645	1663	922	1645	1646	714
Stage 1	-	-	-	-	-	-	924	924	-	720	720	-
Stage 2	-	-	-	-	-	-	721	739	-	925	926	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	872	-	-	739	-	-	79	97	327	79	99	431
Stage 1	-	-	-	-	-	-	323	348	-	419	432	-
Stage 2	-	-	-	-	-	-	419	424	-	323	347	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	872	-	-	739	-	-	75	96	327	74	98	431
Mov Cap-2 Maneuver	-	-	-	-	-	-	75	96	-	74	98	-
Stage 1	-	-	-	-	-	-	322	347	-	418	429	-
Stage 2	-	-	-	-	-	-	407	421	-	307	346	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0			22.3			119.4		
HCM LOS							C			F		
Minor Lane/Major Mvmt	NBLn1		NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2	
Capacity (veh/h)	88		327	872	-	-	739	-	-	75	431	
HCM Lane V/C Ratio	0.035		0.041	0.001	-	-	0.004	-	-	0.729	0.014	
HCM Control Delay (s)	47.4		16.5	9.1	0	-	9.9	0	-	131.4	13.5	
HCM Lane LOS	E		C	A	A	-	A	A	-	F	B	
HCM 95th %tile Q(veh)	0.1		0.1	0	-	-	0	-	-	3.4	0	

Intersection

Int Delay, s/veh 4.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	892	4	3	673	38	1	2	13	50	3	6
Future Vol, veh/h	1	892	4	3	673	38	1	2	13	50	3	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Stop	-	-	Stop
Storage Length	100	-	-	100	-	-	-	-	75	-	-	75
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	920	4	3	694	39	1	2	13	52	3	6

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	733	0	0	924	0	0	1645	1663	922	1645	1646	714
Stage 1	-	-	-	-	-	-	924	924	-	720	720	-
Stage 2	-	-	-	-	-	-	721	739	-	925	926	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	872	-	-	739	-	-	79	97	327	79	99	431
Stage 1	-	-	-	-	-	-	323	348	-	419	432	-
Stage 2	-	-	-	-	-	-	419	424	-	323	347	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	872	-	-	739	-	-	76	97	327	74	99	431
Mov Cap-2 Maneuver	-	-	-	-	-	-	76	97	-	74	99	-
Stage 1	-	-	-	-	-	-	323	348	-	419	430	-
Stage 2	-	-	-	-	-	-	408	422	-	308	347	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	22.2	119.4
HCM LOS			C	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	89	327	872	-	-	739	-	-	75	431
HCM Lane V/C Ratio	0.035	0.041	0.001	-	-	0.004	-	-	0.729	0.014
HCM Control Delay (s)	46.9	16.5	9.1	-	-	9.9	-	-	131.4	13.5
HCM Lane LOS	E	C	A	-	-	A	-	-	F	B
HCM 95th %tile Q(veh)	0.1	0.1	0	-	-	0	-	-	3.4	0

Intersection

Int Delay, s/veh 3.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	511	51	101	237	48	97
Future Vol, veh/h	511	51	101	237	48	97
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	120	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	587	59	116	272	55	111

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	646
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.12
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.218
Pot Cap-1 Maneuver	-	-	939
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	939
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.8	19.5
HCM LOS			C

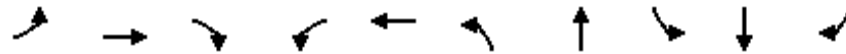
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	200	490	-	-	939	-
HCM Lane V/C Ratio	0.276	0.228	-	-	0.124	-
HCM Control Delay (s)	29.7	14.5	-	-	9.4	-
HCM Lane LOS	D	B	-	-	A	-
HCM 95th %tile Q(veh)	1.1	0.9	-	-	0.4	-

Timings

S. Nichols Mixed-Use Development (JN 10878)

7: Collier Av. (SR-74)/Collier Av. & Riverside Dr. (SR-74)/Riverside Dr.

06/28/2018



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations		↰	↱		↰	↱	↰	↱	↰	↱
Traffic Volume (vph)	78	10	867	5	1	665	84	1	74	49
Future Volume (vph)	78	10	867	5	1	665	84	1	74	49
Turn Type	Perm	NA	pm+ov	Perm	NA	Split	NA	Split	NA	Perm
Protected Phases		4	2		8	2	2	6	6	
Permitted Phases	4		4	8						6
Detector Phase	4	4	2	8	8	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	15.4	15.4	15.8	14.6	14.6	15.8	15.8	16.2	16.2	16.2
Total Split (s)	23.0	23.0	79.0	23.0	23.0	79.0	79.0	18.0	18.0	18.0
Total Split (%)	19.2%	19.2%	65.8%	19.2%	19.2%	65.8%	65.8%	15.0%	15.0%	15.0%
Yellow Time (s)	4.4	4.4	4.8	3.6	3.6	4.8	4.8	5.2	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.4	5.8		4.6	5.8	5.8	6.2	6.2	6.2
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	None	None	Max	None	None	Max	Max	Max	Max	Max
Act Effect Green (s)		13.3	91.9		14.1	73.2	73.2	11.8	11.8	11.8
Actuated g/C Ratio		0.11	0.79		0.12	0.63	0.63	0.10	0.10	0.10
v/c Ratio		0.58	0.68		0.04	0.63	0.09	0.01	0.41	0.23
Control Delay		63.7	5.6		39.4	16.5	8.1	49.0	56.7	7.7
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		63.7	5.6		39.4	16.5	8.1	49.0	56.7	7.7
LOS		E	A		D	B	A	D	E	A
Approach Delay		11.0			39.4		15.5		37.2	
Approach LOS		B			D		B		D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 115.7

Natural Cycle: 70

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.68

Intersection Signal Delay: 14.7

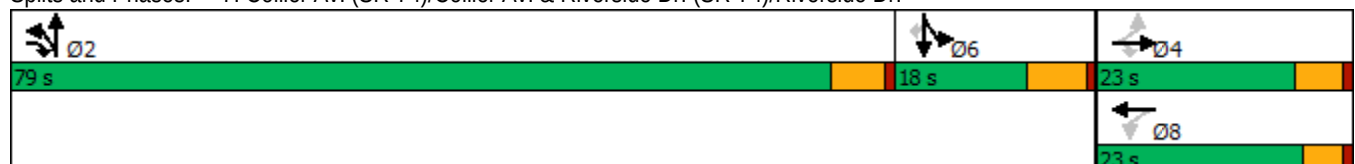
Intersection LOS: B

Intersection Capacity Utilization 84.2%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 7: Collier Av. (SR-74)/Collier Av. & Riverside Dr. (SR-74)/Riverside Dr.



HCM 6th Signalized Intersection Summary S. Nichols Mixed-Use Development (JN 10878)
 7: Collier Av. (SR-74)/Collier Av. & Riverside Dr. (SR-74)/Riverside Dr. 06/28/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	78	10	867	5	1	2	665	84	10	1	74	49
Future Volume (veh/h)	78	10	867	5	1	2	665	84	10	1	74	49
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	82	11	847	5	1	0	700	88	10	1	78	12
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	251	30	1199	113	18	0	1087	1006	114	175	184	156
Arrive On Green	0.15	0.15	0.15	0.15	0.15	0.00	0.61	0.61	0.61	0.10	0.10	0.10
Sat Flow, veh/h	1329	207	1585	398	122	0	1781	1649	187	1781	1870	1585
Grp Volume(v), veh/h	93	0	847	6	0	0	700	0	98	1	78	12
Grp Sat Flow(s),veh/h/ln	1536	0	1585	520	0	0	1781	0	1837	1781	1870	1585
Q Serve(g_s), s	0.0	0.0	17.6	0.0	0.0	0.0	30.3	0.0	2.6	0.1	4.7	0.8
Cycle Q Clear(g_c), s	6.0	0.0	17.6	6.0	0.0	0.0	30.3	0.0	2.6	0.1	4.7	0.8
Prop In Lane	0.88		1.00	0.83		0.00	1.00		0.10	1.00		1.00
Lane Grp Cap(c), veh/h	282	0	1199	131	0	0	1087	0	1120	175	184	156
V/C Ratio(X)	0.33	0.00	0.71	0.05	0.00	0.00	0.64	0.00	0.09	0.01	0.42	0.08
Avail Cap(c_a), veh/h	282	0	1199	136	0	0	1087	0	1120	175	184	156
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.2	0.0	5.7	44.0	0.0	0.0	15.0	0.0	9.6	48.8	50.9	49.2
Incr Delay (d2), s/veh	0.7	0.0	1.9	0.1	0.0	0.0	2.9	0.0	0.2	0.1	7.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	0.0	26.0	0.2	0.0	0.0	11.8	0.0	1.0	0.0	2.5	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.9	0.0	7.6	44.1	0.0	0.0	18.0	0.0	9.8	48.9	57.9	50.1
LnGrp LOS	D	A	A	D	A	A	B	A	A	D	E	D
Approach Vol, veh/h		940			6			798			91	
Approach Delay, s/veh		11.5			44.1			17.0			56.8	
Approach LOS		B			D			B			E	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		79.0		23.0		18.0		23.0				
Change Period (Y+Rc), s		5.8		5.4		6.2		* 5.4				
Max Green Setting (Gmax), s		73.2		17.6		11.8		* 18				
Max Q Clear Time (g_c+I1), s		32.3		19.6		6.7		8.0				
Green Ext Time (p_c), s		3.0		0.0		0.1		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			16.2									
HCM 6th LOS			B									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Timings

S. Nichols Mixed-Use Development (JN 10878)

8: Collier Av./Collier Av. (SR-74) & Central Av./Central Av. (SR-74)

06/28/2018

											
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	35	93	534	292	645	31	63	293	823	75	13
Future Volume (vph)	35	93	534	292	645	31	63	293	823	75	13
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	7	4	3	8	1	5	2	3	1	6	
Permitted Phases					8			2			6
Detector Phase	7	4	3	8	1	5	2	3	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	5.0	10.0	5.0	5.0	10.0	10.0
Minimum Split (s)	9.6	14.7	9.6	42.8	9.6	9.6	15.8	9.6	9.6	29.8	29.8
Total Split (s)	10.0	21.0	34.0	45.0	46.0	12.0	19.0	34.0	46.0	53.0	53.0
Total Split (%)	8.3%	17.5%	28.3%	37.5%	38.3%	10.0%	15.8%	28.3%	38.3%	44.2%	44.2%
Yellow Time (s)	3.6	3.7	3.6	4.8	3.6	3.6	4.8	3.6	3.6	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.7	4.6	5.8	4.6	4.6	5.8	4.6	4.6	5.8	5.8
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	None	None	Max	Max
Act Effect Green (s)	5.3	10.8	21.0	29.9	61.6	6.3	19.1	41.3	30.5	47.8	47.8
Actuated g/C Ratio	0.05	0.11	0.21	0.29	0.61	0.06	0.19	0.41	0.30	0.47	0.47
v/c Ratio	0.21	0.34	0.80	0.57	0.35	0.30	0.19	0.43	0.85	0.05	0.02
Control Delay	53.3	36.3	47.9	36.9	1.0	56.9	42.0	12.4	42.0	18.0	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.3	36.3	47.9	36.9	1.0	56.9	42.0	12.4	42.0	18.0	0.1
LOS	D	D	D	D	A	E	D	B	D	B	A
Approach Delay		40.0		25.1			20.8			39.4	
Approach LOS		D		C			C			D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 101.4

Natural Cycle: 95

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.85

Intersection Signal Delay: 29.8

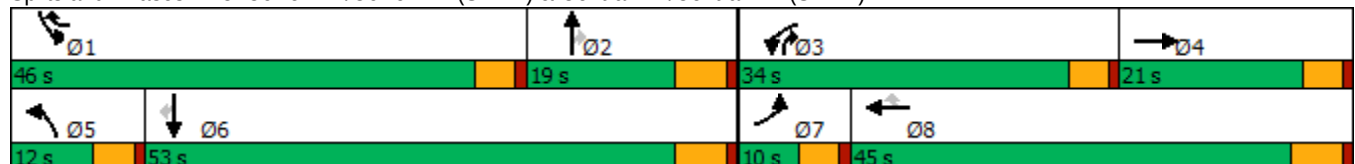
Intersection LOS: C

Intersection Capacity Utilization 66.3%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 8: Collier Av./Collier Av. (SR-74) & Central Av./Central Av. (SR-74)



HCM 6th Signalized Intersection Summary S. Nichols Mixed-Use Development (JN 10878)
 8: Collier Av./Collier Av. (SR-74) & Central Av./Central Av. (SR-74) 06/28/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	93	31	534	292	645	31	63	293	823	75	13
Future Volume (veh/h)	35	93	31	534	292	645	31	63	293	823	75	13
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	37	99	24	568	311	291	33	67	148	876	80	11
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	111	285	67	652	480	1482	53	416	647	969	1680	739
Arrive On Green	0.03	0.10	0.10	0.19	0.26	0.26	0.03	0.22	0.22	0.28	0.47	0.47
Sat Flow, veh/h	3456	2847	667	3456	1870	2725	1781	1870	1563	3456	3554	1562
Grp Volume(v), veh/h	37	60	63	568	311	291	33	67	148	876	80	11
Grp Sat Flow(s),veh/h/ln	1728	1777	1737	1728	1870	1362	1781	1870	1563	1728	1777	1562
Q Serve(g_s), s	1.0	3.2	3.4	15.9	14.8	5.5	1.8	2.9	6.2	24.4	1.2	0.4
Cycle Q Clear(g_c), s	1.0	3.2	3.4	15.9	14.8	5.5	1.8	2.9	6.2	24.4	1.2	0.4
Prop In Lane	1.00		0.38	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	111	178	174	652	480	1482	53	416	647	969	1680	739
V/C Ratio(X)	0.33	0.34	0.36	0.87	0.65	0.20	0.62	0.16	0.23	0.90	0.05	0.01
Avail Cap(c_a), veh/h	187	290	284	1018	734	1852	132	416	647	1433	1680	739
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.3	41.8	41.9	39.3	33.1	12.0	47.8	31.3	19.1	34.6	14.2	14.0
Incr Delay (d2), s/veh	0.6	1.1	1.2	3.3	1.5	0.1	4.2	0.8	0.8	4.5	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	1.4	1.5	6.7	6.6	1.5	0.8	1.3	2.2	10.2	0.5	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.9	43.0	43.2	42.6	34.6	12.0	52.1	32.1	19.9	39.1	14.2	14.0
LnGrp LOS	D	D	D	D	C	B	D	C	B	D	B	B
Approach Vol, veh/h		160			1170			248			967	
Approach Delay, s/veh		44.2			32.9			27.5			36.8	
Approach LOS		D			C			C			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	32.6	28.0	23.4	15.8	7.6	53.0	7.8	31.4				
Change Period (Y+Rc), s	4.6	5.8	4.6	* 5.8	4.6	5.8	4.6	5.8				
Max Green Setting (Gmax), s	41.4	13.2	29.4	* 16	7.4	47.2	5.4	39.2				
Max Q Clear Time (g_c+I1), s	26.4	8.2	17.9	5.4	3.8	3.2	3.0	16.8				
Green Ext Time (p_c), s	1.6	0.3	0.9	0.4	0.0	0.5	0.0	2.8				
Intersection Summary												
HCM 6th Ctrl Delay			34.6									
HCM 6th LOS			C									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Intersection

Intersection Delay, s/veh 21.4

Intersection LOS C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗	↖	↑						↕	
Traffic Vol, veh/h	0	275	335	65	257	0	0	0	0	173	6	82
Future Vol, veh/h	0	275	335	65	257	0	0	0	0	173	6	82
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles, %	0	3	3	25	3	0	0	0	0	8	67	13
Mvmt Flow	0	367	447	87	343	0	0	0	0	231	8	109
Number of Lanes	0	1	1	1	1	0	0	0	0	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	2
HCM Control Delay	22.1	20.3	20.9
HCM LOS	C	C	C

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	100%	0%	66%
Vol Thru, %	100%	0%	0%	100%	2%
Vol Right, %	0%	100%	0%	0%	31%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	275	335	65	257	261
LT Vol	0	0	65	0	173
Through Vol	275	0	0	257	6
RT Vol	0	335	0	0	82
Lane Flow Rate	367	447	87	343	348
Geometry Grp	7	7	7	7	2
Degree of Util (X)	0.667	0.724	0.188	0.659	0.641
Departure Headway (Hd)	6.549	5.833	7.824	6.928	6.635
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	550	616	456	517	543
Service Time	4.33	3.614	5.613	4.717	4.699
HCM Lane V/C Ratio	0.667	0.726	0.191	0.663	0.641
HCM Control Delay	21.6	22.6	12.4	22.3	20.9
HCM Lane LOS	C	C	B	C	C
HCM 95th-tile Q	4.9	6.1	0.7	4.8	4.5

Intersection												
Int Delay, s/veh	155.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	112	335	0	0	147	99	173	3	115	0	0	0
Future Vol, veh/h	112	335	0	0	147	99	173	3	115	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	230	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	62	62	62	62	62	62	62	62	62	62	62	62
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	181	540	0	0	237	160	279	5	185	0	0	0
Major/Minor	Major1			Major2			Minor1					
Conflicting Flow All	397	0	-	-	-	0	1219	1299	540			
Stage 1	-	-	-	-	-	-	902	902	-			
Stage 2	-	-	-	-	-	-	317	397	-			
Critical Hdwy	4.15	-	-	-	-	-	6.44	6.5	6.26			
Critical Hdwy Stg 1	-	-	-	-	-	-	5.44	5.5	-			
Critical Hdwy Stg 2	-	-	-	-	-	-	5.44	5.5	-			
Follow-up Hdwy	2.245	-	-	-	-	-	3.536	4	3.354			
Pot Cap-1 Maneuver	1145	-	0	0	-	-	~ 197	163	534			
Stage 1	-	-	0	0	-	-	393	359	-			
Stage 2	-	-	0	0	-	-	734	607	-			
Platoon blocked, %	-	-	-	-	-	-	-	-	-			
Mov Cap-1 Maneuver	1145	-	-	-	-	-	~ 166	0	534			
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 166	0	-			
Stage 1	-	-	-	-	-	-	331	0	-			
Stage 2	-	-	-	-	-	-	734	0	-			
Approach	EB			WB			NB					
HCM Control Delay, s	2.2			0			\$ 522					
HCM LOS							F					
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR							
Capacity (veh/h)	229	1145	-	-	-							
HCM Lane V/C Ratio	2.05	0.158	-	-	-							
HCM Control Delay (s)	\$ 522	8.7	-	-	-							
HCM Lane LOS	F	A	-	-	-							
HCM 95th %tile Q(veh)	35.1	0.6	-	-	-							
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s			+: Computation Not Defined				*: All major volume in platoon			

Intersection	
Intersection Delay, s/veh	51.1
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	112	335	0	0	147	99	173	3	115	0	0	0
Future Vol, veh/h	112	335	0	0	147	99	173	3	115	0	0	0
Peak Hour Factor	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	181	540	0	0	237	160	279	5	185	0	0	0
Number of Lanes	1	1	0	0	1	0	0	1	0	0	0	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	71	27.8	40.2
HCM LOS	F	D	E

Lane	NBLn1	EBLn1	EBLn2	WBLn1
Vol Left, %	59%	100%	0%	0%
Vol Thru, %	1%	0%	100%	60%
Vol Right, %	40%	0%	0%	40%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	291	112	335	246
LT Vol	173	112	0	0
Through Vol	3	0	335	147
RT Vol	115	0	0	99
Lane Flow Rate	469	181	540	397
Geometry Grp	2	7	7	5
Degree of Util (X)	0.872	0.387	1.08	0.748
Departure Headway (Hd)	6.818	7.708	7.195	6.948
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	535	470	508	524
Service Time	4.818	5.408	4.895	4.948
HCM Lane V/C Ratio	0.877	0.385	1.063	0.758
HCM Control Delay	40.2	15.2	89.7	27.8
HCM Lane LOS	E	C	F	D
HCM 95th-tile Q	9.6	1.8	17	6.4

Intersection						
Int Delay, s/veh	2.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	227	222	0	122	123	0
Future Vol, veh/h	227	222	0	122	123	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	200	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	247	241	0	133	134	0
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	488	0	501	368
Stage 1	-	-	-	-	368	-
Stage 2	-	-	-	-	133	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1075	-	530	677
Stage 1	-	-	-	-	700	-
Stage 2	-	-	-	-	893	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1075	-	530	677
Mov Cap-2 Maneuver	-	-	-	-	530	-
Stage 1	-	-	-	-	700	-
Stage 2	-	-	-	-	893	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		14.1	
HCM LOS					B	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	530	-	-	1075	-	
HCM Lane V/C Ratio	0.252	-	-	-	-	
HCM Control Delay (s)	14.1	-	-	0	-	
HCM Lane LOS	B	-	-	A	-	
HCM 95th %tile Q(veh)	1	-	-	0	-	

Intersection

Int Delay, s/veh 0.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	6	216	107	1	3	16
Future Vol, veh/h	6	216	107	1	3	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	235	116	1	3	17

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	117	0	0 366 117
Stage 1	-	-	- 117 -
Stage 2	-	-	- 249 -
Critical Hdwy	4.12	-	- 6.42 6.22
Critical Hdwy Stg 1	-	-	- 5.42 -
Critical Hdwy Stg 2	-	-	- 5.42 -
Follow-up Hdwy	2.218	-	- 3.518 3.318
Pot Cap-1 Maneuver	1471	-	- 634 935
Stage 1	-	-	- 908 -
Stage 2	-	-	- 792 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1471	-	- 631 935
Mov Cap-2 Maneuver	-	-	- 631 -
Stage 1	-	-	- 903 -
Stage 2	-	-	- 792 -

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	9.2
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1471	-	-	-	869
HCM Lane V/C Ratio	0.004	-	-	-	0.024
HCM Control Delay (s)	7.5	0	-	-	9.2
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection						
Int Delay, s/veh	5.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	219	108	107	232	0
Future Vol, veh/h	0	219	108	107	232	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	238	117	116	252	0
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	602	252	252	0	-	0
Stage 1	252	-	-	-	-	-
Stage 2	350	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	463	787	1313	-	-	-
Stage 1	790	-	-	-	-	-
Stage 2	713	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	419	787	1313	-	-	-
Mov Cap-2 Maneuver	419	-	-	-	-	-
Stage 1	715	-	-	-	-	-
Stage 2	713	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	11.5	4		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1313	-	787	-	-	
HCM Lane V/C Ratio	0.089	-	0.302	-	-	
HCM Control Delay (s)	8	0	11.5	-	-	
HCM Lane LOS	A	A	B	-	-	
HCM 95th %tile Q(veh)	0.3	-	1.3	-	-	

Intersection						
Int Delay, s/veh	31.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	173	24	192	68	19	433
Future Vol, veh/h	173	24	192	68	19	433
Conflicting Peds, #/hr	0	1	0	3	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	66	66	66	66	66	66
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	262	36	291	103	29	656
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	1060	347	0	0	397	0
Stage 1	346	-	-	-	-	-
Stage 2	714	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	~ 248	696	-	-	1162	-
Stage 1	716	-	-	-	-	-
Stage 2	485	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 238	693	-	-	1159	-
Mov Cap-2 Maneuver	~ 238	-	-	-	-	-
Stage 1	686	-	-	-	-	-
Stage 2	485	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	144.8	0		0.3		
HCM LOS	F					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	259	1159	-	
HCM Lane V/C Ratio	-	-	1.152	0.025	-	
HCM Control Delay (s)	-	-	144.8	8.2	0	
HCM Lane LOS	-	-	F	A	A	
HCM 95th %tile Q(veh)	-	-	13.3	0.1	-	
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

Intersection						
Int Delay, s/veh	5.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	173	24	192	68	19	433
Future Vol, veh/h	173	24	192	68	19	433
Conflicting Peds, #/hr	0	1	0	3	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	188	26	209	74	21	471
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	762	250	0	0	286	0
Stage 1	249	-	-	-	-	-
Stage 2	513	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	373	789	-	-	1276	-
Stage 1	792	-	-	-	-	-
Stage 2	601	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	364	786	-	-	1272	-
Mov Cap-2 Maneuver	364	-	-	-	-	-
Stage 1	772	-	-	-	-	-
Stage 2	601	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	25	0	0.3			
HCM LOS	D					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	389	1272	-	
HCM Lane V/C Ratio	-	-	0.55	0.016	-	
HCM Control Delay (s)	-	-	25	7.9	0	
HCM Lane LOS	-	-	D	A	A	
HCM 95th %tile Q(veh)	-	-	3.2	0	-	

Intersection												
Int Delay, s/veh	363.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	134	0	274	6	0	16	173	110	6	8	361	237
Future Vol, veh/h	134	0	274	6	0	16	173	110	6	8	361	237
Conflicting Peds, #/hr	0	0	0	0	0	21	0	0	14	0	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	69	69	69	69	69	69	69	69	69	69	69	69
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	194	0	397	9	0	23	251	159	9	12	523	343
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1418	1404	696	1597	1571	199	867	0	0	182	0	0
Stage 1	720	720	-	680	680	-	-	-	-	-	-	-
Stage 2	698	684	-	917	891	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	~ 114	140	442	86	110	842	777	-	-	1393	-	-
Stage 1	419	432	-	441	451	-	-	-	-	-	-	-
Stage 2	431	449	-	326	361	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	~ 77	87	442	~ 6	69	814	776	-	-	1374	-	-
Mov Cap-2 Maneuver	~ 77	87	-	~ 6	69	-	-	-	-	-	-	-
Stage 1	269	424	-	280	286	-	-	-	-	-	-	-
Stage 2	264	285	-	33	354	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, \$	1142.5		\$ 611.7		7.1		0.1					
HCM LOS	F		F									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	776	-	-	173	22	1374	-	-				
HCM Lane V/C Ratio	0.323	-	-	3.418	1.449	0.008	-	-				
HCM Control Delay (s)	11.8	0	\$ 1142.5	\$ 611.7	7.6	0	-	-				
HCM Lane LOS	B	A	-	F	F	A	A	-				
HCM 95th %tile Q(veh)	1.4	-	-	56.2	4.1	0	-	-				
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s			+: Computation Not Defined				*: All major volume in platoon			

Intersection												
Int Delay, s/veh	80.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	134	0	274	6	0	16	173	110	6	8	361	237
Future Vol, veh/h	134	0	274	6	0	16	173	110	6	8	361	237
Conflicting Peds, #/hr	0	0	0	0	0	21	0	0	14	0	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	146	0	298	7	0	17	188	120	7	9	392	258
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1069	1057	522	1202	1183	159	651	0	0	141	0	0
Stage 1	540	540	-	514	514	-	-	-	-	-	-	-
Stage 2	529	517	-	688	669	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	199	225	555	161	189	886	935	-	-	1442	-	-
Stage 1	526	521	-	543	535	-	-	-	-	-	-	-
Stage 2	533	534	-	436	456	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	158	172	554	61	144	857	934	-	-	1423	-	-
Mov Cap-2 Maneuver	158	172	-	61	144	-	-	-	-	-	-	-
Stage 1	411	515	-	420	414	-	-	-	-	-	-	-
Stage 2	401	413	-	200	451	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	255.8		26.9		5.9		0.1					
HCM LOS	F		D									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	934	-	-	304	188	1423	-	-				
HCM Lane V/C Ratio	0.201	-	-	1.459	0.127	0.006	-	-				
HCM Control Delay (s)	9.8	0	-	255.8	26.9	7.5	0	-				
HCM Lane LOS	A	A	-	F	D	A	A	-				
HCM 95th %tile O(veh)	0.8	-	-	24.3	0.4	0	-	-				

Timings
19: Dexter Av. & Central Av. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

06/28/2018

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations		  			  						
Traffic Volume (vph)	239	974	139	126	1516	202	112	263	75	149	390
Future Volume (vph)	239	974	139	126	1516	202	112	263	75	149	390
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2	1	6	7
Permitted Phases			4			8					6
Detector Phase	7	4	4	3	8	8	5	2	1	6	7
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0	5.0
Minimum Split (s)	9.6	26.8	26.8	9.6	26.8	26.8	9.6	42.4	9.6	15.8	9.6
Total Split (s)	26.0	42.4	42.4	21.1	37.5	37.5	19.5	43.5	13.0	37.0	26.0
Total Split (%)	21.7%	35.3%	35.3%	17.6%	31.3%	31.3%	16.3%	36.3%	10.8%	30.8%	21.7%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	4.8	3.6	4.4	3.6	4.8	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	5.8	4.6	5.8	5.8	4.6	5.4	4.6	5.8	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	None	Max	None
Act Effect Green (s)	19.8	38.5	38.5	13.0	31.7	31.7	11.9	38.1	7.9	33.7	59.2
Actuated g/C Ratio	0.17	0.33	0.33	0.11	0.27	0.27	0.10	0.32	0.07	0.29	0.50
v/c Ratio	0.89	0.64	0.25	0.71	0.97	0.39	0.69	0.66	0.69	0.31	0.51
Control Delay	78.8	36.6	5.9	70.4	58.1	8.2	70.8	40.0	83.9	36.3	16.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	78.8	36.6	5.9	70.4	58.1	8.2	70.8	40.0	83.9	36.3	16.9
LOS	E	D	A	E	E	A	E	D	F	D	B
Approach Delay		40.9			53.5			47.4		29.8	
Approach LOS		D			D			D		C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 117.9

Natural Cycle: 110

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.97

Intersection Signal Delay: 45.4

Intersection LOS: D

Intersection Capacity Utilization 87.2%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 19: Dexter Av. & Central Av. (SR-74)

			
Ø1	Ø2	Ø3	Ø4
13 s	43.5 s	21.1 s	42.4 s
			
Ø5	Ø6	Ø7	Ø8
19.5 s	37 s	26 s	37.5 s

HCM 6th Signalized Intersection Summary
19: Dexter Av. & Central Av. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

06/28/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  							
Traffic Volume (veh/h)	239	974	139	126	1516	202	112	263	91	75	149	390
Future Volume (veh/h)	239	974	139	126	1516	202	112	263	91	75	149	390
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	263	1070	110	138	1666	180	123	289	59	82	164	373
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	290	1749	543	166	1753	426	150	494	101	104	564	737
Arrive On Green	0.16	0.34	0.34	0.09	0.27	0.27	0.08	0.33	0.33	0.06	0.30	0.30
Sat Flow, veh/h	1781	5106	1585	1781	6434	1565	1781	1507	308	1781	1870	1585
Grp Volume(v), veh/h	263	1070	110	138	1666	180	123	0	348	82	164	373
Grp Sat Flow(s),veh/h/ln	1781	1702	1585	1781	1609	1565	1781	0	1815	1781	1870	1585
Q Serve(g_s), s	16.9	20.3	5.7	8.9	29.6	11.0	7.9	0.0	18.6	5.3	7.8	19.2
Cycle Q Clear(g_c), s	16.9	20.3	5.7	8.9	29.6	11.0	7.9	0.0	18.6	5.3	7.8	19.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.17	1.00		1.00
Lane Grp Cap(c), veh/h	290	1749	543	166	1753	426	150	0	594	104	564	737
V/C Ratio(X)	0.91	0.61	0.20	0.83	0.95	0.42	0.82	0.00	0.59	0.79	0.29	0.51
Avail Cap(c_a), veh/h	328	1749	543	253	1753	426	228	0	594	129	564	737
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.8	31.8	27.0	51.9	41.6	34.8	52.4	0.0	32.5	54.1	31.1	21.8
Incr Delay (d2), s/veh	24.2	0.6	0.2	8.1	11.9	0.7	7.7	0.0	4.2	18.2	1.3	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.2	8.1	2.1	4.2	12.7	4.1	3.8	0.0	8.6	2.8	3.6	7.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	72.0	32.4	27.2	60.0	53.4	35.5	60.1	0.0	36.7	72.3	32.4	24.3
LnGrp LOS	E	C	C	E	D	D	E	A	D	E	C	C
Approach Vol, veh/h		1443			1984			471			619	
Approach Delay, s/veh		39.2			52.3			42.8			32.8	
Approach LOS		D			D			D			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.4	43.9	15.4	45.6	14.4	40.9	23.6	37.5				
Change Period (Y+Rc), s	4.6	* 5.8	4.6	5.8	4.6	5.8	4.6	5.8				
Max Green Setting (Gmax), s	8.4	* 38	16.5	36.6	14.9	31.2	21.4	31.7				
Max Q Clear Time (g_c+I1), s	7.3	20.6	10.9	22.3	9.9	21.2	18.9	31.6				
Green Ext Time (p_c), s	0.0	1.8	0.1	6.2	0.1	1.6	0.1	0.1				

Intersection Summary

HCM 6th Ctrl Delay 44.5

HCM 6th LOS D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Timings

S. Nichols Mixed-Use Development (JN 10878)

20: Cambern Av./Cambern Av & Central Av. (SR-74)

06/28/2018



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations	←←	→→	←	→→	←	←	→	←	→	←
Traffic Volume (vph)	128	1107	8	1751	115	15	4	131	5	90
Future Volume (vph)	128	1107	8	1751	115	15	4	131	5	90
Turn Type	Prot	NA	Prot	NA	Perm	Perm	NA	Perm	NA	Perm
Protected Phases	7	4	3	8			2		6	
Permitted Phases					8	2		6		6
Detector Phase	7	4	3	8	8	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	24.8	9.6	25.5	25.5	34.7	34.7	14.7	14.7	14.7
Total Split (s)	12.0	75.4	9.6	73.0	73.0	35.0	35.0	35.0	35.0	35.0
Total Split (%)	10.0%	62.8%	8.0%	60.8%	60.8%	29.2%	29.2%	29.2%	29.2%	29.2%
Yellow Time (s)	3.6	4.8	3.6	5.5	5.5	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.6	5.8	4.6	6.5	6.5	4.7	4.7		4.7	4.7
Lead/Lag	Lead	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	Max	None	None	None	None	Max	Max	Max	Max	Max
Act Effect Green (s)	7.4	77.3	5.0	66.5	66.5	30.3	30.3		30.3	30.3
Actuated g/C Ratio	0.06	0.64	0.04	0.55	0.55	0.25	0.25		0.25	0.25
v/c Ratio	0.67	0.54	0.12	0.98	0.14	0.06	0.05		0.44	0.22
Control Delay	71.0	13.2	59.2	42.9	2.5	35.0	18.1		42.7	11.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay	71.0	13.2	59.2	42.9	2.5	35.0	18.1		42.7	11.1
LOS	E	B	E	D	A	C	B		D	B
Approach Delay		19.1		40.5			25.8		30.0	
Approach LOS		B		D			C		C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Natural Cycle: 110

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.98

Intersection Signal Delay: 31.8

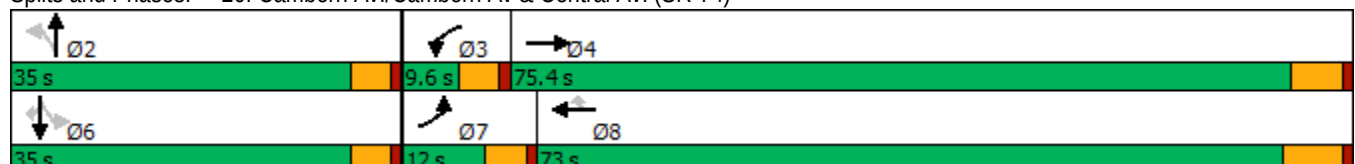
Intersection LOS: C

Intersection Capacity Utilization 95.0%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 20: Cambern Av./Cambern Av & Central Av. (SR-74)



HCM 6th Signalized Intersection Summary S. Nichols Mixed-Use Development (JN 10878)
 20: Cambern Av./Cambern Av & Central Av. (SR-74) 06/28/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	128	1107	7	8	1751	115	15	4	14	131	5	90
Future Volume (veh/h)	128	1107	7	8	1751	115	15	4	14	131	5	90
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	141	1216	8	9	1924	84	16	4	14	144	5	55
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	213	2189	14	19	1968	866	268	92	322	390	12	400
Arrive On Green	0.06	0.60	0.60	0.01	0.55	0.55	0.25	0.25	0.25	0.25	0.25	0.25
Sat Flow, veh/h	3456	3619	24	1781	3554	1564	1342	364	1274	1312	46	1583
Grp Volume(v), veh/h	141	597	627	9	1924	84	16	0	18	149	0	55
Grp Sat Flow(s),veh/h/ln	1728	1777	1866	1781	1777	1564	1342	0	1638	1358	0	1583
Q Serve(g_s), s	4.8	24.0	24.0	0.6	63.2	3.0	1.2	0.0	1.0	10.8	0.0	3.2
Cycle Q Clear(g_c), s	4.8	24.0	24.0	0.6	63.2	3.0	13.0	0.0	1.0	11.8	0.0	3.2
Prop In Lane	1.00		0.01	1.00		1.00	1.00		0.78	0.97		1.00
Lane Grp Cap(c), veh/h	213	1075	1129	19	1968	866	268	0	414	402	0	400
V/C Ratio(X)	0.66	0.56	0.56	0.47	0.98	0.10	0.06	0.00	0.04	0.37	0.00	0.14
Avail Cap(c_a), veh/h	213	1075	1129	74	1970	867	268	0	414	402	0	400
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	55.0	14.1	14.1	59.0	26.0	12.6	43.4	0.0	33.9	38.3	0.0	34.7
Incr Delay (d2), s/veh	15.0	0.8	0.8	6.4	15.3	0.1	0.4	0.0	0.2	2.6	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	8.9	9.3	0.3	26.9	1.0	0.4	0.0	0.4	4.0	0.0	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	70.0	14.9	14.9	65.4	41.3	12.7	43.8	0.0	34.1	40.9	0.0	35.4
LnGrp LOS	E	B	B	E	D	B	D	A	C	D	A	D
Approach Vol, veh/h		1365			2017			34			204	
Approach Delay, s/veh		20.6			40.2			38.6			39.4	
Approach LOS		C			D			D			D	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		35.0	5.9	79.0		35.0	12.0	72.9				
Change Period (Y+Rc), s		* 4.7	4.6	* 6.5		* 4.7	4.6	6.5				
Max Green Setting (Gmax), s		* 30	5.0	* 70		* 30	7.4	66.5				
Max Q Clear Time (g_c+I1), s		15.0	2.6	26.0		13.8	6.8	65.2				
Green Ext Time (p_c), s		0.1	0.0	14.8		0.8	0.0	1.3				
Intersection Summary												
HCM 6th Ctrl Delay			32.8									
HCM 6th LOS			C									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Timings
1: Lake St. & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

06/28/2018

									
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	70	89	263	109	53	388	188	32	899
Future Volume (vph)	70	89	263	109	53	388	188	32	899
Turn Type	Perm	NA	Perm	NA	Prot	NA	Perm	Prot	NA
Protected Phases		4		8	5	2		1	6
Permitted Phases	4		8				2		
Detector Phase	4	4	8	8	5	2	2	1	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	14.6	14.6	16.2	16.2	9.6	16.2	16.2	9.6	16.2
Total Split (s)	42.2	42.2	42.2	42.2	35.6	42.2	42.2	35.6	42.2
Total Split (%)	35.2%	35.2%	35.2%	35.2%	29.7%	35.2%	35.2%	29.7%	35.2%
Yellow Time (s)	3.6	3.6	5.2	5.2	3.6	5.2	5.2	3.6	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.6		6.2	4.6	6.2	6.2	4.6	6.2
Lead/Lag					Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	None	Max
Act Effect Green (s)		37.7		36.1	7.6	39.2	39.2	6.5	36.1
Actuated g/C Ratio		0.40		0.38	0.08	0.41	0.41	0.07	0.38
v/c Ratio		0.41		0.96	0.41	0.55	0.28	0.29	1.56
Control Delay		22.8		65.2	51.1	25.7	9.3	49.2	282.8
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		22.8		65.2	51.1	25.7	9.3	49.2	282.8
LOS		C		E	D	C	A	D	F
Approach Delay		22.8		65.2		22.9			275.6
Approach LOS		C		E		C			F

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 94.7

Natural Cycle: 150

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.56

Intersection Signal Delay: 144.7

Intersection LOS: F

Intersection Capacity Utilization 100.5%

ICU Level of Service G

Analysis Period (min) 15

Splits and Phases: 1: Lake St. & Nichols Rd.

		
Ø1	Ø2	Ø4
35.6 s	42.2 s	42.2 s
		
Ø5	Ø6	Ø8
35.6 s	42.2 s	42.2 s

HCM 6th Signalized Intersection Summary

1: Lake St. & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

06/28/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	89	55	263	109	20	53	388	188	32	899	92
Future Volume (veh/h)	70	89	55	263	109	20	53	388	188	32	899	92
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	77	98	60	289	120	14	58	426	0	35	988	101
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	216	268	147	383	130	15	77	788		58	686	70
Arrive On Green	0.35	0.35	0.35	0.35	0.35	0.35	0.04	0.42	0.00	0.03	0.41	0.41
Sat Flow, veh/h	459	761	418	891	370	43	1781	1870	1585	1781	1669	171
Grp Volume(v), veh/h	235	0	0	423	0	0	58	426	0	35	0	1089
Grp Sat Flow(s),veh/h/ln	1638	0	0	1304	0	0	1781	1870	1585	1781	0	1840
Q Serve(g_s), s	0.0	0.0	0.0	18.4	0.0	0.0	2.8	15.0	0.0	1.7	0.0	36.0
Cycle Q Clear(g_c), s	9.1	0.0	0.0	27.5	0.0	0.0	2.8	15.0	0.0	1.7	0.0	36.0
Prop In Lane	0.33		0.26	0.68		0.03	1.00		1.00	1.00		0.09
Lane Grp Cap(c), veh/h	631	0	0	528	0	0	77	788		58	0	756
V/C Ratio(X)	0.37	0.00	0.00	0.80	0.00	0.00	0.75	0.54		0.60	0.00	1.44
Avail Cap(c_a), veh/h	751	0	0	609	0	0	630	788		630	0	756
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.3	0.0	0.0	27.8	0.0	0.0	41.5	19.0	0.0	41.8	0.0	25.8
Incr Delay (d2), s/veh	0.4	0.0	0.0	6.7	0.0	0.0	5.5	2.7	0.0	3.7	0.0	205.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	0.0	0.0	8.6	0.0	0.0	1.3	6.3	0.0	0.8	0.0	56.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.6	0.0	0.0	34.5	0.0	0.0	47.0	21.7	0.0	45.5	0.0	231.7
LnGrp LOS	C	A	A	C	A	A	D	C		D	A	F
Approach Vol, veh/h		235			423			484	A		1124	
Approach Delay, s/veh		21.6			34.5			24.7			225.9	
Approach LOS		C			C			C			F	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.5	43.1		37.0	8.4	42.2		37.0				
Change Period (Y+Rc), s	4.6	6.2		* 6.2	4.6	6.2		6.2				
Max Green Setting (Gmax), s	31.0	36.0		* 38	31.0	36.0		36.0				
Max Q Clear Time (g_c+I1), s	3.7	17.0		11.1	4.8	38.0		29.5				
Green Ext Time (p_c), s	0.0	3.1		1.6	0.1	0.0		1.3				
Intersection Summary												
HCM 6th Ctrl Delay				126.0								
HCM 6th LOS				F								
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.												

Timings
2: Lake St. & Alberhill Ranch Rd.

S. Nichols Mixed-Use Development (JN 10878)

06/28/2018

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	37	20	581	32	24	1154
Future Volume (vph)	37	20	581	32	24	1154
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2		
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	15.1	15.1	16.2	16.2	11.2	16.2
Total Split (s)	16.0	16.0	91.0	91.0	13.0	104.0
Total Split (%)	13.3%	13.3%	75.8%	75.8%	10.8%	86.7%
Yellow Time (s)	4.1	4.1	5.2	5.2	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	6.2	6.2	6.2	6.2
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	Max	Max	None	Max
Act Effect Green (s)	10.0	10.0	94.4	94.4	5.9	102.1
Actuated g/C Ratio	0.08	0.08	0.79	0.79	0.05	0.86
v/c Ratio	0.26	0.13	0.40	0.03	0.27	0.74
Control Delay	55.8	22.2	6.5	1.7	62.0	8.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.8	22.2	6.5	1.7	62.0	8.2
LOS	E	C	A	A	E	A
Approach Delay	44.2		6.3			9.3
Approach LOS	D		A			A

Intersection Summary

Cycle Length: 120	
Actuated Cycle Length: 119.1	
Natural Cycle: 75	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.74	
Intersection Signal Delay: 9.4	Intersection LOS: A
Intersection Capacity Utilization 78.5%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 2: Lake St. & Alberhill Ranch Rd.



HCM 6th Signalized Intersection Summary
2: Lake St. & Alberhill Ranch Rd.

S. Nichols Mixed-Use Development (JN 10878)

06/28/2018

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	37	20	581	32	24	1154
Future Volume (veh/h)	37	20	581	32	24	1154
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		0.98	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	38	7	593	30	24	1178
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	117	104	1424	1182	41	1566
Arrive On Green	0.07	0.07	0.76	0.76	0.02	0.84
Sat Flow, veh/h	1781	1585	1870	1553	1781	1870
Grp Volume(v), veh/h	38	7	593	30	24	1178
Grp Sat Flow(s),veh/h/ln	1781	1585	1870	1553	1781	1870
Q Serve(g_s), s	2.4	0.5	12.9	0.5	1.6	32.3
Cycle Q Clear(g_c), s	2.4	0.5	12.9	0.5	1.6	32.3
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	117	104	1424	1182	41	1566
V/C Ratio(X)	0.32	0.07	0.42	0.03	0.58	0.75
Avail Cap(c_a), veh/h	166	148	1424	1182	104	1566
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.1	51.2	4.9	3.4	56.5	4.2
Incr Delay (d2), s/veh	0.6	0.1	0.9	0.0	4.7	3.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.2	3.8	0.1	0.7	6.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	52.7	51.3	5.8	3.4	61.2	7.5
LnGrp LOS	D	D	A	A	E	A
Approach Vol, veh/h	45		623			1202
Approach Delay, s/veh	52.5		5.7			8.6
Approach LOS	D		A			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	8.9	95.1			104.0	12.8
Change Period (Y+Rc), s	6.2	6.2			6.2	5.1
Max Green Setting (Gmax), s	6.8	84.8			97.8	10.9
Max Q Clear Time (g_c+I1), s	3.6	14.9			34.3	4.4
Green Ext Time (p_c), s	0.0	3.9			13.9	0.0
Intersection Summary						
HCM 6th Ctrl Delay			8.7			
HCM 6th LOS			A			

Intersection

Intersection Delay, s/veh 13

Intersection LOS B

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	292	19	80	384	9	66
Future Vol, veh/h	292	19	80	384	9	66
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	311	20	85	409	10	70
Number of Lanes	1	0	0	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	1
HCM Control Delay	11.2	14.9	9.2
HCM LOS	B	B	A

Lane	NBLn1	NBLn2	EBLn1	WBLn1
Vol Left, %	100%	0%	0%	17%
Vol Thru, %	0%	0%	94%	83%
Vol Right, %	0%	100%	6%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	9	66	311	464
LT Vol	9	0	0	80
Through Vol	0	0	292	384
RT Vol	0	66	19	0
Lane Flow Rate	10	70	331	494
Geometry Grp	7	7	2	2
Degree of Util (X)	0.018	0.11	0.428	0.625
Departure Headway (Hd)	6.847	5.628	4.653	4.555
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	520	632	771	790
Service Time	4.626	3.407	2.699	2.595
HCM Lane V/C Ratio	0.019	0.111	0.429	0.625
HCM Control Delay	9.8	9.1	11.2	14.9
HCM Lane LOS	A	A	B	B
HCM 95th-tile Q	0.1	0.4	2.2	4.5

Timings
4: Lakeshore Dr. & Riverside Dr. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

06/28/2018

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	32	525	274	124	647	322	203	262	283	321	17
Future Volume (vph)	32	525	274	124	647	322	203	262	283	321	17
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2	1	6	
Permitted Phases			4			8					6
Detector Phase	7	4	4	3	8	8	5	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	32.4	32.4	9.6	33.4	33.4	9.6	34.7	9.6	32.7	32.7
Total Split (s)	9.6	38.3	38.3	20.3	49.0	49.0	27.6	35.4	26.0	33.8	33.8
Total Split (%)	8.0%	31.9%	31.9%	16.9%	40.8%	40.8%	23.0%	29.5%	21.7%	28.2%	28.2%
Yellow Time (s)	3.6	4.4	4.4	3.6	4.4	4.4	3.6	3.7	3.6	3.7	3.7
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.4	5.4	4.6	5.4	5.4	4.6	4.7	4.6	4.7	4.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	None	Max	Max
Act Effect Green (s)	5.0	32.2	32.2	12.2	43.5	43.5	17.5	30.8	20.7	34.0	34.0
Actuated g/C Ratio	0.04	0.28	0.28	0.11	0.38	0.38	0.15	0.27	0.18	0.29	0.29
v/c Ratio	0.43	0.55	0.44	0.68	0.95	0.44	0.78	0.46	0.92	0.32	0.03
Control Delay	73.2	38.2	6.2	68.8	60.0	8.9	67.1	28.4	81.2	34.5	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	73.2	38.2	6.2	68.8	60.0	8.9	67.1	28.4	81.2	34.5	0.1
LOS	E	D	A	E	E	A	E	C	F	C	A
Approach Delay		29.0			45.9			40.8		54.8	
Approach LOS		C			D			D		D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 115.3

Natural Cycle: 110

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.95

Intersection Signal Delay: 42.2

Intersection LOS: D

Intersection Capacity Utilization 95.0%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 4: Lakeshore Dr. & Riverside Dr. (SR-74)

			
26 s	35.4 s	20.3 s	38.3 s
			
27.6 s	33.8 s	9.6 s	49 s

HCM 6th Signalized Intersection Summary 4: Lakeshore Dr. & Riverside Dr. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

06/28/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	32	525	274	124	647	322	203	262	165	283	321	17
Future Volume (veh/h)	32	525	274	124	647	322	203	262	165	283	321	17
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	33	541	162	128	667	178	209	270	66	292	331	14
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	50	1101	491	155	690	577	238	741	178	318	1086	478
Arrive On Green	0.03	0.31	0.31	0.09	0.37	0.37	0.13	0.26	0.26	0.18	0.31	0.31
Sat Flow, veh/h	1781	3554	1585	1781	1870	1564	1781	2841	682	1781	3554	1565
Grp Volume(v), veh/h	33	541	162	128	667	178	209	167	169	292	331	14
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1870	1564	1781	1777	1746	1781	1777	1565
Q Serve(g_s), s	2.2	14.6	9.2	8.3	41.2	9.5	13.6	9.0	9.3	19.0	8.4	0.7
Cycle Q Clear(g_c), s	2.2	14.6	9.2	8.3	41.2	9.5	13.6	9.0	9.3	19.0	8.4	0.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.39	1.00		1.00
Lane Grp Cap(c), veh/h	50	1101	491	155	690	577	238	464	455	318	1086	478
V/C Ratio(X)	0.66	0.49	0.33	0.83	0.97	0.31	0.88	0.36	0.37	0.92	0.30	0.03
Avail Cap(c_a), veh/h	76	1101	491	238	693	579	348	464	455	324	1086	478
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.6	33.1	31.2	52.9	36.4	26.5	50.0	35.5	35.6	47.5	31.3	28.6
Incr Delay (d2), s/veh	5.4	0.3	0.4	7.7	26.1	0.3	11.9	2.2	2.3	29.3	0.7	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	6.2	3.5	4.0	22.9	3.5	6.8	4.2	4.3	11.0	3.7	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.1	33.4	31.6	60.5	62.5	26.8	62.0	37.7	37.9	76.8	32.0	28.7
LnGrp LOS	E	C	C	E	E	C	E	D	D	E	C	C
Approach Vol, veh/h		736			973			545			637	
Approach Delay, s/veh		34.3			55.7			47.1			52.5	
Approach LOS		C			E			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	25.6	35.4	14.8	41.9	20.3	40.7	7.9	48.8				
Change Period (Y+Rc), s	4.6	* 4.7	4.6	5.4	4.6	* 4.7	4.6	5.4				
Max Green Setting (Gmax), s	21.4	* 31	15.7	32.9	23.0	* 29	5.0	43.6				
Max Q Clear Time (g_c+I1), s	21.0	11.3	10.3	16.6	15.6	10.4	4.2	43.2				
Green Ext Time (p_c), s	0.0	1.9	0.1	3.6	0.2	2.0	0.0	0.2				

Intersection Summary

HCM 6th Ctrl Delay 47.9

HCM 6th LOS D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection												
Int Delay, s/veh	3.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕	↕		↕	↕
Traffic Vol, veh/h	3	905	5	9	932	122	1	0	8	31	1	3
Future Vol, veh/h	3	905	5	9	932	122	1	0	8	31	1	3
Conflicting Peds, #/hr	0	0	0	0	0	1	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Stop	-	-	Stop
Storage Length	-	-	-	-	-	-	-	-	75	-	-	75
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	933	5	9	961	126	1	0	8	32	1	3
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1088	0	0	938	0	0	1985	2048	936	1985	1987	1025
Stage 1	-	-	-	-	-	-	942	942	-	1043	1043	-
Stage 2	-	-	-	-	-	-	1043	1106	-	942	944	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	641	-	-	730	-	-	46	56	321	46	61	285
Stage 1	-	-	-	-	-	-	316	342	-	277	306	-
Stage 2	-	-	-	-	-	-	277	286	-	316	341	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	640	-	-	730	-	-	43	54	321	43	58	285
Mov Cap-2 Maneuver	-	-	-	-	-	-	43	54	-	43	58	-
Stage 1	-	-	-	-	-	-	313	339	-	274	296	-
Stage 2	-	-	-	-	-	-	264	277	-	305	338	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.1			24.8			197.4		
HCM LOS							C			F		
Minor Lane/Major Mvmt	NBLn1		NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2	
Capacity (veh/h)	43		321	640	-	-	730	-	-	43	285	
HCM Lane V/C Ratio	0.024		0.026	0.005	-	-	0.013	-	-	0.767	0.011	
HCM Control Delay (s)	90.8		16.5	10.7	0	-	10	0	-	214.2	17.8	
HCM Lane LOS	F		C	B	A	-	A	A	-	F	C	
HCM 95th %tile Q(veh)	0.1		0.1	0	-	-	0	-	-	2.9	0	

Intersection												
Int Delay, s/veh	3.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	905	5	9	932	122	1	0	8	31	1	3
Future Vol, veh/h	3	905	5	9	932	122	1	0	8	31	1	3
Conflicting Peds, #/hr	0	0	0	0	0	1	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Stop	-	-	Stop
Storage Length	100	-	-	100	-	-	-	-	75	-	-	75
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	933	5	9	961	126	1	0	8	32	1	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1088	0	0	938	0	0	1985	2048	936	1985	1987	1025
Stage 1	-	-	-	-	-	-	942	942	-	1043	1043	-
Stage 2	-	-	-	-	-	-	1043	1106	-	942	944	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	641	-	-	730	-	-	46	56	321	46	61	285
Stage 1	-	-	-	-	-	-	316	342	-	277	306	-
Stage 2	-	-	-	-	-	-	277	286	-	316	341	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	640	-	-	730	-	-	44	55	321	44	60	285
Mov Cap-2 Maneuver	-	-	-	-	-	-	44	55	-	44	60	-
Stage 1	-	-	-	-	-	-	314	340	-	275	302	-
Stage 2	-	-	-	-	-	-	270	282	-	306	339	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.1	24.5	189.8
HCM LOS			C	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	44	321	640	-	-	730	-	-	44	285
HCM Lane V/C Ratio	0.023	0.026	0.005	-	-	0.013	-	-	0.75	0.011
HCM Control Delay (s)	88.8	16.5	10.7	-	-	10	-	-	205.9	17.8
HCM Lane LOS	F	C	B	-	-	A	-	-	F	C
HCM 95th %tile Q(veh)	0.1	0.1	0	-	-	0	-	-	2.9	0

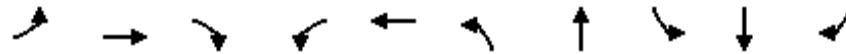
Intersection						
Int Delay, s/veh	10.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	281	75	235	376	105	269
Future Vol, veh/h	281	75	235	376	105	269
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	120	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	299	80	250	400	112	286
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	379	0	1239	339
Stage 1	-	-	-	-	339	-
Stage 2	-	-	-	-	900	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1179	-	194	703
Stage 1	-	-	-	-	722	-
Stage 2	-	-	-	-	397	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1179	-	153	703
Mov Cap-2 Maneuver	-	-	-	-	153	-
Stage 1	-	-	-	-	569	-
Stage 2	-	-	-	-	397	-
Approach	EB	WB		NB		
HCM Control Delay, s	0	3.4		30.8		
HCM LOS	D					
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	153	703	-	-	1179	-
HCM Lane V/C Ratio	0.73	0.407	-	-	0.212	-
HCM Control Delay (s)	74.7	13.6	-	-	8.9	-
HCM Lane LOS	F	B	-	-	A	-
HCM 95th %tile O(veh)	4.4	2	-	-	0.8	-

Timings

S. Nichols Mixed-Use Development (JN 10878)

7: Collier Av. (SR-74)/Collier Av. & Riverside Dr. (SR-74)/Riverside Dr.

06/28/2018



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations		↰	↱		↰	↱	↰	↱	↰	↱
Traffic Volume (vph)	106	11	831	21	18	951	257	3	205	98
Future Volume (vph)	106	11	831	21	18	951	257	3	205	98
Turn Type	Perm	NA	pm+ov	Perm	NA	Split	NA	Split	NA	Perm
Protected Phases		4	2		8	2	2	6	6	
Permitted Phases	4		4	8						6
Detector Phase	4	4	2	8	8	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	15.4	15.4	15.8	14.6	14.6	15.8	15.8	16.2	16.2	16.2
Total Split (s)	19.0	19.0	79.0	19.0	19.0	79.0	79.0	22.0	22.0	22.0
Total Split (%)	15.8%	15.8%	65.8%	15.8%	15.8%	65.8%	65.8%	18.3%	18.3%	18.3%
Yellow Time (s)	4.4	4.4	4.8	3.6	3.6	4.8	4.8	5.2	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.4	5.8		4.6	5.8	5.8	6.2	6.2	6.2
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	None	None	Max	None	None	Max	Max	Max	Max	Max
Act Effect Green (s)		12.9	85.7		13.7	73.2	73.2	15.8	15.8	15.8
Actuated g/C Ratio		0.11	0.72		0.11	0.61	0.61	0.13	0.13	0.13
v/c Ratio		0.79	0.74		0.27	0.91	0.26	0.01	0.87	0.34
Control Delay		85.3	12.2		47.6	34.6	11.2	45.7	83.0	12.4
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		85.3	12.2		47.6	34.6	11.2	45.7	83.0	12.4
LOS		F	B		D	C	B	D	F	B
Approach Delay		21.2			47.6		29.3		60.1	
Approach LOS		C			D		C		E	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 119.3

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.91

Intersection Signal Delay: 30.3

Intersection LOS: C

Intersection Capacity Utilization 89.6%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 7: Collier Av. (SR-74)/Collier Av. & Riverside Dr. (SR-74)/Riverside Dr.

↰ Ø2	↰ Ø6	↰ Ø4
79 s	22 s	19 s
		↰ Ø8
		19 s

HCM 6th Signalized Intersection Summary S. Nichols Mixed-Use Development (JN 10878)
 7: Collier Av. (SR-74)/Collier Av. & Riverside Dr. (SR-74)/Riverside Dr. 06/28/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	106	11	831	21	18	7	951	257	20	3	205	98
Future Volume (veh/h)	106	11	831	21	18	7	951	257	20	3	205	98
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	110	11	818	22	19	1	991	268	20	3	214	29
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	174	12	1145	49	31	1	1079	1040	78	233	245	207
Arrive On Green	0.12	0.12	0.12	0.12	0.12	0.12	0.61	0.61	0.61	0.13	0.13	0.13
Sat Flow, veh/h	979	98	1548	32	256	7	1781	1716	128	1781	1870	1585
Grp Volume(v), veh/h	121	0	818	42	0	0	991	0	288	3	214	29
Grp Sat Flow(s),veh/h/ln	1077	0	1548	295	0	0	1781	0	1844	1781	1870	1585
Q Serve(g_s), s	0.0	0.0	14.4	0.9	0.0	0.0	59.7	0.0	8.8	0.2	13.6	2.0
Cycle Q Clear(g_c), s	13.5	0.0	14.4	14.4	0.0	0.0	59.7	0.0	8.8	0.2	13.6	2.0
Prop In Lane	0.91		1.00	0.52		0.02	1.00		0.07	1.00		1.00
Lane Grp Cap(c), veh/h	185	0	1145	81	0	0	1079	0	1117	233	245	207
V/C Ratio(X)	0.65	0.00	0.71	0.52	0.00	0.00	0.92	0.00	0.26	0.01	0.87	0.14
Avail Cap(c_a), veh/h	185	0	1145	81	0	0	1079	0	1117	233	245	207
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.8	0.0	6.5	51.4	0.0	0.0	21.1	0.0	11.1	45.7	51.5	46.5
Incr Delay (d2), s/veh	7.9	0.0	2.1	5.9	0.0	0.0	13.6	0.0	0.6	0.1	32.6	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.0	0.0	25.4	1.4	0.0	0.0	25.7	0.0	3.5	0.1	8.3	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.7	0.0	8.7	57.2	0.0	0.0	34.8	0.0	11.7	45.8	84.1	47.9
LnGrp LOS	E	A	A	E	A	A	C	A	B	D	F	D
Approach Vol, veh/h	939				42		1279				246	
Approach Delay, s/veh	15.4				57.2		29.6				79.4	
Approach LOS	B				E		C				E	
Timer - Assigned Phs	2		4		6		8					
Phs Duration (G+Y+Rc), s	79.0		19.8		22.0		19.8					
Change Period (Y+Rc), s	5.8		5.4		6.2		* 5.4					
Max Green Setting (Gmax), s	73.2		13.6		15.8		* 14					
Max Q Clear Time (g_c+I1), s	61.7		16.4		15.6		16.4					
Green Ext Time (p_c), s	4.5		0.0		0.0		0.0					
Intersection Summary												
HCM 6th Ctrl Delay			29.6									
HCM 6th LOS			C									
Notes												

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Timings

S. Nichols Mixed-Use Development (JN 10878)

8: Collier Av./Collier Av. (SR-74) & Central Av./Central Av. (SR-74)

06/28/2018

											
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	197	335	228	204	790	52	143	371	983	155	34
Future Volume (vph)	197	335	228	204	790	52	143	371	983	155	34
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	7	4	3	8	1	5	2	3	1	6	
Permitted Phases					8			2			6
Detector Phase	7	4	3	8	1	5	2	3	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	5.0	10.0	5.0	5.0	10.0	10.0
Minimum Split (s)	9.6	14.7	9.6	42.8	9.6	9.6	15.8	9.6	9.6	29.8	29.8
Total Split (s)	14.0	28.8	28.0	42.8	43.0	13.6	20.2	28.0	43.0	49.6	49.6
Total Split (%)	11.7%	24.0%	23.3%	35.7%	35.8%	11.3%	16.8%	23.3%	35.8%	41.3%	41.3%
Yellow Time (s)	3.6	3.7	3.6	4.8	3.6	3.6	4.8	3.6	3.6	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.7	4.6	5.8	4.6	4.6	5.8	4.6	4.6	5.8	5.8
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	None	None	Max	Max
Act Effect Green (s)	9.0	16.9	12.4	19.1	54.3	7.2	15.6	29.1	34.0	44.7	44.7
Actuated g/C Ratio	0.09	0.17	0.13	0.19	0.55	0.07	0.16	0.29	0.34	0.45	0.45
v/c Ratio	0.65	0.66	0.55	0.58	0.50	0.42	0.50	0.71	0.86	0.10	0.04
Control Delay	56.5	43.7	46.7	43.0	8.0	58.0	48.8	29.1	39.7	19.0	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.5	43.7	46.7	43.0	8.0	58.0	48.8	29.1	39.7	19.0	0.1
LOS	E	D	D	D	A	E	D	C	D	B	A
Approach Delay		48.0		21.1			36.8			35.8	
Approach LOS		D		C			D			D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 98.9

Natural Cycle: 105

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 32.9

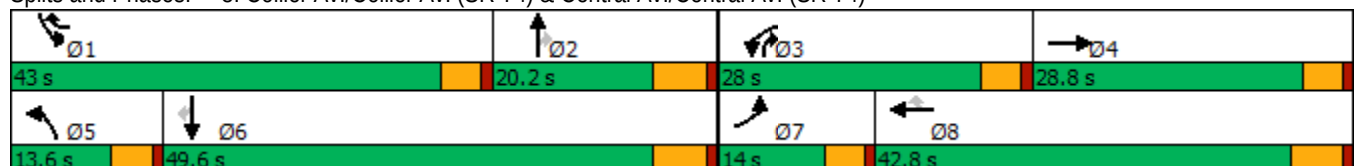
Intersection LOS: C

Intersection Capacity Utilization 73.5%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 8: Collier Av./Collier Av. (SR-74) & Central Av./Central Av. (SR-74)



HCM 6th Signalized Intersection Summary S. Nichols Mixed-Use Development (JN 10878)
 8: Collier Av./Collier Av. (SR-74) & Central Av./Central Av. (SR-74) 06/28/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	197	335	53	228	204	790	52	143	371	983	155	34
Future Volume (veh/h)	197	335	53	228	204	790	52	143	371	983	155	34
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	203	345	51	235	210	291	54	147	154	1013	160	22
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	276	485	71	317	314	1361	73	375	459	1114	1714	754
Arrive On Green	0.08	0.16	0.16	0.09	0.17	0.17	0.04	0.20	0.20	0.32	0.48	0.48
Sat Flow, veh/h	3456	3110	456	3456	1870	2748	1781	1870	1561	3456	3554	1563
Grp Volume(v), veh/h	203	196	200	235	210	291	54	147	154	1013	160	22
Grp Sat Flow(s),veh/h/ln	1728	1777	1788	1728	1870	1374	1781	1870	1561	1728	1777	1563
Q Serve(g_s), s	5.2	9.5	9.7	6.0	9.6	5.5	2.7	6.2	7.0	25.5	2.2	0.7
Cycle Q Clear(g_c), s	5.2	9.5	9.7	6.0	9.6	5.5	2.7	6.2	7.0	25.5	2.2	0.7
Prop In Lane	1.00		0.25	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	276	277	279	317	314	1361	73	375	459	1114	1714	754
V/C Ratio(X)	0.74	0.71	0.72	0.74	0.67	0.21	0.74	0.39	0.34	0.91	0.09	0.03
Avail Cap(c_a), veh/h	358	471	475	890	762	2019	177	375	459	1461	1714	754
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.8	36.4	36.4	40.2	35.4	13.2	43.1	31.5	25.2	29.5	12.7	12.3
Incr Delay (d2), s/veh	3.6	3.3	3.5	1.3	2.5	0.1	5.4	3.0	2.0	6.1	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	4.3	4.4	2.5	4.3	1.5	1.3	3.0	2.7	10.6	0.8	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.4	39.7	39.9	41.5	37.9	13.3	48.5	34.5	27.2	35.6	12.9	12.4
LnGrp LOS	D	D	D	D	D	B	D	C	C	D	B	B
Approach Vol, veh/h		599			736			355			1195	
Approach Delay, s/veh		41.4			29.3			33.5			32.1	
Approach LOS		D			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	33.9	24.0	12.9	20.0	8.3	49.6	11.9	21.1				
Change Period (Y+Rc), s	4.6	5.8	4.6	* 5.8	4.6	5.8	4.6	5.8				
Max Green Setting (Gmax), s	38.4	14.4	23.4	* 24	9.0	43.8	9.4	37.0				
Max Q Clear Time (g_c+I1), s	27.5	9.0	8.0	11.7	4.7	4.2	7.2	11.6				
Green Ext Time (p_c), s	1.8	0.6	0.3	1.8	0.0	1.0	0.1	2.2				
Intersection Summary												
HCM 6th Ctrl Delay			33.5									
HCM 6th LOS			C									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Intersection

Intersection Delay, s/veh 20.4

Intersection LOS C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗	↖	↑						↕	
Traffic Vol, veh/h	0	288	332	30	428	0	0	0	0	88	2	182
Future Vol, veh/h	0	288	332	30	428	0	0	0	0	88	2	182
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	0	3	3	25	3	0	0	0	0	8	67	13
Mvmt Flow	0	306	353	32	455	0	0	0	0	94	2	194
Number of Lanes	0	1	1	1	1	0	0	0	0	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	2
HCM Control Delay	15.5	29.9	15.8
HCM LOS	C	D	C

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	100%	0%	32%
Vol Thru, %	100%	0%	0%	100%	1%
Vol Right, %	0%	100%	0%	0%	67%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	288	332	30	428	272
LT Vol	0	0	30	0	88
Through Vol	288	0	0	428	2
RT Vol	0	332	0	0	182
Lane Flow Rate	306	353	32	455	289
Geometry Grp	7	7	7	7	2
Degree of Util (X)	0.534	0.546	0.065	0.81	0.507
Departure Headway (Hd)	6.275	5.561	7.298	6.408	6.308
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	573	643	489	560	570
Service Time	4.046	3.332	5.072	4.181	4.378
HCM Lane V/C Ratio	0.534	0.549	0.065	0.813	0.507
HCM Control Delay	16.1	14.9	10.6	31.2	15.8
HCM Lane LOS	C	B	B	D	C
HCM 95th-tile Q	3.1	3.3	0.2	8	2.9

Intersection												
Int Delay, s/veh	45.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	178	197	0	0	125	45	334	1	39	0	0	0
Future Vol, veh/h	178	197	0	0	125	45	334	1	39	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	230	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	185	205	0	0	130	47	348	1	41	0	0	0
Major/Minor	Major1		Major2		Minor1							
Conflicting Flow All	177	0	-	-	-	0	729	752	205			
Stage 1	-	-	-	-	-	-	575	575	-			
Stage 2	-	-	-	-	-	-	154	177	-			
Critical Hdwy	4.15	-	-	-	-	-	6.44	6.5	6.26			
Critical Hdwy Stg 1	-	-	-	-	-	-	5.44	5.5	-			
Critical Hdwy Stg 2	-	-	-	-	-	-	5.44	5.5	-			
Follow-up Hdwy	2.245	-	-	-	-	-	3.536	4	3.354			
Pot Cap-1 Maneuver	1381	-	0	0	-	-	387	342	826			
Stage 1	-	-	0	0	-	-	559	506	-			
Stage 2	-	-	0	0	-	-	869	756	-			
Platoon blocked, %	-				-	-						
Mov Cap-1 Maneuver	1381	-	-	-	-	-	~ 335	0	826			
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 335	0	-			
Stage 1	-	-	-	-	-	-	484	0	-			
Stage 2	-	-	-	-	-	-	869	0	-			
Approach	EB		WB		NB							
HCM Control Delay, s	3.8		0		108.9							
HCM LOS					F							
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR							
Capacity (veh/h)	357	1381	-	-	-							
HCM Lane V/C Ratio	1.091	0.134	-	-	-							
HCM Control Delay (s)	108.9	8	-	-	-							
HCM Lane LOS	F	A	-	-	-							
HCM 95th %tile Q(veh)	14.3	0.5	-	-	-							
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s			+: Computation Not Defined				*: All major volume in platoon			

Intersection	
Intersection Delay, s/veh	13.9
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	178	197	0	0	125	45	334	1	39	0	0	0
Future Vol, veh/h	178	197	0	0	125	45	334	1	39	0	0	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	185	205	0	0	130	47	348	1	41	0	0	0
Number of Lanes	1	1	0	0	1	0	0	1	0	0	0	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	12.2	11.2	16.9
HCM LOS	B	B	C

Lane	NBLn1	EBLn1	EBLn2	WBLn1
Vol Left, %	89%	100%	0%	0%
Vol Thru, %	0%	0%	100%	74%
Vol Right, %	10%	0%	0%	26%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	374	178	197	170
LT Vol	334	178	0	0
Through Vol	1	0	197	125
RT Vol	39	0	0	45
Lane Flow Rate	390	185	205	177
Geometry Grp	2	7	7	5
Degree of Util (X)	0.605	0.337	0.344	0.286
Departure Headway (Hd)	5.593	6.54	6.032	5.809
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	647	551	597	618
Service Time	3.625	4.274	3.766	3.848
HCM Lane V/C Ratio	0.603	0.336	0.343	0.286
HCM Control Delay	16.9	12.6	11.9	11.2
HCM Lane LOS	C	B	B	B
HCM 95th-tile Q	4.1	1.5	1.5	1.2

Intersection						
Int Delay, s/veh	2.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	121	114	0	83	85	0
Future Vol, veh/h	121	114	0	83	85	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	200	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	132	124	0	90	92	0
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	256	0	284	194
Stage 1	-	-	-	-	194	-
Stage 2	-	-	-	-	90	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1309	-	706	847
Stage 1	-	-	-	-	839	-
Stage 2	-	-	-	-	934	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1309	-	706	847
Mov Cap-2 Maneuver	-	-	-	-	706	-
Stage 1	-	-	-	-	839	-
Stage 2	-	-	-	-	934	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		10.9	
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	706	-	-	1309	-	
HCM Lane V/C Ratio	0.131	-	-	-	-	
HCM Control Delay (s)	10.9	-	-	0	-	
HCM Lane LOS	B	-	-	A	-	
HCM 95th %tile O(veh)	0.4	-	-	0	-	

Intersection						
Int Delay, s/veh	1.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	19	95	74	3	2	11
Future Vol, veh/h	19	95	74	3	2	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	21	103	80	3	2	12
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	83	0	-	0	227	82
Stage 1	-	-	-	-	82	-
Stage 2	-	-	-	-	145	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1514	-	-	-	761	978
Stage 1	-	-	-	-	941	-
Stage 2	-	-	-	-	882	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1514	-	-	-	750	978
Mov Cap-2 Maneuver	-	-	-	-	750	-
Stage 1	-	-	-	-	927	-
Stage 2	-	-	-	-	882	-
Approach	EB	WB		SB		
HCM Control Delay, s	1.2	0		8.9		
HCM LOS				A		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1514	-	-	-	934	
HCM Lane V/C Ratio	0.014	-	-	-	0.015	
HCM Control Delay (s)	7.4	0	-	-	8.9	
HCM Lane LOS	A	A	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	0	

Intersection						
Int Delay, s/veh	4.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	97	77	75	112	0
Future Vol, veh/h	0	97	77	75	112	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	105	84	82	122	0
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	372	122	122	0	-	0
Stage 1	122	-	-	-	-	-
Stage 2	250	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	629	929	1465	-	-	-
Stage 1	903	-	-	-	-	-
Stage 2	792	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	591	929	1465	-	-	-
Mov Cap-2 Maneuver	591	-	-	-	-	-
Stage 1	849	-	-	-	-	-
Stage 2	792	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	9.4	3.9		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1465	-	929	-	-	
HCM Lane V/C Ratio	0.057	-	0.113	-	-	
HCM Control Delay (s)	7.6	0	9.4	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0.2	-	0.4	-	-	

Intersection

Int Delay, s/veh 1.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	13	18	135	26	50	159
Future Vol, veh/h	13	18	135	26	50	159
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	14	20	147	28	54	173

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	442	161	0
Stage 1	161	-	-
Stage 2	281	-	-
Critical Hdwy	6.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	-
Pot Cap-1 Maneuver	573	884	-
Stage 1	868	-	-
Stage 2	767	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	548	884	-
Mov Cap-2 Maneuver	548	-	-
Stage 1	831	-	-
Stage 2	767	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.4	0	1.8
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	703	1401
HCM Lane V/C Ratio	-	-	0.048	0.039
HCM Control Delay (s)	-	-	10.4	7.7
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.2	0.1

Intersection												
Int Delay, s/veh	1.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	15	0	30	5	0	1	14	145	4	6	155	10
Future Vol, veh/h	15	0	30	5	0	1	14	145	4	6	155	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	3
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	18	0	36	6	0	1	17	173	5	7	185	12
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	418	420	194	433	424	176	200	0	0	178	0	0
Stage 1	208	208	-	210	210	-	-	-	-	-	-	-
Stage 2	210	212	-	223	214	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	545	525	847	533	522	867	1372	-	-	1398	-	-
Stage 1	794	730	-	792	728	-	-	-	-	-	-	-
Stage 2	792	727	-	780	725	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	535	513	845	503	510	867	1368	-	-	1398	-	-
Mov Cap-2 Maneuver	535	513	-	503	510	-	-	-	-	-	-	-
Stage 1	781	723	-	781	718	-	-	-	-	-	-	-
Stage 2	780	717	-	743	718	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	10.5		11.7		0.7		0.3					
HCM LOS	B		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1368	-	-	708	541	1398	-	-				
HCM Lane V/C Ratio	0.012	-	-	0.076	0.013	0.005	-	-				
HCM Control Delay (s)	7.7	0	-	10.5	11.7	7.6	0	-				
HCM Lane LOS	A	A	-	B	B	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0.2	0	0	-	-				

Timings
19: Dexter Av. & Central Av. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

06/28/2018

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations		  			  						
Traffic Volume (vph)	356	1800	179	163	1248	78	138	138	81	97	333
Future Volume (vph)	356	1800	179	163	1248	78	138	138	81	97	333
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2	1	6	7
Permitted Phases			4			8					6
Detector Phase	7	4	4	3	8	8	5	2	1	6	7
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0	5.0
Minimum Split (s)	9.6	26.8	26.8	9.6	26.8	26.8	9.6	42.4	9.6	15.8	9.6
Total Split (s)	33.3	47.0	47.0	18.0	31.7	31.7	20.3	44.0	11.0	34.7	33.3
Total Split (%)	27.8%	39.2%	39.2%	15.0%	26.4%	26.4%	16.9%	36.7%	9.2%	28.9%	27.8%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	4.8	3.6	4.4	3.6	4.8	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	5.8	4.6	5.8	5.8	4.6	5.4	4.6	5.8	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	None	Max	None
Act Effect Green (s)	26.7	41.2	41.2	12.9	27.4	27.4	13.0	38.6	6.4	31.6	59.5
Actuated g/C Ratio	0.22	0.34	0.34	0.11	0.23	0.23	0.11	0.32	0.05	0.26	0.50
v/c Ratio	0.92	1.05	0.29	0.87	0.87	0.16	0.73	0.55	0.88	0.20	0.41
Control Delay	74.1	73.8	8.2	91.5	52.1	0.7	73.2	31.4	120.7	36.8	12.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	74.1	73.8	8.2	91.5	52.1	0.7	73.2	31.4	120.7	36.8	12.4
LOS	E	E	A	F	D	A	E	C	F	D	B
Approach Delay		68.8			53.7			44.2		34.2	
Approach LOS		E			D			D		C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 119.5

Natural Cycle: 120

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.05

Intersection Signal Delay: 58.1

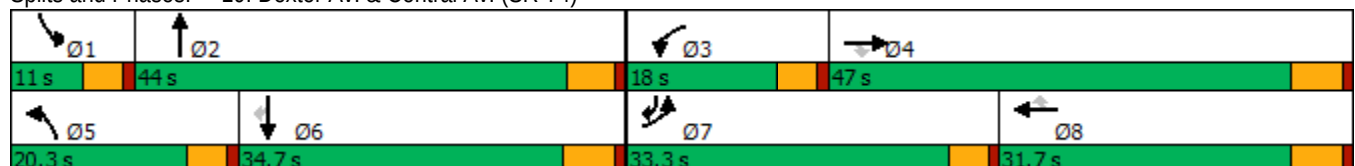
Intersection LOS: E

Intersection Capacity Utilization 96.1%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 19: Dexter Av. & Central Av. (SR-74)



HCM 6th Signalized Intersection Summary
19: Dexter Av. & Central Av. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

06/28/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  							
Traffic Volume (veh/h)	356	1800	179	163	1248	78	138	138	175	81	97	333
Future Volume (veh/h)	356	1800	179	163	1248	78	138	138	175	81	97	333
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	363	1837	141	166	1273	56	141	141	119	83	99	277
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	389	1754	531	192	1501	364	168	299	252	95	525	785
Arrive On Green	0.22	0.34	0.34	0.11	0.23	0.23	0.09	0.32	0.32	0.05	0.28	0.28
Sat Flow, veh/h	1781	5106	1545	1781	6434	1560	1781	929	784	1781	1870	1565
Grp Volume(v), veh/h	363	1837	141	166	1273	56	141	0	260	83	99	277
Grp Sat Flow(s),veh/h/ln	1781	1702	1545	1781	1609	1560	1781	0	1714	1781	1870	1565
Q Serve(g_s), s	24.0	41.2	7.9	11.0	22.7	3.4	9.3	0.0	14.5	5.5	4.8	12.9
Cycle Q Clear(g_c), s	24.0	41.2	7.9	11.0	22.7	3.4	9.3	0.0	14.5	5.5	4.8	12.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.46	1.00		1.00
Lane Grp Cap(c), veh/h	389	1754	531	192	1501	364	168	0	551	95	525	785
V/C Ratio(X)	0.93	1.05	0.27	0.86	0.85	0.15	0.84	0.00	0.47	0.87	0.19	0.35
Avail Cap(c_a), veh/h	426	1754	531	199	1501	364	233	0	551	95	525	785
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.0	39.4	28.4	52.6	44.0	36.6	53.4	0.0	32.5	56.4	32.7	18.3
Incr Delay (d2), s/veh	25.6	35.1	0.3	28.1	4.8	0.2	13.0	0.0	2.9	52.3	0.8	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	13.0	22.0	2.9	6.3	9.2	1.3	4.7	0.0	6.3	3.8	2.2	4.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	71.6	74.5	28.7	80.8	48.7	36.8	66.5	0.0	35.4	108.6	33.5	19.5
LnGrp LOS	E	F	C	F	D	D	E	A	D	F	C	B
Approach Vol, veh/h		2341			1495			401			459	
Approach Delay, s/veh		71.3			51.8			46.3			38.7	
Approach LOS		E			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.0	44.4	17.6	47.0	15.9	39.5	30.8	33.8				
Change Period (Y+Rc), s	4.6	* 5.8	4.6	5.8	4.6	5.8	4.6	5.8				
Max Green Setting (Gmax), s	6.4	* 39	13.4	41.2	15.7	28.9	28.7	25.9				
Max Q Clear Time (g_c+l1), s	7.5	16.5	13.0	43.2	11.3	14.9	26.0	24.7				
Green Ext Time (p_c), s	0.0	1.4	0.0	0.0	0.1	1.2	0.2	0.9				

Intersection Summary

HCM 6th Ctrl Delay 59.8

HCM 6th LOS E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Timings

S. Nichols Mixed-Use Development (JN 10878)

20: Cambern Av./Cambern Av & Central Av. (SR-74)

06/28/2018

										
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	263	1917	12	1243	149	18	5	239	6	87
Future Volume (vph)	263	1917	12	1243	149	18	5	239	6	87
Turn Type	Prot	NA	Prot	NA	Perm	Perm	NA	Perm	NA	Perm
Protected Phases	7	4	3	8			2		6	
Permitted Phases					8	2		6		6
Detector Phase	7	4	3	8	8	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	24.8	9.6	25.5	25.5	34.7	34.7	14.7	14.7	14.7
Total Split (s)	19.8	74.0	9.6	63.8	63.8	36.4	36.4	36.4	36.4	36.4
Total Split (%)	16.5%	61.7%	8.0%	53.2%	53.2%	30.3%	30.3%	30.3%	30.3%	30.3%
Yellow Time (s)	3.6	4.8	3.6	5.5	5.5	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.6	5.8	4.6	6.5	6.5	4.7	4.7		4.7	4.7
Lead/Lag	Lead	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	Max	None	None	None	None	Max	Max	Max	Max	Max
Act Effect Green (s)	15.2	69.6	5.0	52.7	52.7	31.7	31.7		31.7	31.7
Actuated g/C Ratio	0.13	0.60	0.04	0.46	0.46	0.27	0.27		0.27	0.27
v/c Ratio	0.61	0.94	0.17	0.80	0.20	0.09	0.04		0.70	0.18
Control Delay	54.3	32.4	60.4	31.4	3.3	34.4	17.7		49.9	4.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay	54.3	32.4	60.4	31.4	3.3	34.4	17.7		49.9	4.2
LOS	D	C	E	C	A	C	B		D	A
Approach Delay		35.0		28.7			25.8		37.8	
Approach LOS		D		C			C		D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 115.5

Natural Cycle: 110

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.94

Intersection Signal Delay: 32.9

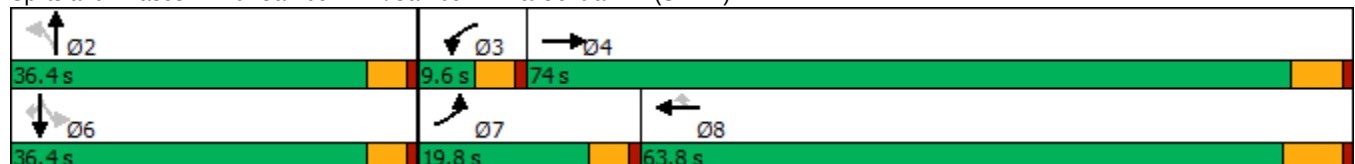
Intersection LOS: C

Intersection Capacity Utilization 90.3%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 20: Cambern Av./Cambern Av & Central Av. (SR-74)



HCM 6th Signalized Intersection Summary S. Nichols Mixed-Use Development (JN 10878)
 20: Cambern Av./Cambern Av & Central Av. (SR-74) 06/28/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	263	1917	11	12	1243	149	18	5	14	239	6	87
Future Volume (veh/h)	263	1917	11	12	1243	149	18	5	14	239	6	87
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	274	1997	11	12	1295	103	19	5	15	249	6	38
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	449	2101	12	25	1648	724	195	112	335	419	9	424
Arrive On Green	0.13	0.58	0.58	0.01	0.46	0.46	0.27	0.27	0.27	0.27	0.27	0.27
Sat Flow, veh/h	3456	3623	20	1781	3554	1562	1362	412	1236	1322	32	1565
Grp Volume(v), veh/h	274	978	1030	12	1295	103	19	0	20	255	0	38
Grp Sat Flow(s),veh/h/ln	1728	1777	1866	1781	1777	1562	1362	0	1648	1354	0	1565
Q Serve(g_s), s	8.8	60.2	60.5	0.8	35.9	4.4	1.5	0.0	1.0	19.2	0.0	2.1
Cycle Q Clear(g_c), s	8.8	60.2	60.5	0.8	35.9	4.4	21.7	0.0	1.0	20.2	0.0	2.1
Prop In Lane	1.00		0.01	1.00		1.00	1.00		0.75	0.98		1.00
Lane Grp Cap(c), veh/h	449	1030	1082	25	1648	724	195	0	447	428	0	424
V/C Ratio(X)	0.61	0.95	0.95	0.49	0.79	0.14	0.10	0.00	0.04	0.60	0.00	0.09
Avail Cap(c_a), veh/h	449	1036	1089	76	1742	765	195	0	447	428	0	424
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	48.1	23.0	23.0	57.2	26.5	18.0	48.2	0.0	31.4	38.9	0.0	31.8
Incr Delay (d2), s/veh	6.1	17.2	17.0	5.5	2.5	0.1	1.0	0.0	0.2	6.0	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.1	26.9	28.3	0.4	14.2	1.5	0.6	0.0	0.4	7.3	0.0	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.1	40.2	40.0	62.7	29.0	18.1	49.2	0.0	31.6	44.9	0.0	32.2
LnGrp LOS	D	D	D	E	C	B	D	A	C	D	A	C
Approach Vol, veh/h		2282			1410			39			293	
Approach Delay, s/veh		41.8			28.5			40.2			43.3	
Approach LOS		D			C			D			D	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		36.4	6.2	74.3		36.4	19.8	60.7				
Change Period (Y+Rc), s		* 4.7	4.6	* 6.5		* 4.7	4.6	6.5				
Max Green Setting (Gmax), s		* 32	5.0	* 68		* 32	15.2	57.3				
Max Q Clear Time (g_c+I1), s		23.7	2.8	62.5		22.2	10.8	37.9				
Green Ext Time (p_c), s		0.0	0.0	5.3		1.1	0.2	11.5				

Intersection Summary

HCM 6th Ctrl Delay	37.2
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

APPENDIX 9.2:

EAPC (2021) CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

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Timings
1: Lake St. & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

06/28/2018

									
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	122	131	205	69	57	742	404	20	298
Future Volume (vph)	122	131	205	69	57	742	404	20	298
Turn Type	Perm	NA	Perm	NA	Prot	NA	Perm	Prot	NA
Protected Phases		4		8	5	2		1	6
Permitted Phases	4		8				2		
Detector Phase	4	4	8	8	5	2	2	1	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	14.6	14.6	16.2	16.2	9.6	16.2	16.2	9.6	16.2
Total Split (s)	42.2	42.2	42.2	42.2	35.6	42.2	42.2	35.6	42.2
Total Split (%)	35.2%	35.2%	35.2%	35.2%	29.7%	35.2%	35.2%	29.7%	35.2%
Yellow Time (s)	3.6	3.6	5.2	5.2	3.6	5.2	5.2	3.6	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.6		6.2	4.6	6.2	6.2	4.6	6.2
Lead/Lag					Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	None	Max
Act Effect Green (s)		37.7		36.1	7.7	41.9	41.9	5.9	36.1
Actuated g/C Ratio		0.40		0.38	0.08	0.44	0.44	0.06	0.38
v/c Ratio		0.60		0.81	0.42	0.97	0.56	0.20	0.55
Control Delay		28.6		44.6	51.4	53.3	16.7	48.0	27.8
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		28.6		44.6	51.4	53.3	16.7	48.0	27.8
LOS		C		D	D	D	B	D	C
Approach Delay		28.6		44.6		40.9			28.9
Approach LOS		C		D		D			C

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 94.9

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.97

Intersection Signal Delay: 37.7

Intersection LOS: D

Intersection Capacity Utilization 86.0%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 1: Lake St. & Nichols Rd.

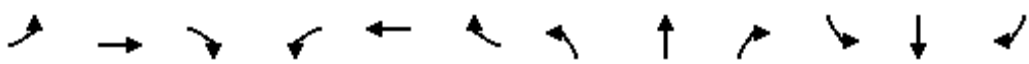
 Ø1	 Ø2	 Ø4
35.6 s	42.2 s	42.2 s
 Ø5	 Ø6	 Ø8
35.6 s	42.2 s	42.2 s

HCM 6th Signalized Intersection Summary

1: Lake St. & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

06/28/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↗	↖	↗	↖	↖	↖
Traffic Volume (veh/h)	122	131	54	205	69	43	57	742	404	20	298	57
Future Volume (veh/h)	122	131	54	205	69	43	57	742	404	20	298	57
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	131	141	58	220	74	34	61	798	0	22	320	61
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	235	236	87	315	89	38	81	855		43	665	127
Arrive On Green	0.31	0.31	0.31	0.31	0.31	0.31	0.05	0.46	0.00	0.02	0.44	0.44
Sat Flow, veh/h	557	752	279	773	285	122	1781	1870	1585	1781	1527	291
Grp Volume(v), veh/h	330	0	0	328	0	0	61	798	0	22	0	381
Grp Sat Flow(s),veh/h/ln	1589	0	0	1180	0	0	1781	1870	1585	1781	0	1818
Q Serve(g_s), s	0.0	0.0	0.0	7.8	0.0	0.0	2.8	33.4	0.0	1.0	0.0	12.4
Cycle Q Clear(g_c), s	14.6	0.0	0.0	22.4	0.0	0.0	2.8	33.4	0.0	1.0	0.0	12.4
Prop In Lane	0.40		0.18	0.67		0.10	1.00		1.00	1.00		0.16
Lane Grp Cap(c), veh/h	558	0	0	442	0	0	81	855		43	0	792
V/C Ratio(X)	0.59	0.00	0.00	0.74	0.00	0.00	0.75	0.93		0.51	0.00	0.48
Avail Cap(c_a), veh/h	777	0	0	605	0	0	668	855		668	0	792
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	24.4	0.0	0.0	27.7	0.0	0.0	39.0	21.2	0.0	39.9	0.0	16.7
Incr Delay (d2), s/veh	1.0	0.0	0.0	3.2	0.0	0.0	5.1	18.3	0.0	3.5	0.0	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.6	0.0	0.0	6.0	0.0	0.0	1.3	16.4	0.0	0.5	0.0	4.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.4	0.0	0.0	30.9	0.0	0.0	44.1	39.5	0.0	43.4	0.0	18.7
LnGrp LOS	C	A	A	C	A	A	D	D		D	A	B
Approach Vol, veh/h		330			328			859	A		403	
Approach Delay, s/veh		25.4			30.9			39.8			20.1	
Approach LOS		C			C			D			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.6	44.0		32.1	8.4	42.2		32.1				
Change Period (Y+Rc), s	4.6	6.2		* 6.2	4.6	6.2		6.2				
Max Green Setting (Gmax), s	31.0	36.0		* 38	31.0	36.0		36.0				
Max Q Clear Time (g_c+I1), s	3.0	35.4		16.6	4.8	14.4		24.4				
Green Ext Time (p_c), s	0.0	0.4		2.1	0.1	2.9		1.4				
Intersection Summary												
HCM 6th Ctrl Delay				31.7								
HCM 6th LOS				C								
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.												

Timings
2: Lake St. & Alberhill Ranch Rd.

S. Nichols Mixed-Use Development (JN 10878)

06/28/2018

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	62	50	1194	52	19	520
Future Volume (vph)	62	50	1194	52	19	520
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2		
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	15.1	15.1	16.2	16.2	11.2	16.2
Total Split (s)	15.1	15.1	93.7	93.7	11.2	104.9
Total Split (%)	12.6%	12.6%	78.1%	78.1%	9.3%	87.4%
Yellow Time (s)	4.1	4.1	5.2	5.2	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	6.2	6.2	6.2	6.2
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	Max	Max	None	Max
Act Effect Green (s)	10.0	10.0	98.5	98.5	5.0	103.0
Actuated g/C Ratio	0.08	0.08	0.82	0.82	0.04	0.86
v/c Ratio	0.45	0.29	0.83	0.04	0.27	0.35
Control Delay	62.7	18.2	16.1	1.8	65.3	3.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.7	18.2	16.1	1.8	65.3	3.0
LOS	E	B	B	A	E	A
Approach Delay	42.9		15.5			5.2
Approach LOS	D		B			A

Intersection Summary

Cycle Length: 120	
Actuated Cycle Length: 120	
Natural Cycle: 100	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.83	
Intersection Signal Delay: 14.2	Intersection LOS: B
Intersection Capacity Utilization 80.6%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 2: Lake St. & Alberhill Ranch Rd.



HCM 6th Signalized Intersection Summary
2: Lake St. & Alberhill Ranch Rd.

S. Nichols Mixed-Use Development (JN 10878)

06/28/2018

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	62	50	1194	52	19	520
Future Volume (veh/h)	62	50	1194	52	19	520
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	66	29	1270	46	20	553
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	143	127	1409	1192	36	1544
Arrive On Green	0.08	0.08	0.75	0.75	0.02	0.83
Sat Flow, veh/h	1781	1585	1870	1582	1781	1870
Grp Volume(v), veh/h	66	29	1270	46	20	553
Grp Sat Flow(s),veh/h/ln	1781	1585	1870	1582	1781	1870
Q Serve(g_s), s	4.2	2.1	62.4	0.9	1.3	8.8
Cycle Q Clear(g_c), s	4.2	2.1	62.4	0.9	1.3	8.8
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	143	127	1409	1192	36	1544
V/C Ratio(X)	0.46	0.23	0.90	0.04	0.55	0.36
Avail Cap(c_a), veh/h	149	133	1409	1192	74	1544
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.5	51.5	11.3	3.7	58.0	2.6
Incr Delay (d2), s/veh	0.9	0.3	9.6	0.1	4.8	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	0.8	21.3	0.2	0.6	1.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	53.4	51.9	20.9	3.8	62.9	3.2
LnGrp LOS	D	D	C	A	E	A
Approach Vol, veh/h	95		1316			573
Approach Delay, s/veh	52.9		20.3			5.3
Approach LOS	D		C			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	8.6	96.3			104.9	14.7
Change Period (Y+Rc), s	6.2	6.2			6.2	5.1
Max Green Setting (Gmax), s	5.0	87.5			98.7	10.0
Max Q Clear Time (g_c+I1), s	3.3	64.4			10.8	6.2
Green Ext Time (p_c), s	0.0	12.0			3.5	0.0
Intersection Summary						
HCM 6th Ctrl Delay			17.6			
HCM 6th LOS			B			

Intersection

Intersection Delay, s/veh21.2

Intersection LOS C

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	545	17	38	276	40	75
Future Vol, veh/h	545	17	38	276	40	75
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	619	19	43	314	45	85
Number of Lanes	1	0	0	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	1
HCM Control Delay	27.8	13.5	10.2
HCM LOS	D	B	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1
Vol Left, %	100%	0%	0%	12%
Vol Thru, %	0%	0%	97%	88%
Vol Right, %	0%	100%	3%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	40	75	562	314
LT Vol	40	0	0	38
Through Vol	0	0	545	276
RT Vol	0	75	17	0
Lane Flow Rate	45	85	639	357
Geometry Grp	7	7	2	2
Degree of Util (X)	0.093	0.146	0.841	0.514
Departure Headway (Hd)	7.393	6.168	4.738	5.184
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	486	584	754	699
Service Time	5.109	3.884	2.835	3.184
HCM Lane V/C Ratio	0.093	0.146	0.847	0.511
HCM Control Delay	10.9	9.9	27.8	13.5
HCM Lane LOS	B	A	D	B
HCM 95th-tile Q	0.3	0.5	9.6	3

Timings
4: Lakeshore Dr. & Riverside Dr. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

06/28/2018

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	22	504	151	141	597	369	283	312	225	183	12
Future Volume (vph)	22	504	151	141	597	369	283	312	225	183	12
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2	1	6	
Permitted Phases			4			8					6
Detector Phase	7	4	4	3	8	8	5	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	32.4	32.4	9.6	33.4	33.4	9.6	34.7	9.6	32.7	32.7
Total Split (s)	9.6	35.0	35.0	22.6	48.0	48.0	28.0	38.4	24.0	34.4	34.4
Total Split (%)	8.0%	29.2%	29.2%	18.8%	40.0%	40.0%	23.3%	32.0%	20.0%	28.7%	28.7%
Yellow Time (s)	3.6	4.4	4.4	3.6	4.4	4.4	3.6	3.7	3.6	3.7	3.7
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.4	5.4	4.6	5.4	5.4	4.6	4.7	4.6	4.7	4.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	None	Max	Max
Act Effect Green (s)	5.0	29.6	29.6	14.0	42.7	42.7	22.5	33.9	18.4	29.8	29.8
Actuated g/C Ratio	0.04	0.26	0.26	0.12	0.37	0.37	0.20	0.29	0.16	0.26	0.26
v/c Ratio	0.33	0.62	0.32	0.73	0.97	0.53	0.92	0.47	0.89	0.23	0.03
Control Delay	67.2	42.1	7.4	69.1	65.4	10.1	78.6	32.6	81.0	35.5	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	67.2	42.1	7.4	69.1	65.4	10.1	78.6	32.6	81.0	35.5	0.1
LOS	E	D	A	E	E	B	E	C	F	D	A
Approach Delay		35.1			47.4			50.8		58.9	
Approach LOS		D			D			D		E	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 115.3

Natural Cycle: 110

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.97

Intersection Signal Delay: 47.1

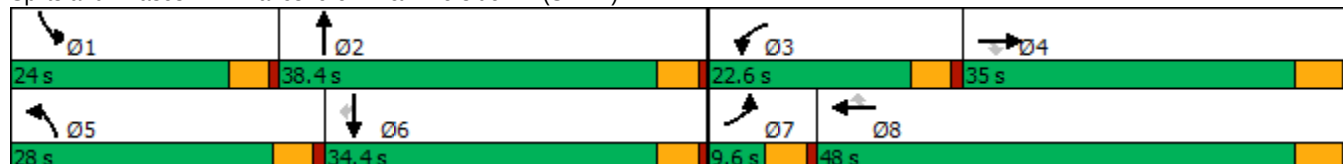
Intersection LOS: D

Intersection Capacity Utilization 89.1%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 4: Lakeshore Dr. & Riverside Dr. (SR-74)



HCM 6th Signalized Intersection Summary 4: Lakeshore Dr. & Riverside Dr. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

06/28/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	504	151	141	597	369	283	312	119	225	183	12
Future Volume (veh/h)	22	504	151	141	597	369	283	312	119	225	183	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	25	566	107	158	671	36	318	351	69	253	206	10
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	42	1008	449	186	681	577	344	860	167	280	902	403
Arrive On Green	0.02	0.28	0.28	0.10	0.36	0.36	0.19	0.29	0.29	0.16	0.25	0.25
Sat Flow, veh/h	1781	3554	1582	1781	1870	1584	1781	2965	576	1781	3554	1585
Grp Volume(v), veh/h	25	566	107	158	671	36	318	209	211	253	206	10
Grp Sat Flow(s),veh/h/ln	1781	1777	1582	1781	1870	1584	1781	1777	1764	1781	1777	1585
Q Serve(g_s), s	1.6	15.9	6.1	10.2	41.6	1.7	20.5	11.1	11.3	16.3	5.4	0.6
Cycle Q Clear(g_c), s	1.6	15.9	6.1	10.2	41.6	1.7	20.5	11.1	11.3	16.3	5.4	0.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.33	1.00		1.00
Lane Grp Cap(c), veh/h	42	1008	449	186	681	577	344	515	512	280	902	403
V/C Ratio(X)	0.59	0.56	0.24	0.85	0.98	0.06	0.93	0.41	0.41	0.90	0.23	0.02
Avail Cap(c_a), veh/h	76	1008	449	274	681	577	356	515	512	295	902	403
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.5	35.7	32.2	51.5	36.9	24.2	46.4	33.4	33.5	48.4	34.5	32.8
Incr Delay (d2), s/veh	4.8	0.7	0.3	10.4	30.6	0.0	28.2	2.4	2.5	27.4	0.6	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	6.8	2.3	5.0	23.9	0.6	11.7	5.1	5.2	9.4	2.4	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	61.3	36.4	32.5	61.9	67.4	24.2	74.6	35.8	35.9	75.8	35.1	32.9
LnGrp LOS	E	D	C	E	E	C	E	D	D	E	D	C
Approach Vol, veh/h		698			865			738			469	
Approach Delay, s/veh		36.7			64.6			52.5			57.0	
Approach LOS		D			E			D			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	23.0	38.6	16.8	38.6	27.2	34.4	7.4	48.0				
Change Period (Y+Rc), s	4.6	* 4.7	4.6	5.4	4.6	* 4.7	4.6	5.4				
Max Green Setting (Gmax), s	19.4	* 34	18.0	29.6	23.4	* 30	5.0	42.6				
Max Q Clear Time (g_c+I1), s	18.3	13.3	12.2	17.9	22.5	7.4	3.6	43.6				
Green Ext Time (p_c), s	0.0	2.4	0.1	3.1	0.1	1.3	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay 53.1

HCM 6th LOS D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection												
Int Delay, s/veh	5.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕	↕		↕	↕
Traffic Vol, veh/h	1	927	4	4	708	39	1	2	14	51	3	7
Future Vol, veh/h	1	927	4	4	708	39	1	2	14	51	3	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Stop	-	-	Stop
Storage Length	-	-	-	-	-	-	-	-	75	-	-	75
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	956	4	4	730	40	1	2	14	53	3	7
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	770	0	0	960	0	0	1720	1738	958	1719	1720	750
Stage 1	-	-	-	-	-	-	960	960	-	758	758	-
Stage 2	-	-	-	-	-	-	760	778	-	961	962	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	844	-	-	717	-	-	70	87	312	71	89	411
Stage 1	-	-	-	-	-	-	308	335	-	399	415	-
Stage 2	-	-	-	-	-	-	398	407	-	308	334	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	844	-	-	717	-	-	66	86	312	66	88	411
Mov Cap-2 Maneuver	-	-	-	-	-	-	66	86	-	66	88	-
Stage 1	-	-	-	-	-	-	307	334	-	398	411	-
Stage 2	-	-	-	-	-	-	384	403	-	291	333	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.1			23.5			149.8		
HCM LOS							C			F		
Minor Lane/Major Mvmt	NBLn1 NBLn2		EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2		
Capacity (veh/h)	78	312	844	-	-	717	-	-	67	411		
HCM Lane V/C Ratio	0.04	0.046	0.001	-	-	0.006	-	-	0.831	0.018		
HCM Control Delay (s)	53.1	17.1	9.3	0	-	10.1	0	-	167.4	13.9		
HCM Lane LOS	F	C	A	A	-	B	A	-	F	B		
HCM 95th %tile Q(veh)	0.1	0.1	0	-	-	0	-	-	3.9	0.1		

Intersection

Int Delay, s/veh 5.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	927	4	4	708	39	1	2	14	51	3	7
Future Vol, veh/h	1	927	4	4	708	39	1	2	14	51	3	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Stop	-	-	Stop
Storage Length	100	-	-	100	-	-	-	-	75	-	-	75
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	956	4	4	730	40	1	2	14	53	3	7

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	770	0	0	960	0	0	1720	1738	958	1719	1720	750
Stage 1	-	-	-	-	-	-	960	960	-	758	758	-
Stage 2	-	-	-	-	-	-	760	778	-	961	962	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	844	-	-	717	-	-	70	87	312	71	89	411
Stage 1	-	-	-	-	-	-	308	335	-	399	415	-
Stage 2	-	-	-	-	-	-	398	407	-	308	334	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	844	-	-	717	-	-	67	86	312	66	88	411
Mov Cap-2 Maneuver	-	-	-	-	-	-	67	86	-	66	88	-
Stage 1	-	-	-	-	-	-	308	335	-	399	413	-
Stage 2	-	-	-	-	-	-	386	405	-	292	334	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.1	23.3	149.8
HCM LOS			C	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	79	312	844	-	-	717	-	-	67	411
HCM Lane V/C Ratio	0.039	0.046	0.001	-	-	0.006	-	-	0.831	0.018
HCM Control Delay (s)	52.4	17.1	9.3	-	-	10.1	-	-	167.4	13.9
HCM Lane LOS	F	C	A	-	-	B	-	-	F	B
HCM 95th %tile Q(veh)	0.1	0.1	0	-	-	0	-	-	3.9	0.1

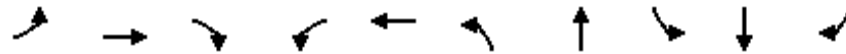
Intersection						
Int Delay, s/veh	4.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	568	61	117	269	53	104
Future Vol, veh/h	568	61	117	269	53	104
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	120	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	653	70	134	309	61	120
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	723	0	1265	688
Stage 1	-	-	-	-	688	-
Stage 2	-	-	-	-	577	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	879	-	187	446
Stage 1	-	-	-	-	499	-
Stage 2	-	-	-	-	562	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	879	-	159	446
Mov Cap-2 Maneuver	-	-	-	-	159	-
Stage 1	-	-	-	-	423	-
Stage 2	-	-	-	-	562	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		3		24.5	
HCM LOS	C					
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	159	446	-	-	879	-
HCM Lane V/C Ratio	0.383	0.268	-	-	0.153	-
HCM Control Delay (s)	41.1	16	-	-	9.8	-
HCM Lane LOS	E	C	-	-	A	-
HCM 95th %tile O(veh)	1.6	1.1	-	-	0.5	-

Timings

S. Nichols Mixed-Use Development (JN 10878)

7: Collier Av. (SR-74)/Collier Av. & Riverside Dr. (SR-74)/Riverside Dr.

06/28/2018



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations		↰	↱		↰	↱	↰	↱	↰	↱
Traffic Volume (vph)	82	11	901	5	1	693	92	1	91	59
Future Volume (vph)	82	11	901	5	1	693	92	1	91	59
Turn Type	Perm	NA	pm+ov	Perm	NA	Split	NA	Split	NA	Perm
Protected Phases		4	2		8	2	2	6	6	
Permitted Phases	4		4	8						6
Detector Phase	4	4	2	8	8	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	15.4	15.4	15.8	14.6	14.6	15.8	15.8	16.2	16.2	16.2
Total Split (s)	23.0	23.0	79.0	23.0	23.0	79.0	79.0	18.0	18.0	18.0
Total Split (%)	19.2%	19.2%	65.8%	19.2%	19.2%	65.8%	65.8%	15.0%	15.0%	15.0%
Yellow Time (s)	4.4	4.4	4.8	3.6	3.6	4.8	4.8	5.2	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.4	5.8		4.6	5.8	5.8	6.2	6.2	6.2
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	None	None	Max	None	None	Max	Max	Max	Max	Max
Act Effect Green (s)		13.5	92.2		14.3	73.3	73.3	11.8	11.8	11.8
Actuated g/C Ratio		0.12	0.79		0.12	0.63	0.63	0.10	0.10	0.10
v/c Ratio		0.61	0.72		0.04	0.65	0.09	0.01	0.51	0.27
Control Delay		64.8	7.0		39.2	17.4	8.3	49.0	60.2	11.3
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		64.8	7.0		39.2	17.4	8.3	49.0	60.2	11.3
LOS		E	A		D	B	A	D	E	B
Approach Delay		12.5			39.3		16.2		41.1	
Approach LOS		B			D		B		D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 116

Natural Cycle: 70

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.72

Intersection Signal Delay: 16.3

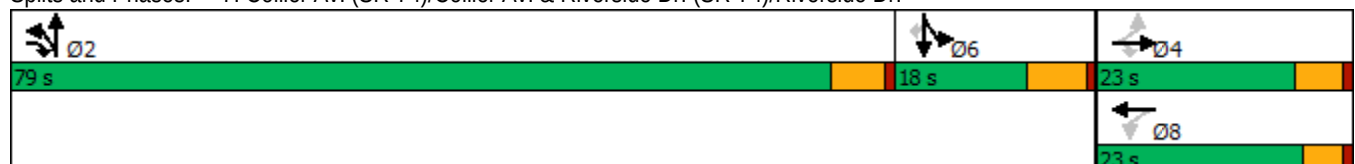
Intersection LOS: B

Intersection Capacity Utilization 86.3%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 7: Collier Av. (SR-74)/Collier Av. & Riverside Dr. (SR-74)/Riverside Dr.



HCM 6th Signalized Intersection Summary S. Nichols Mixed-Use Development (JN 10878)
 7: Collier Av. (SR-74)/Collier Av. & Riverside Dr. (SR-74)/Riverside Dr. 06/28/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	82	11	901	5	1	2	693	92	11	1	91	59
Future Volume (veh/h)	82	11	901	5	1	2	693	92	11	1	91	59
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	86	12	882	5	1	0	729	97	11	1	96	22
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	250	31	1199	110	17	0	1087	1006	114	175	184	156
Arrive On Green	0.15	0.15	0.15	0.15	0.15	0.00	0.61	0.61	0.61	0.10	0.10	0.10
Sat Flow, veh/h	1322	214	1585	372	117	0	1781	1650	187	1781	1870	1585
Grp Volume(v), veh/h	98	0	882	6	0	0	729	0	108	1	96	22
Grp Sat Flow(s),veh/h/ln	1536	0	1585	489	0	0	1781	0	1837	1781	1870	1585
Q Serve(g_s), s	0.0	0.0	17.6	0.1	0.0	0.0	32.4	0.0	2.9	0.1	5.9	1.5
Cycle Q Clear(g_c), s	6.4	0.0	17.6	6.4	0.0	0.0	32.4	0.0	2.9	0.1	5.9	1.5
Prop In Lane	0.88		1.00	0.83		0.00	1.00		0.10	1.00		1.00
Lane Grp Cap(c), veh/h	282	0	1199	127	0	0	1087	0	1120	175	184	156
V/C Ratio(X)	0.35	0.00	0.74	0.05	0.00	0.00	0.67	0.00	0.10	0.01	0.52	0.14
Avail Cap(c_a), veh/h	282	0	1199	131	0	0	1087	0	1120	175	184	156
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.4	0.0	5.7	44.0	0.0	0.0	15.4	0.0	9.7	48.8	51.4	49.5
Incr Delay (d2), s/veh	0.7	0.0	2.4	0.2	0.0	0.0	3.3	0.0	0.2	0.1	10.2	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	0.0	27.2	0.2	0.0	0.0	12.7	0.0	1.1	0.0	3.2	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.1	0.0	8.1	44.1	0.0	0.0	18.8	0.0	9.9	48.9	61.6	51.4
LnGrp LOS	D	A	A	D	A	A	B	A	A	D	E	D
Approach Vol, veh/h		980			6			837			119	
Approach Delay, s/veh		12.0			44.1			17.6			59.6	
Approach LOS		B			D			B			E	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		79.0		23.0		18.0		23.0				
Change Period (Y+Rc), s		5.8		5.4		6.2		* 5.4				
Max Green Setting (Gmax), s		73.2		17.6		11.8		* 18				
Max Q Clear Time (g_c+I1), s		34.4		19.6		7.9		8.4				
Green Ext Time (p_c), s		3.3		0.0		0.1		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			17.4									
HCM 6th LOS			B									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Timings

S. Nichols Mixed-Use Development (JN 10878)

8: Collier Av./Collier Av. (SR-74) & Central Av./Central Av. (SR-74)

06/28/2018

											
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	37	96	552	300	673	31	68	302	857	86	17
Future Volume (vph)	37	96	552	300	673	31	68	302	857	86	17
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	7	4	3	8	1	5	2	3	1	6	
Permitted Phases					8			2			6
Detector Phase	7	4	3	8	1	5	2	3	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	5.0	10.0	5.0	5.0	10.0	10.0
Minimum Split (s)	9.6	14.7	9.6	42.8	9.6	9.6	15.8	9.6	9.6	29.8	29.8
Total Split (s)	10.0	21.0	34.0	45.0	46.0	12.0	19.0	34.0	46.0	53.0	53.0
Total Split (%)	8.3%	17.5%	28.3%	37.5%	38.3%	10.0%	15.8%	28.3%	38.3%	44.2%	44.2%
Yellow Time (s)	3.6	3.7	3.6	4.8	3.6	3.6	4.8	3.6	3.6	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.7	4.6	5.8	4.6	4.6	5.8	4.6	4.6	5.8	5.8
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	None	None	Max	Max
Act Effect Green (s)	5.3	10.8	21.6	30.4	63.3	6.3	18.0	40.8	31.6	47.8	47.8
Actuated g/C Ratio	0.05	0.11	0.21	0.30	0.62	0.06	0.18	0.40	0.31	0.47	0.47
v/c Ratio	0.22	0.35	0.81	0.57	0.36	0.31	0.22	0.45	0.86	0.05	0.02
Control Delay	53.7	37.3	48.2	37.0	1.0	57.2	43.3	13.7	42.1	18.1	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.7	37.3	48.2	37.0	1.0	57.2	43.3	13.7	42.1	18.1	0.1
LOS	D	D	D	D	A	E	D	B	D	B	A
Approach Delay		40.9		25.1			22.1			39.2	
Approach LOS		D		C			C			D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 102

Natural Cycle: 95

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 30.0

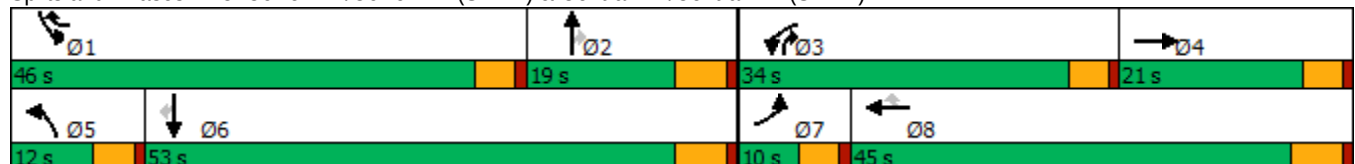
Intersection LOS: C

Intersection Capacity Utilization 67.8%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 8: Collier Av./Collier Av. (SR-74) & Central Av./Central Av. (SR-74)



HCM 6th Signalized Intersection Summary S. Nichols Mixed-Use Development (JN 10878)
 8: Collier Av./Collier Av. (SR-74) & Central Av./Central Av. (SR-74) 06/28/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	37	96	32	552	300	673	31	68	302	857	86	17
Future Volume (veh/h)	37	96	32	552	300	673	31	68	302	857	86	17
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	39	102	25	587	319	321	33	72	157	912	91	15
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	114	283	67	670	487	1521	53	391	634	1005	1669	734
Arrive On Green	0.03	0.10	0.10	0.19	0.26	0.26	0.03	0.21	0.21	0.29	0.47	0.47
Sat Flow, veh/h	3456	2840	673	3456	1870	2725	1781	1870	1563	3456	3554	1562
Grp Volume(v), veh/h	39	62	65	587	319	321	33	72	157	912	91	15
Grp Sat Flow(s),veh/h/ln	1728	1777	1736	1728	1870	1362	1781	1870	1563	1728	1777	1562
Q Serve(g_s), s	1.1	3.3	3.5	16.6	15.3	6.0	1.8	3.2	6.7	25.6	1.4	0.5
Cycle Q Clear(g_c), s	1.1	3.3	3.5	16.6	15.3	6.0	1.8	3.2	6.7	25.6	1.4	0.5
Prop In Lane	1.00		0.39	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	114	177	173	670	487	1521	53	391	634	1005	1669	734
V/C Ratio(X)	0.34	0.35	0.37	0.88	0.65	0.21	0.62	0.18	0.25	0.91	0.05	0.02
Avail Cap(c_a), veh/h	186	288	282	1011	730	1874	131	391	634	1424	1669	734
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.5	42.2	42.3	39.3	33.1	11.5	48.2	32.7	19.9	34.3	14.5	14.3
Incr Delay (d2), s/veh	0.7	1.2	1.3	4.0	1.5	0.1	4.3	1.0	0.9	5.3	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	1.5	1.6	7.1	6.8	1.6	0.9	1.5	2.4	10.8	0.5	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.2	43.4	43.7	43.4	34.6	11.5	52.5	33.7	20.9	39.7	14.6	14.3
LnGrp LOS	D	D	D	D	C	B	D	C	C	D	B	B
Approach Vol, veh/h		166			1227			262			1018	
Approach Delay, s/veh		44.6			32.8			28.4			37.0	
Approach LOS		D			C			C			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	33.8	26.8	24.1	15.8	7.6	53.0	7.9	32.0				
Change Period (Y+Rc), s	4.6	5.8	4.6	* 5.8	4.6	5.8	4.6	5.8				
Max Green Setting (Gmax), s	41.4	13.2	29.4	* 16	7.4	47.2	5.4	39.2				
Max Q Clear Time (g_c+I1), s	27.6	8.7	18.6	5.5	3.8	3.4	3.1	17.3				
Green Ext Time (p_c), s	1.7	0.3	0.9	0.4	0.0	0.6	0.0	3.0				
Intersection Summary												
HCM 6th Ctrl Delay			34.7									
HCM 6th LOS			C									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Intersection

Intersection Delay, s/veh30.6

Intersection LOS D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗	↖	↑						↕	
Traffic Vol, veh/h	0	304	369	89	295	0	0	0	0	184	6	92
Future Vol, veh/h	0	304	369	89	295	0	0	0	0	184	6	92
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles, %	0	3	3	25	3	0	0	0	0	8	67	13
Mvmt Flow	0	405	492	119	393	0	0	0	0	245	8	123
Number of Lanes	0	1	1	1	1	0	0	0	0	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	2
HCM Control Delay	33.5	29	25.7
HCM LOS	D	D	D

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	100%	0%	65%
Vol Thru, %	100%	0%	0%	100%	2%
Vol Right, %	0%	100%	0%	0%	33%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	304	369	89	295	282
LT Vol	0	0	89	0	184
Through Vol	304	0	0	295	6
RT Vol	0	369	0	0	92
Lane Flow Rate	405	492	119	393	376
Geometry Grp	7	7	7	7	2
Degree of Util (X)	0.787	0.857	0.271	0.801	0.718
Departure Headway (Hd)	6.991	6.272	8.228	7.329	6.871
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	519	581	438	496	523
Service Time	4.702	3.983	5.944	5.045	4.956
HCM Lane V/C Ratio	0.78	0.847	0.272	0.792	0.719
HCM Control Delay	30.9	35.6	14	33.5	25.7
HCM Lane LOS	D	E	B	D	D
HCM 95th-tile Q	7.2	9.4	1.1	7.5	5.8

Intersection												
Int Delay, s/veh	265.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	131	356	0	0	192	123	190	3	125	0	0	0
Future Vol, veh/h	131	356	0	0	192	123	190	3	125	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	230	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	62	62	62	62	62	62	62	62	62	62	62	62
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	211	574	0	0	310	198	306	5	202	0	0	0
Major/Minor	Major1			Major2			Minor1					
Conflicting Flow All	508	0	-	-	-	0	1405	1504	574			
Stage 1	-	-	-	-	-	-	996	996	-			
Stage 2	-	-	-	-	-	-	409	508	-			
Critical Hdwy	4.15	-	-	-	-	-	6.44	6.5	6.26			
Critical Hdwy Stg 1	-	-	-	-	-	-	5.44	5.5	-			
Critical Hdwy Stg 2	-	-	-	-	-	-	5.44	5.5	-			
Follow-up Hdwy	2.245	-	-	-	-	-	3.536	4	3.354			
Pot Cap-1 Maneuver	1042	-	0	0	-	-	~ 152	123	511			
Stage 1	-	-	0	0	-	-	354	325	-			
Stage 2	-	-	0	0	-	-	666	542	-			
Platoon blocked, %	-			-			-					
Mov Cap-1 Maneuver	1042	-	-	-	-	-	~ 121	0	511			
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 121	0	-			
Stage 1	-	-	-	-	-	-	~ 282	0	-			
Stage 2	-	-	-	-	-	-	666	0	-			
Approach	EB			WB			NB					
HCM Control Delay, s	2.5			0			\$ 932.4					
HCM LOS							F					
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR							
Capacity (veh/h)	174	1042	-	-	-							
HCM Lane V/C Ratio	2.948	0.203	-	-	-							
HCM Control Delay (s)	\$ 932.4	9.3	-	-	-							
HCM Lane LOS	F	A	-	-	-							
HCM 95th %tile Q(veh)	46.5	0.8	-	-	-							
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s			+: Computation Not Defined				*: All major volume in platoon			

Intersection	
Intersection Delay, s/veh	85.4
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	131	356	0	0	192	123	190	3	125	0	0	0
Future Vol, veh/h	131	356	0	0	192	123	190	3	125	0	0	0
Peak Hour Factor	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	211	574	0	0	310	198	306	5	202	0	0	0
Number of Lanes	1	1	0	0	1	0	0	1	0	0	0	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	114.1	64	62.5
HCM LOS	F	F	F

Lane	NBLn1	EBLn1	EBLn2	WBLn1
Vol Left, %	60%	100%	0%	0%
Vol Thru, %	1%	0%	100%	61%
Vol Right, %	39%	0%	0%	39%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	318	131	356	315
LT Vol	190	131	0	0
Through Vol	3	0	356	192
RT Vol	125	0	0	123
Lane Flow Rate	513	211	574	508
Geometry Grp	2	7	7	5
Degree of Util (X)	0.981	0.486	1.239	0.985
Departure Headway (Hd)	7.216	8.284	7.768	7.316
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	508	437	471	498
Service Time	5.216	5.984	5.468	5.316
HCM Lane V/C Ratio	1.01	0.483	1.219	1.02
HCM Control Delay	62.5	18.6	149.2	64
HCM Lane LOS	F	C	F	F
HCM 95th-tile Q	13	2.6	23.1	13

Intersection						
Int Delay, s/veh	0.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	471	10	0	286	29	0
Future Vol, veh/h	471	10	0	286	29	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	200	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	512	11	0	311	32	0
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	523	0	829	518
Stage 1	-	-	-	-	518	-
Stage 2	-	-	-	-	311	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1043	-	340	558
Stage 1	-	-	-	-	598	-
Stage 2	-	-	-	-	743	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1043	-	340	558
Mov Cap-2 Maneuver	-	-	-	-	340	-
Stage 1	-	-	-	-	598	-
Stage 2	-	-	-	-	743	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		16.7	
HCM LOS	C					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	340	-	-	1043	-	
HCM Lane V/C Ratio	0.093	-	-	-	-	
HCM Control Delay (s)	16.7	-	-	0	-	
HCM Lane LOS	C	-	-	A	-	
HCM 95th %tile Q(veh)	0.3	-	-	0	-	

Intersection						
Int Delay, s/veh	3.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	232	239	0	125	161	0
Future Vol, veh/h	232	239	0	125	161	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	200	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	252	260	0	136	175	0
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	512	0	518	382
Stage 1	-	-	-	-	382	-
Stage 2	-	-	-	-	136	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1053	-	518	665
Stage 1	-	-	-	-	690	-
Stage 2	-	-	-	-	890	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1053	-	518	665
Mov Cap-2 Maneuver	-	-	-	-	518	-
Stage 1	-	-	-	-	690	-
Stage 2	-	-	-	-	890	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		15.5	
HCM LOS	C					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	518	-	-	1053	-	
HCM Lane V/C Ratio	0.338	-	-	-	-	
HCM Control Delay (s)	15.5	-	-	0	-	
HCM Lane LOS	C	-	-	A	-	
HCM 95th %tile O(veh)	1.5	-	-	0	-	

Intersection												
Int Delay, s/veh	1.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	37	0	4	1	0	6	1	118	0	2	224	13
Future Vol, veh/h	37	0	4	1	0	6	1	118	0	2	224	13
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	40	0	4	1	0	7	1	128	0	2	243	14
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	388	384	250	386	391	128	257	0	0	128	0	0
Stage 1	254	254	-	130	130	-	-	-	-	-	-	-
Stage 2	134	130	-	256	261	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	571	550	789	573	545	922	1308	-	-	1458	-	-
Stage 1	750	697	-	874	789	-	-	-	-	-	-	-
Stage 2	869	789	-	749	692	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	566	548	789	568	543	922	1308	-	-	1458	-	-
Mov Cap-2 Maneuver	566	548	-	568	543	-	-	-	-	-	-	-
Stage 1	749	696	-	873	788	-	-	-	-	-	-	-
Stage 2	862	788	-	743	691	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	11.7		9.3		0.1		0.1					
HCM LOS	B		A									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1308	-	-	582	847	1458	-	-				
HCM Lane V/C Ratio	0.001	-	-	0.077	0.009	0.001	-	-				
HCM Control Delay (s)	7.8	0	-	11.7	9.3	7.5	0	-				
HCM Lane LOS	A	A	-	B	A	A	A	-				
HCM 95th %tile O(veh)	0	-	-	0.2	0	0	-	-				

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	120	229	0
Future Vol, veh/h	0	0	0	120	229	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	0	130	249	0
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	379	249	249	0	-	0
Stage 1	249	-	-	-	-	-
Stage 2	130	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	623	790	1317	-	-	-
Stage 1	792	-	-	-	-	-
Stage 2	896	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	623	790	1317	-	-	-
Mov Cap-2 Maneuver	623	-	-	-	-	-
Stage 1	792	-	-	-	-	-
Stage 2	896	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	0	0		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1317	-	-	-	-	
HCM Lane V/C Ratio	-	-	-	-	-	
HCM Control Delay (s)	0	-	0	-	-	
HCM Lane LOS	A	-	A	-	-	
HCM 95th %tile Q(veh)	0	-	-	-	-	

Intersection						
Int Delay, s/veh	0.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	3	226	111	3	10	9
Future Vol, veh/h	3	226	111	3	10	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	246	121	3	11	10
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	124	0	-	0	375	123
Stage 1	-	-	-	-	123	-
Stage 2	-	-	-	-	252	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1463	-	-	-	626	928
Stage 1	-	-	-	-	902	-
Stage 2	-	-	-	-	790	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1463	-	-	-	625	928
Mov Cap-2 Maneuver	-	-	-	-	625	-
Stage 1	-	-	-	-	900	-
Stage 2	-	-	-	-	790	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.1	0		10		
HCM LOS				B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1463	-	-	-	739	
HCM Lane V/C Ratio	0.002	-	-	-	0.028	
HCM Control Delay (s)	7.5	0	-	-	10	
HCM Lane LOS	A	A	-	-	B	
HCM 95th %tile Q(veh)	0	-	-	-	0.1	

Intersection						
Int Delay, s/veh	5.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	235	114	110	237	0
Future Vol, veh/h	0	235	114	110	237	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	255	124	120	258	0
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	626	258	258	0	-	0
Stage 1	258	-	-	-	-	-
Stage 2	368	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	448	781	1307	-	-	-
Stage 1	785	-	-	-	-	-
Stage 2	700	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	402	781	1307	-	-	-
Mov Cap-2 Maneuver	402	-	-	-	-	-
Stage 1	705	-	-	-	-	-
Stage 2	700	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	11.8	4.1		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1307	-	781	-	-	
HCM Lane V/C Ratio	0.095	-	0.327	-	-	
HCM Control Delay (s)	8	0	11.8	-	-	
HCM Lane LOS	A	A	B	-	-	
HCM 95th %tile Q(veh)	0.3	-	1.4	-	-	

Intersection						
Int Delay, s/veh	39.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	177	24	200	69	19	453
Future Vol, veh/h	177	24	200	69	19	453
Conflicting Peds, #/hr	0	1	0	3	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	66	66	66	66	66	66
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	268	36	303	105	29	686
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	1103	360	0	0	411	0
Stage 1	359	-	-	-	-	-
Stage 2	744	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	~ 234	684	-	-	1148	-
Stage 1	707	-	-	-	-	-
Stage 2	470	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 224	681	-	-	1145	-
Mov Cap-2 Maneuver	~ 224	-	-	-	-	-
Stage 1	676	-	-	-	-	-
Stage 2	470	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	182.4	0		0.3		
HCM LOS	F					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	-	244	1145	-	
HCM Lane V/C Ratio	-	-	1.248	0.025	-	
HCM Control Delay (s)	-	-	182.4	8.2	0	
HCM Lane LOS	-	-	F	A	A	
HCM 95th %tile Q(veh)	-	-	15.1	0.1	-	
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

Intersection						
Int Delay, s/veh	6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	177	24	200	69	19	453
Future Vol, veh/h	177	24	200	69	19	453
Conflicting Peds, #/hr	0	1	0	3	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	192	26	217	75	21	492
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	792	259	0	0	295	0
Stage 1	258	-	-	-	-	-
Stage 2	534	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	358	780	-	-	1266	-
Stage 1	785	-	-	-	-	-
Stage 2	588	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	349	777	-	-	1262	-
Mov Cap-2 Maneuver	349	-	-	-	-	-
Stage 1	765	-	-	-	-	-
Stage 2	588	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	27.3	0	0.3			
HCM LOS	D					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	374	1262	-	
HCM Lane V/C Ratio	-	-	0.584	0.016	-	
HCM Control Delay (s)	-	-	27.3	7.9	0	
HCM Lane LOS	-	-	D	A	A	
HCM 95th %tile Q(veh)	-	-	3.6	0.1	-	

Intersection												
Int Delay, s/veh	426.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	137	0	279	6	0	16	176	116	6	8	379	242
Future Vol, veh/h	137	0	279	6	0	16	176	116	6	8	379	242
Conflicting Peds, #/hr	0	0	0	0	0	21	0	0	14	0	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	69	69	69	69	69	69	69	69	69	69	69	69
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	199	0	404	9	0	23	255	168	9	12	549	351
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1465	1451	726	1648	1622	208	901	0	0	191	0	0
Stage 1	750	750	-	697	697	-	-	-	-	-	-	-
Stage 2	715	701	-	951	925	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	~ 106	131	425	79	103	832	754	-	-	1383	-	-
Stage 1	403	419	-	431	443	-	-	-	-	-	-	-
Stage 2	422	441	-	312	348	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	~ 70	79	425	~ 3	62	804	753	-	-	1365	-	-
Mov Cap-2 Maneuver	~ 70	79	-	~ 3	62	-	-	-	-	-	-	-
Stage 1	251	411	-	265	273	-	-	-	-	-	-	-
Stage 2	251	272	-	15	341	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s \$	1314		\$ 1540.1		7.2		0.1					
HCM LOS	F		F									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	753	-	-	159	11	1365	-	-				
HCM Lane V/C Ratio	0.339	-	-	3.792	2.899	0.008	-	-				
HCM Control Delay (s)	12.2	0	-	\$ 1314	\$ 1540.1	7.7	0	-				
HCM Lane LOS	B	A	-	F	F	A	A	-				
HCM 95th %tile Q(veh)	1.5	-	-	59.3	5	0	-	-				
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s			+: Computation Not Defined				*: All major volume in platoon			

Intersection												
Int Delay, s/veh	94.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	137	0	279	6	0	16	176	116	6	8	379	242
Future Vol, veh/h	137	0	279	6	0	16	176	116	6	8	379	242
Conflicting Peds, #/hr	0	0	0	0	0	21	0	0	14	0	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	149	0	303	7	0	17	191	126	7	9	412	263
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1104	1092	545	1239	1220	165	676	0	0	147	0	0
Stage 1	563	563	-	526	526	-	-	-	-	-	-	-
Stage 2	541	529	-	713	694	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	188	215	538	152	180	879	915	-	-	1435	-	-
Stage 1	511	509	-	535	529	-	-	-	-	-	-	-
Stage 2	525	527	-	423	444	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	~ 148	162	537	54	136	850	914	-	-	1416	-	-
Mov Cap-2 Maneuver	~ 148	162	-	54	136	-	-	-	-	-	-	-
Stage 1	395	503	-	409	404	-	-	-	-	-	-	-
Stage 2	390	403	-	182	439	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s\$	304.8		29.8		5.9		0.1					
HCM LOS	F		D									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	914	-	-	288	169	1416	-	-				
HCM Lane V/C Ratio	0.209	-	-	1.57	0.141	0.006	-	-				
HCM Control Delay (s)	10	0	-	\$ 304.8	29.8	7.6	0	-				
HCM Lane LOS	A	A	-	F	D	A	A	-				
HCM 95th %tile Q(veh)	0.8	-	-	26.8	0.5	0	-	-				
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s			+: Computation Not Defined				*: All major volume in platoon			

Timings
19: Dexter Av. & Central Av. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

06/28/2018

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations		  			  			 		 	
Traffic Volume (vph)	246	1018	147	129	1588	212	118	270	80	154	399
Future Volume (vph)	246	1018	147	129	1588	212	118	270	80	154	399
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2	1	6	7
Permitted Phases			4			8					6
Detector Phase	7	4	4	3	8	8	5	2	1	6	7
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0	5.0
Minimum Split (s)	9.6	26.8	26.8	9.6	26.8	26.8	9.6	42.4	9.6	15.8	9.6
Total Split (s)	26.0	42.4	42.4	21.1	37.5	37.5	19.5	43.5	13.0	37.0	26.0
Total Split (%)	21.7%	35.3%	35.3%	17.6%	31.3%	31.3%	16.3%	36.3%	10.8%	30.8%	21.7%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	4.8	3.6	4.4	3.6	4.8	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	5.8	4.6	5.8	5.8	4.6	5.4	4.6	5.8	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	None	Max	None
Act Effect Green (s)	20.1	38.6	38.6	13.2	31.7	31.7	12.2	38.1	8.0	33.5	59.4
Actuated g/C Ratio	0.17	0.33	0.33	0.11	0.27	0.27	0.10	0.32	0.07	0.28	0.50
v/c Ratio	0.90	0.67	0.26	0.72	1.02	0.41	0.71	0.68	0.75	0.32	0.52
Control Delay	80.2	37.4	5.8	71.2	69.0	9.2	72.6	40.8	89.2	36.8	17.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	80.2	37.4	5.8	71.2	69.0	9.2	72.6	40.8	89.2	36.8	17.3
LOS	F	D	A	E	E	A	E	D	F	D	B
Approach Delay		41.5			62.6			48.6		31.2	
Approach LOS		D			E			D		C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 118.3

Natural Cycle: 110

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.02

Intersection Signal Delay: 49.9

Intersection LOS: D

Intersection Capacity Utilization 88.9%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 19: Dexter Av. & Central Av. (SR-74)

			
Ø1	Ø2	Ø3	Ø4
13 s	43.5 s	21.1 s	42.4 s
			
Ø5	Ø6	Ø7	Ø8
19.5 s	37 s	26 s	37.5 s

HCM 6th Signalized Intersection Summary
19: Dexter Av. & Central Av. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

06/28/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  							
Traffic Volume (veh/h)	246	1018	147	129	1588	212	118	270	92	80	154	399
Future Volume (veh/h)	246	1018	147	129	1588	212	118	270	92	80	154	399
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	270	1119	119	142	1745	191	130	297	60	88	169	382
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	297	1743	541	169	1736	422	157	490	99	111	558	737
Arrive On Green	0.17	0.34	0.34	0.10	0.27	0.27	0.09	0.32	0.32	0.06	0.30	0.30
Sat Flow, veh/h	1781	5106	1585	1781	6434	1565	1781	1510	305	1781	1870	1585
Grp Volume(v), veh/h	270	1119	119	142	1745	191	130	0	357	88	169	382
Grp Sat Flow(s),veh/h/ln	1781	1702	1585	1781	1609	1565	1781	0	1815	1781	1870	1585
Q Serve(g_s), s	17.5	21.7	6.3	9.2	31.7	11.9	8.4	0.0	19.4	5.7	8.2	20.0
Cycle Q Clear(g_c), s	17.5	21.7	6.3	9.2	31.7	11.9	8.4	0.0	19.4	5.7	8.2	20.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.17	1.00		1.00
Lane Grp Cap(c), veh/h	297	1743	541	169	1736	422	157	0	589	111	558	737
V/C Ratio(X)	0.91	0.64	0.22	0.84	1.00	0.45	0.83	0.00	0.61	0.80	0.30	0.52
Avail Cap(c_a), veh/h	325	1743	541	250	1736	422	226	0	589	127	558	737
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.1	32.6	27.5	52.3	42.9	35.7	52.7	0.0	33.4	54.3	31.8	22.1
Incr Delay (d2), s/veh	25.8	0.8	0.2	9.9	22.8	0.8	10.7	0.0	4.6	22.0	1.4	2.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.6	8.7	2.3	4.5	14.8	4.5	4.2	0.0	9.1	3.2	3.8	7.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	73.9	33.4	27.7	62.2	65.7	36.4	63.4	0.0	38.0	76.4	33.2	24.7
LnGrp LOS	E	C	C	E	F	D	E	A	D	E	C	C
Approach Vol, veh/h		1508			2078			487			639	
Approach Delay, s/veh		40.2			62.8			44.8			34.1	
Approach LOS		D			E			D			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.9	43.9	15.8	45.9	14.9	40.9	24.2	37.5				
Change Period (Y+Rc), s	4.6	* 5.8	4.6	5.8	4.6	5.8	4.6	5.8				
Max Green Setting (Gmax), s	8.4	* 38	16.5	36.6	14.9	31.2	21.4	31.7				
Max Q Clear Time (g_c+I1), s	7.7	21.4	11.2	23.7	10.4	22.0	19.5	33.7				
Green Ext Time (p_c), s	0.0	1.8	0.1	6.1	0.1	1.6	0.1	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			49.8									
HCM 6th LOS			D									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Timings

S. Nichols Mixed-Use Development (JN 10878)

20: Cambern Av./Cambern Av & Central Av. (SR-74)

06/28/2018

										
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations	 	 		 					 	
Traffic Volume (vph)	131	1151	11	1827	118	22	5	134	6	92
Future Volume (vph)	131	1151	11	1827	118	22	5	134	6	92
Turn Type	Prot	NA	Prot	NA	Perm	Perm	NA	Perm	NA	Perm
Protected Phases	7	4	3	8			2		6	
Permitted Phases					8	2		6		6
Detector Phase	7	4	3	8	8	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	24.8	9.6	25.5	25.5	34.7	34.7	14.7	14.7	14.7
Total Split (s)	12.0	75.4	9.6	73.0	73.0	35.0	35.0	35.0	35.0	35.0
Total Split (%)	10.0%	62.8%	8.0%	60.8%	60.8%	29.2%	29.2%	29.2%	29.2%	29.2%
Yellow Time (s)	3.6	4.8	3.6	5.5	5.5	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.6	5.8	4.6	6.5	6.5	4.7	4.7		4.7	4.7
Lead/Lag	Lead	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	Max	None	None	None	None	Max	Max	Max	Max	Max
Act Effect Green (s)	7.4	75.4	5.0	66.5	66.5	30.3	30.3		30.3	30.3
Actuated g/C Ratio	0.06	0.63	0.04	0.55	0.55	0.25	0.25		0.25	0.25
v/c Ratio	0.68	0.58	0.16	1.02	0.14	0.09	0.07		0.46	0.22
Control Delay	71.9	14.9	60.7	53.8	2.5	35.5	15.7		43.2	11.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay	71.9	14.9	60.7	53.8	2.5	35.5	15.7		43.2	11.8
LOS	E	B	E	D	A	D	B		D	B
Approach Delay		20.7		50.7			24.8		30.8	
Approach LOS		C		D			C		C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Natural Cycle: 120

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.02

Intersection Signal Delay: 38.1

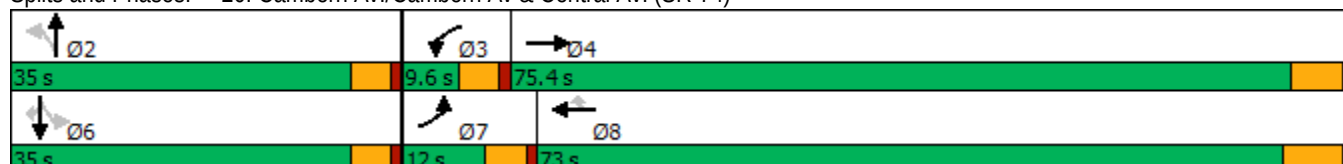
Intersection LOS: D

Intersection Capacity Utilization 97.1%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 20: Cambern Av./Cambern Av & Central Av. (SR-74)



HCM 6th Signalized Intersection Summary S. Nichols Mixed-Use Development (JN 10878)
 20: Cambern Av./Cambern Av & Central Av. (SR-74) 06/28/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	131	1151	11	11	1827	118	22	5	21	134	6	92
Future Volume (veh/h)	131	1151	11	11	1827	118	22	5	21	134	6	92
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	144	1265	12	12	2008	88	24	5	22	147	7	57
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	213	2172	21	24	1969	867	255	76	335	379	15	400
Arrive On Green	0.06	0.60	0.60	0.01	0.55	0.55	0.25	0.25	0.25	0.25	0.25	0.25
Sat Flow, veh/h	3456	3607	34	1781	3554	1564	1337	301	1326	1267	60	1583
Grp Volume(v), veh/h	144	623	654	12	2008	88	24	0	27	154	0	57
Grp Sat Flow(s),veh/h/ln	1728	1777	1864	1781	1777	1564	1337	0	1628	1327	0	1583
Q Serve(g_s), s	4.9	25.8	25.8	0.8	66.5	3.2	1.9	0.0	1.5	11.3	0.0	3.4
Cycle Q Clear(g_c), s	4.9	25.8	25.8	0.8	66.5	3.2	14.7	0.0	1.5	12.8	0.0	3.4
Prop In Lane	1.00		0.02	1.00		1.00	1.00		0.81	0.95		1.00
Lane Grp Cap(c), veh/h	213	1070	1122	24	1969	867	255	0	411	394	0	400
V/C Ratio(X)	0.68	0.58	0.58	0.49	1.02	0.10	0.09	0.00	0.07	0.39	0.00	0.14
Avail Cap(c_a), veh/h	213	1070	1122	74	1969	867	255	0	411	394	0	400
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	55.1	14.6	14.6	58.8	26.7	12.6	44.6	0.0	34.1	39.0	0.0	34.8
Incr Delay (d2), s/veh	15.9	1.0	0.9	5.5	25.4	0.1	0.7	0.0	0.3	2.9	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	9.6	10.1	0.4	30.9	1.0	0.7	0.0	0.6	4.2	0.0	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	71.0	15.6	15.6	64.3	52.1	12.7	45.3	0.0	34.4	41.9	0.0	35.5
LnGrp LOS	E	B	B	E	F	B	D	A	C	D	A	D
Approach Vol, veh/h		1421			2108			51			211	
Approach Delay, s/veh		21.2			50.5			39.5			40.2	
Approach LOS		C			D			D			D	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		35.0	6.2	78.8		35.0	12.0	73.0				
Change Period (Y+Rc), s		* 4.7	4.6	* 6.5		* 4.7	4.6	6.5				
Max Green Setting (Gmax), s		* 30	5.0	* 70		* 30	7.4	66.5				
Max Q Clear Time (g_c+I1), s		16.7	2.8	27.8		14.8	6.9	68.5				
Green Ext Time (p_c), s		0.1	0.0	15.7		0.9	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			38.8									
HCM 6th LOS			D									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Timings
1: Lake St. & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

06/28/2018

									
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	104	130	283	164	79	402	203	35	926
Future Volume (vph)	104	130	283	164	79	402	203	35	926
Turn Type	Perm	NA	Perm	NA	Prot	NA	Perm	Prot	NA
Protected Phases		4		8	5	2		1	6
Permitted Phases	4		8				2		
Detector Phase	4	4	8	8	5	2	2	1	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	14.6	14.6	16.2	16.2	9.6	16.2	16.2	9.6	16.2
Total Split (s)	42.2	42.2	42.2	42.2	35.6	42.2	42.2	35.6	42.2
Total Split (%)	35.2%	35.2%	35.2%	35.2%	29.7%	35.2%	35.2%	29.7%	35.2%
Yellow Time (s)	3.6	3.6	5.2	5.2	3.6	5.2	5.2	3.6	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.6		6.2	4.6	6.2	6.2	4.6	6.2
Lead/Lag					Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	None	Max
Act Effect Green (s)		37.8		36.2	9.1	40.5	40.5	6.7	36.2
Actuated g/C Ratio		0.39		0.38	0.09	0.42	0.42	0.07	0.38
v/c Ratio		0.64		1.27	0.52	0.56	0.30	0.31	1.71
Control Delay		30.3		168.4	53.6	25.7	9.6	50.7	348.3
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		30.3		168.4	53.6	25.7	9.6	50.7	348.3
LOS		C		F	D	C	A	D	F
Approach Delay		30.3		168.4		24.1			338.9
Approach LOS		C		F		C			F

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 96.2

Natural Cycle: 150

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.71

Intersection Signal Delay: 186.0

Intersection LOS: F

Intersection Capacity Utilization 121.2%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 1: Lake St. & Nichols Rd.

 Ø1	 Ø2	 Ø4
35.6 s	42.2 s	42.2 s
 Ø5	 Ø6	 Ø8
35.6 s	42.2 s	42.2 s

HCM 6th Signalized Intersection Summary

1: Lake St. & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

06/28/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	104	130	82	283	164	23	79	402	203	35	926	138
Future Volume (veh/h)	104	130	82	283	164	23	79	402	203	35	926	138
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	114	143	90	311	180	17	87	442	0	38	1018	152
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	221	271	155	333	157	15	112	764		59	603	90
Arrive On Green	0.38	0.38	0.38	0.38	0.38	0.38	0.06	0.41	0.00	0.03	0.38	0.38
Sat Flow, veh/h	451	716	409	718	415	39	1781	1870	1585	1781	1590	237
Grp Volume(v), veh/h	347	0	0	508	0	0	87	442	0	38	0	1170
Grp Sat Flow(s),veh/h/ln	1575	0	0	1172	0	0	1781	1870	1585	1781	0	1828
Q Serve(g_s), s	0.0	0.0	0.0	19.8	0.0	0.0	4.6	17.4	0.0	2.0	0.0	36.0
Cycle Q Clear(g_c), s	16.2	0.0	0.0	36.0	0.0	0.0	4.6	17.4	0.0	2.0	0.0	36.0
Prop In Lane	0.33		0.26	0.61		0.03	1.00		1.00	1.00		0.13
Lane Grp Cap(c), veh/h	647	0	0	505	0	0	112	764		59	0	693
V/C Ratio(X)	0.54	0.00	0.00	1.01	0.00	0.00	0.77	0.58		0.64	0.00	1.69
Avail Cap(c_a), veh/h	673	0	0	505	0	0	581	764		581	0	693
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	23.2	0.0	0.0	32.9	0.0	0.0	43.8	21.7	0.0	45.3	0.0	29.5
Incr Delay (d2), s/veh	0.8	0.0	0.0	41.3	0.0	0.0	4.2	3.2	0.0	4.2	0.0	316.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.2	0.0	0.0	17.0	0.0	0.0	2.0	7.5	0.0	0.9	0.0	74.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.9	0.0	0.0	74.3	0.0	0.0	48.1	24.9	0.0	49.6	0.0	345.8
LnGrp LOS	C	A	A	F	A	A	D	C		D	A	F
Approach Vol, veh/h		347			508			529	A		1208	
Approach Delay, s/veh		23.9			74.3			28.7			336.5	
Approach LOS		C			E			C			F	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.8	45.0		42.2	10.6	42.2		42.2				
Change Period (Y+Rc), s	4.6	6.2		* 6.2	4.6	6.2		6.2				
Max Green Setting (Gmax), s	31.0	36.0		* 38	31.0	36.0		36.0				
Max Q Clear Time (g_c+I1), s	4.0	19.4		18.2	6.6	38.0		38.0				
Green Ext Time (p_c), s	0.0	3.1		2.3	0.1	0.0		0.0				
Intersection Summary												
HCM 6th Ctrl Delay				180.5								
HCM 6th LOS				F								
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.												

Timings
2: Lake St. & Alberhill Ranch Rd.

S. Nichols Mixed-Use Development (JN 10878)

06/28/2018

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	38	20	635	33	24	1226
Future Volume (vph)	38	20	635	33	24	1226
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2		
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	15.1	15.1	16.2	16.2	11.2	16.2
Total Split (s)	16.0	16.0	91.0	91.0	13.0	104.0
Total Split (%)	13.3%	13.3%	75.8%	75.8%	10.8%	86.7%
Yellow Time (s)	4.1	4.1	5.2	5.2	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	6.2	6.2	6.2	6.2
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	Max	Max	None	Max
Act Effect Green (s)	10.0	10.0	94.4	94.4	5.9	102.1
Actuated g/C Ratio	0.08	0.08	0.79	0.79	0.05	0.86
v/c Ratio	0.26	0.13	0.44	0.03	0.27	0.78
Control Delay	56.0	22.2	6.9	1.7	62.0	9.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.0	22.2	6.9	1.7	62.0	9.9
LOS	E	C	A	A	E	A
Approach Delay	44.6		6.7			10.8
Approach LOS	D		A			B

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 119.1
Natural Cycle: 80
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.78
Intersection Signal Delay: 10.4
Intersection LOS: B
Intersection Capacity Utilization 82.3%
ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 2: Lake St. & Alberhill Ranch Rd.



HCM 6th Signalized Intersection Summary
2: Lake St. & Alberhill Ranch Rd.

S. Nichols Mixed-Use Development (JN 10878)

06/28/2018

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	38	20	635	33	24	1226
Future Volume (veh/h)	38	20	635	33	24	1226
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		0.98	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	39	7	648	31	24	1251
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	118	105	1423	1181	41	1565
Arrive On Green	0.07	0.07	0.76	0.76	0.02	0.84
Sat Flow, veh/h	1781	1585	1870	1553	1781	1870
Grp Volume(v), veh/h	39	7	648	31	24	1251
Grp Sat Flow(s),veh/h/ln	1781	1585	1870	1553	1781	1870
Q Serve(g_s), s	2.4	0.5	14.8	0.6	1.6	38.5
Cycle Q Clear(g_c), s	2.4	0.5	14.8	0.6	1.6	38.5
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	118	105	1423	1181	41	1565
V/C Ratio(X)	0.33	0.07	0.46	0.03	0.58	0.80
Avail Cap(c_a), veh/h	166	148	1423	1181	104	1565
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.1	51.2	5.1	3.4	56.5	4.7
Incr Delay (d2), s/veh	0.6	0.1	1.1	0.0	4.8	4.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.2	4.4	0.1	0.7	7.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	52.7	51.3	6.2	3.5	61.3	9.1
LnGrp LOS	D	D	A	A	E	A
Approach Vol, veh/h	46		679			1275
Approach Delay, s/veh	52.5		6.0			10.0
Approach LOS	D		A			B
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	8.9	95.1			104.0	12.9
Change Period (Y+Rc), s	6.2	6.2			6.2	5.1
Max Green Setting (Gmax), s	6.8	84.8			97.8	10.9
Max Q Clear Time (g_c+I1), s	3.6	16.8			40.5	4.4
Green Ext Time (p_c), s	0.0	4.4			16.2	0.0
Intersection Summary						
HCM 6th Ctrl Delay			9.7			
HCM 6th LOS			A			

Intersection

Intersection Delay, s/veh 16.7

Intersection LOS C

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	351	19	82	461	10	68
Future Vol, veh/h	351	19	82	461	10	68
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	373	20	87	490	11	72
Number of Lanes	1	0	0	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	1
HCM Control Delay	13	20.2	9.7
HCM LOS	B	C	A

Lane	NBLn1	NBLn2	EBLn1	WBLn1
Vol Left, %	100%	0%	0%	15%
Vol Thru, %	0%	0%	95%	85%
Vol Right, %	0%	100%	5%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	10	68	370	543
LT Vol	10	0	0	82
Through Vol	0	0	351	461
RT Vol	0	68	19	0
Lane Flow Rate	11	72	394	578
Geometry Grp	7	7	2	2
Degree of Util (X)	0.021	0.121	0.522	0.746
Departure Headway (Hd)	7.267	6.043	4.777	4.646
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	496	597	748	774
Service Time	4.967	3.743	2.843	2.704
HCM Lane V/C Ratio	0.022	0.121	0.527	0.747
HCM Control Delay	10.1	9.6	13	20.2
HCM Lane LOS	B	A	B	C
HCM 95th-tile Q	0.1	0.4	3.1	6.9

Timings
4: Lakeshore Dr. & Riverside Dr. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

06/28/2018

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	33	554	280	129	677	333	207	268	293	328	18
Future Volume (vph)	33	554	280	129	677	333	207	268	293	328	18
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2	1	6	
Permitted Phases			4			8					6
Detector Phase	7	4	4	3	8	8	5	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	32.4	32.4	9.6	33.4	33.4	9.6	34.7	9.6	32.7	32.7
Total Split (s)	9.6	38.3	38.3	20.3	49.0	49.0	27.6	35.4	26.0	33.8	33.8
Total Split (%)	8.0%	31.9%	31.9%	16.9%	40.8%	40.8%	23.0%	29.5%	21.7%	28.2%	28.2%
Yellow Time (s)	3.6	4.4	4.4	3.6	4.4	4.4	3.6	3.7	3.6	3.7	3.7
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.4	5.4	4.6	5.4	5.4	4.6	4.7	4.6	4.7	4.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	None	Max	Max
Act Effect Green (s)	5.0	32.2	32.2	12.4	43.7	43.7	17.7	30.8	21.2	34.2	34.2
Actuated g/C Ratio	0.04	0.28	0.28	0.11	0.38	0.38	0.15	0.27	0.18	0.30	0.30
v/c Ratio	0.45	0.58	0.45	0.70	1.00	0.46	0.79	0.47	0.93	0.32	0.03
Control Delay	74.3	39.2	6.2	69.9	70.0	9.7	67.8	28.7	84.0	34.7	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	74.3	39.2	6.2	69.9	70.0	9.7	67.8	28.7	84.0	34.7	0.1
LOS	E	D	A	E	E	A	E	C	F	C	A
Approach Delay		29.9			52.4			41.2		56.3	
Approach LOS		C			D			D		E	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 115.9

Natural Cycle: 120

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.00

Intersection Signal Delay: 45.0

Intersection LOS: D

Intersection Capacity Utilization 97.1%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 4: Lakeshore Dr. & Riverside Dr. (SR-74)

Ø1	Ø2	Ø3	Ø4
26 s	35.4 s	20.3 s	38.3 s
Ø5	Ø6	Ø7	Ø8
27.6 s	33.8 s	9.6 s	49 s

HCM 6th Signalized Intersection Summary 4: Lakeshore Dr. & Riverside Dr. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

06/28/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	33	554	280	129	677	333	207	268	171	293	328	18
Future Volume (veh/h)	33	554	280	129	677	333	207	268	171	293	328	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	34	571	169	133	698	189	213	276	72	302	338	15
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	51	1091	487	160	689	576	242	726	186	322	1082	477
Arrive On Green	0.03	0.31	0.31	0.09	0.37	0.37	0.14	0.26	0.26	0.18	0.30	0.30
Sat Flow, veh/h	1781	3554	1585	1781	1870	1564	1781	2799	717	1781	3554	1565
Grp Volume(v), veh/h	34	571	169	133	698	189	213	173	175	302	338	15
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1870	1564	1781	1777	1739	1781	1777	1565
Q Serve(g_s), s	2.2	15.7	9.8	8.7	43.6	10.3	13.9	9.5	9.8	19.8	8.7	0.8
Cycle Q Clear(g_c), s	2.2	15.7	9.8	8.7	43.6	10.3	13.9	9.5	9.8	19.8	8.7	0.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.41	1.00		1.00
Lane Grp Cap(c), veh/h	51	1091	487	160	689	576	242	461	451	322	1082	477
V/C Ratio(X)	0.67	0.52	0.35	0.83	1.01	0.33	0.88	0.38	0.39	0.94	0.31	0.03
Avail Cap(c_a), veh/h	75	1091	487	236	689	576	346	461	451	322	1082	477
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.0	33.9	31.8	53.0	37.4	26.9	50.2	36.0	36.1	47.8	31.6	28.9
Incr Delay (d2), s/veh	5.6	0.5	0.4	9.7	37.6	0.3	13.0	2.3	2.5	33.8	0.8	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	6.7	3.7	4.3	26.2	3.8	7.1	4.4	4.5	11.8	3.8	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.6	34.3	32.2	62.7	75.0	27.2	63.2	38.3	38.6	81.6	32.4	29.0
LnGrp LOS	E	C	C	E	F	C	E	D	D	F	C	C
Approach Vol, veh/h	774				1020				561			
Approach Delay, s/veh	35.1				64.5				47.9			
Approach LOS	D				E				D			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	26.0	35.4	15.2	41.7	20.7	40.7	8.0	49.0				
Change Period (Y+Rc), s	4.6	* 4.7	4.6	5.4	4.6	* 4.7	4.6	5.4				
Max Green Setting (Gmax), s	21.4	* 31	15.7	32.9	23.0	* 29	5.0	43.6				
Max Q Clear Time (g_c+I1), s	21.8	11.8	10.7	17.7	15.9	10.7	4.2	45.6				
Green Ext Time (p_c), s	0.0	1.9	0.1	3.7	0.2	2.1	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay 51.8

HCM 6th LOS D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection

Int Delay, s/veh 5.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕	↕		↕	↕
Traffic Vol, veh/h	3	949	5	10	975	126	1	0	10	33	1	3
Future Vol, veh/h	3	949	5	10	975	126	1	0	10	33	1	3
Conflicting Peds, #/hr	0	0	0	0	0	1	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Stop	-	-	Stop
Storage Length	-	-	-	-	-	-	-	-	75	-	-	75
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	978	5	10	1005	130	1	0	10	34	1	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1136	0	0	983	0	0	2078	2143	981	2078	2080	1071
Stage 1	-	-	-	-	-	-	987	987	-	1091	1091	-
Stage 2	-	-	-	-	-	-	1091	1156	-	987	989	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	615	-	-	703	-	-	39	49	303	39	53	268
Stage 1	-	-	-	-	-	-	298	325	-	260	291	-
Stage 2	-	-	-	-	-	-	260	271	-	298	325	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	614	-	-	703	-	-	36	46	303	36	50	268
Mov Cap-2 Maneuver	-	-	-	-	-	-	36	46	-	36	50	-
Stage 1	-	-	-	-	-	-	295	321	-	257	279	-
Stage 2	-	-	-	-	-	-	246	260	-	285	321	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.1	25.5	285
HCM LOS			D	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	36	303	614	-	-	703	-	-	36	268
HCM Lane V/C Ratio	0.029	0.034	0.005	-	-	0.015	-	-	0.974	0.012
HCM Control Delay (s)	107.9	17.3	10.9	0	-	10.2	0	-	308.5	18.6
HCM Lane LOS	F	C	B	A	-	B	A	-	F	C
HCM 95th %tile Q(veh)	0.1	0.1	0	-	-	0	-	-	3.6	0

Intersection												
Int Delay, s/veh	4.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	949	5	10	975	126	1	0	10	33	1	3
Future Vol, veh/h	3	949	5	10	975	126	1	0	10	33	1	3
Conflicting Peds, #/hr	0	0	0	0	0	1	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Stop	-	-	Stop
Storage Length	100	-	-	100	-	-	-	-	75	-	-	75
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	978	5	10	1005	130	1	0	10	34	1	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1136	0	0	983	0	0	2078	2143	981	2078	2080	1071
Stage 1	-	-	-	-	-	-	987	987	-	1091	1091	-
Stage 2	-	-	-	-	-	-	1091	1156	-	987	989	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	615	-	-	703	-	-	39	49	303	39	53	268
Stage 1	-	-	-	-	-	-	298	325	-	260	291	-
Stage 2	-	-	-	-	-	-	260	271	-	298	325	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	614	-	-	703	-	-	37	48	303	37	52	268
Mov Cap-2 Maneuver	-	-	-	-	-	-	37	48	-	37	52	-
Stage 1	-	-	-	-	-	-	297	323	-	258	287	-
Stage 2	-	-	-	-	-	-	252	267	-	286	323	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.1			25.3			272.1		
HCM LOS							D			F		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	37	303	614	-	-	703	-	-	37	268
HCM Lane V/C Ratio	0.028	0.034	0.005	-	-	0.015	-	-	0.947	0.012
HCM Control Delay (s)	105.1	17.3	10.9	-	-	10.2	-	-	294.5	18.6
HCM Lane LOS	F	C	B	-	-	B	-	-	F	C
HCM 95th %tile Q(veh)	0.1	0.1	0	-	-	0	-	-	3.5	0

Intersection						
Int Delay, s/veh	18.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	333	86	249	442	119	290
Future Vol, veh/h	333	86	249	442	119	290
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	120	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	354	91	265	470	127	309
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	445	0	1400	400
Stage 1	-	-	-	-	400	-
Stage 2	-	-	-	-	1000	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1115	-	155	650
Stage 1	-	-	-	-	677	-
Stage 2	-	-	-	-	356	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1115	-	~ 118	650
Mov Cap-2 Maneuver	-	-	-	-	~ 118	-
Stage 1	-	-	-	-	516	-
Stage 2	-	-	-	-	356	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		3.3		61.7	
HCM LOS					F	
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	118	650	-	-	1115	-
HCM Lane V/C Ratio	1.073	0.475	-	-	0.238	-
HCM Control Delay (s)	174.4	15.4	-	-	9.2	-
HCM Lane LOS	F	C	-	-	A	-
HCM 95th %tile Q(veh)	7.4	2.6	-	-	0.9	-
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

Timings

S. Nichols Mixed-Use Development (JN 10878)

7: Collier Av. (SR-74)/Collier Av. & Riverside Dr. (SR-74)/Riverside Dr.

06/28/2018

										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	118	12	869	21	18	993	280	3	222	106
Future Volume (vph)	118	12	869	21	18	993	280	3	222	106
Turn Type	Perm	NA	pm+ov	Perm	NA	Split	NA	Split	NA	Perm
Protected Phases		4	2		8	2	2	6	6	
Permitted Phases	4		4	8						6
Detector Phase	4	4	2	8	8	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	15.4	15.4	15.8	14.6	14.6	15.8	15.8	16.2	16.2	16.2
Total Split (s)	19.0	19.0	79.0	19.0	19.0	79.0	79.0	22.0	22.0	22.0
Total Split (%)	15.8%	15.8%	65.8%	15.8%	15.8%	65.8%	65.8%	18.3%	18.3%	18.3%
Yellow Time (s)	4.4	4.4	4.8	3.6	3.6	4.8	4.8	5.2	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.4	5.8		4.6	5.8	5.8	6.2	6.2	6.2
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	None	None	Max	None	None	Max	Max	Max	Max	Max
Act Effct Green (s)		13.2	86.0		14.0	73.2	73.2	15.8	15.8	15.8
Actuated g/C Ratio		0.11	0.72		0.12	0.61	0.61	0.13	0.13	0.13
v/c Ratio		0.87	0.78		0.29	0.95	0.28	0.01	0.94	0.36
Control Delay		96.2	14.1		48.2	41.3	11.5	45.7	95.8	12.2
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		96.2	14.1		48.2	41.3	11.5	45.7	95.8	12.2
LOS		F	B		D	D	B	D	F	B
Approach Delay		24.9			48.2		34.3		68.6	
Approach LOS		C			D		C		E	
Intersection Summary										
Cycle Length: 120										
Actuated Cycle Length: 119.6										
Natural Cycle: 100										
Control Type: Actuated-Uncoordinated										
Maximum v/c Ratio: 0.95										
Intersection Signal Delay: 35.3					Intersection LOS: D					
Intersection Capacity Utilization 94.1%					ICU Level of Service F					
Analysis Period (min) 15										

Splits and Phases: 7: Collier Av. (SR-74)/Collier Av. & Riverside Dr. (SR-74)/Riverside Dr.

											
Ø2	Ø6	Ø4	Ø8								
79 s	22 s	19 s	19 s								

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	118	12	869	21	18	7	993	280	20	3	222	106
Future Volume (veh/h)	118	12	869	21	18	7	993	280	20	3	222	106
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	123	12	857	22	19	1	1034	292	20	3	231	37
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	174	11	1145	45	27	1	1079	1047	72	233	245	207
Arrive On Green	0.12	0.12	0.12	0.12	0.12	0.12	0.61	0.61	0.61	0.13	0.13	0.13
Sat Flow, veh/h	980	96	1548	0	228	6	1781	1728	118	1781	1870	1585
Grp Volume(v), veh/h	135	0	857	42	0	0	1034	0	312	3	231	37
Grp Sat Flow(s),veh/h/ln	1076	0	1548	234	0	0	1781	0	1846	1781	1870	1585
Q Serve(g_s), s	0.0	0.0	14.4	0.0	0.0	0.0	65.9	0.0	9.7	0.2	14.8	2.5
Cycle Q Clear(g_c), s	14.4	0.0	14.4	14.4	0.0	0.0	65.9	0.0	9.7	0.2	14.8	2.5
Prop In Lane	0.91		1.00	0.52		0.02	1.00		0.06	1.00		1.00
Lane Grp Cap(c), veh/h	185	0	1145	73	0	0	1079	0	1119	233	245	207
V/C Ratio(X)	0.73	0.00	0.75	0.57	0.00	0.00	0.96	0.00	0.28	0.01	0.94	0.18
Avail Cap(c_a), veh/h	185	0	1145	73	0	0	1079	0	1119	233	245	207
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.6	0.0	6.5	51.4	0.0	0.0	22.4	0.0	11.3	45.7	52.1	46.7
Incr Delay (d2), s/veh	13.5	0.0	2.8	10.3	0.0	0.0	19.0	0.0	0.6	0.1	44.8	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.7	0.0	26.8	1.5	0.0	0.0	29.6	0.0	3.8	0.1	9.7	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.1	0.0	9.3	61.8	0.0	0.0	41.3	0.0	11.9	45.8	96.8	48.6
LnGrp LOS	E	A	A	E	A	A	D	A	B	D	F	D
Approach Vol, veh/h		992			42			1346			271	
Approach Delay, s/veh		17.2			61.8			34.5			89.7	
Approach LOS		B			E			C			F	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		79.0		19.8		22.0		19.8				
Change Period (Y+Rc), s		5.8		5.4		6.2		* 5.4				
Max Green Setting (Gmax), s		73.2		13.6		15.8		* 14				
Max Q Clear Time (g_c+I1), s		67.9		16.4		16.8		16.4				
Green Ext Time (p_c), s		2.9		0.0		0.0		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			34.1									
HCM 6th LOS			C									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Timings

S. Nichols Mixed-Use Development (JN 10878)

8: Collier Av./Collier Av. (SR-74) & Central Av./Central Av. (SR-74)

06/28/2018

											
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	204	345	241	210	829	54	159	389	1024	168	37
Future Volume (vph)	204	345	241	210	829	54	159	389	1024	168	37
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	7	4	3	8	1	5	2	3	1	6	
Permitted Phases					8			2			6
Detector Phase	7	4	3	8	1	5	2	3	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	5.0	10.0	5.0	5.0	10.0	10.0
Minimum Split (s)	9.6	14.7	9.6	42.8	9.6	9.6	15.8	9.6	9.6	29.8	29.8
Total Split (s)	14.0	28.8	28.0	42.8	43.0	13.6	20.2	28.0	43.0	49.6	49.6
Total Split (%)	11.7%	24.0%	23.3%	35.7%	35.8%	11.3%	16.8%	23.3%	35.8%	41.3%	41.3%
Yellow Time (s)	3.6	3.7	3.6	4.8	3.6	3.6	4.8	3.6	3.6	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.7	4.6	5.8	4.6	4.6	5.8	4.6	4.6	5.8	5.8
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	None	None	Max	Max
Act Effect Green (s)	9.1	17.4	13.1	20.3	57.6	7.3	14.6	29.0	36.1	45.7	45.7
Actuated g/C Ratio	0.09	0.17	0.13	0.20	0.57	0.07	0.14	0.29	0.36	0.45	0.45
v/c Ratio	0.68	0.68	0.56	0.58	0.52	0.44	0.61	0.76	0.86	0.11	0.05
Control Delay	58.8	45.1	47.0	42.8	8.6	59.6	54.4	32.8	39.9	19.4	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.8	45.1	47.0	42.8	8.6	59.6	54.4	32.8	39.9	19.4	0.1
LOS	E	D	D	D	A	E	D	C	D	B	A
Approach Delay		49.7		21.4			40.9			35.9	
Approach LOS		D		C			D			D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 101.2

Natural Cycle: 105

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 34.0

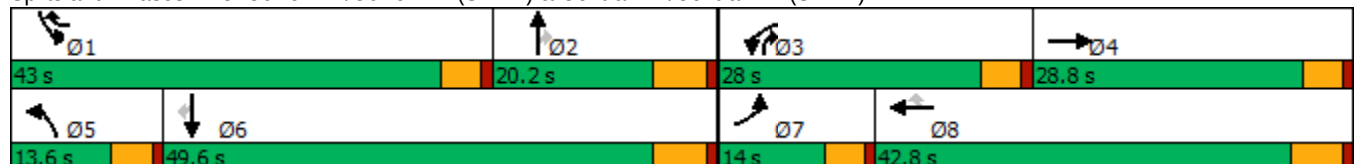
Intersection LOS: C

Intersection Capacity Utilization 76.2%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 8: Collier Av./Collier Av. (SR-74) & Central Av./Central Av. (SR-74)



HCM 6th Signalized Intersection Summary S. Nichols Mixed-Use Development (JN 10878)
 8: Collier Av./Collier Av. (SR-74) & Central Av./Central Av. (SR-74) 06/28/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	204	345	55	241	210	829	54	159	389	1024	168	37
Future Volume (veh/h)	204	345	55	241	210	829	54	159	389	1024	168	37
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	210	356	53	248	216	332	56	164	173	1056	173	25
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	282	492	73	330	322	1406	74	346	440	1155	1698	747
Arrive On Green	0.08	0.16	0.16	0.10	0.17	0.17	0.04	0.19	0.19	0.33	0.48	0.48
Sat Flow, veh/h	3456	3106	459	3456	1870	2749	1781	1870	1560	3456	3554	1563
Grp Volume(v), veh/h	210	202	207	248	216	332	56	164	173	1056	173	25
Grp Sat Flow(s),veh/h/ln	1728	1777	1788	1728	1870	1375	1781	1870	1560	1728	1777	1563
Q Serve(g_s), s	5.4	9.9	10.1	6.4	9.9	6.2	2.9	7.2	8.2	26.9	2.5	0.8
Cycle Q Clear(g_c), s	5.4	9.9	10.1	6.4	9.9	6.2	2.9	7.2	8.2	26.9	2.5	0.8
Prop In Lane	1.00		0.26	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	282	281	283	330	322	1406	74	346	440	1155	1698	747
V/C Ratio(X)	0.74	0.72	0.73	0.75	0.67	0.24	0.76	0.47	0.39	0.91	0.10	0.03
Avail Cap(c_a), veh/h	354	467	470	882	755	2042	175	346	440	1447	1698	747
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.2	36.6	36.7	40.4	35.5	12.7	43.5	33.4	26.7	29.3	13.1	12.7
Incr Delay (d2), s/veh	4.5	3.4	3.6	1.3	2.4	0.1	5.8	4.6	2.6	7.1	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	4.5	4.6	2.7	4.5	1.7	1.3	3.5	3.2	11.3	0.9	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.6	40.1	40.3	41.7	37.9	12.8	49.3	38.0	29.3	36.3	13.3	12.8
LnGrp LOS	D	D	D	D	D	B	D	D	C	D	B	B
Approach Vol, veh/h		619			796			393			1254	
Approach Delay, s/veh		42.0			28.6			35.8			32.7	
Approach LOS		D			C			D			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	35.2	22.8	13.4	20.3	8.4	49.6	12.1	21.6				
Change Period (Y+Rc), s	4.6	5.8	4.6	* 5.8	4.6	5.8	4.6	5.8				
Max Green Setting (Gmax), s	38.4	14.4	23.4	* 24	9.0	43.8	9.4	37.0				
Max Q Clear Time (g_c+I1), s	28.9	10.2	8.4	12.1	4.9	4.5	7.4	11.9				
Green Ext Time (p_c), s	1.8	0.5	0.4	1.9	0.0	1.1	0.1	2.5				

Intersection Summary

HCM 6th Ctrl Delay	33.9
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection

Intersection Delay, s/veh 34.7

Intersection LOS D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗	↖	↑						↕	
Traffic Vol, veh/h	0	330	364	46	485	0	0	0	0	115	2	207
Future Vol, veh/h	0	330	364	46	485	0	0	0	0	115	2	207
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	0	3	3	25	3	0	0	0	0	8	67	13
Mvmt Flow	0	351	387	49	516	0	0	0	0	122	2	220
Number of Lanes	0	1	1	1	1	0	0	0	0	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	2
HCM Control Delay	21.3	60.4	21.5
HCM LOS	C	F	C

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	100%	0%	35%
Vol Thru, %	100%	0%	0%	100%	1%
Vol Right, %	0%	100%	0%	0%	64%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	330	364	46	485	324
LT Vol	0	0	46	0	115
Through Vol	330	0	0	485	2
RT Vol	0	364	0	0	207
Lane Flow Rate	351	387	49	516	345
Geometry Grp	7	7	7	7	2
Degree of Util (X)	0.67	0.662	0.107	0.997	0.65
Departure Headway (Hd)	6.872	6.154	7.848	6.953	6.785
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	527	585	457	521	534
Service Time	4.621	3.902	5.592	4.696	4.785
HCM Lane V/C Ratio	0.666	0.662	0.107	0.99	0.646
HCM Control Delay	22.5	20.2	11.5	65	21.5
HCM Lane LOS	C	C	B	F	C
HCM 95th-tile Q	4.9	4.9	0.4	13.8	4.6

Intersection												
Int Delay, s/veh	115.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	198	246	0	0	155	60	376	1	64	0	0	0
Future Vol, veh/h	198	246	0	0	155	60	376	1	64	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	230	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	206	256	0	0	161	63	392	1	67	0	0	0
Major/Minor	Major1		Major2		Minor1							
Conflicting Flow All	224	0	-	-	-	0	861	892	256			
Stage 1	-	-	-	-	-	-	668	668	-			
Stage 2	-	-	-	-	-	-	193	224	-			
Critical Hdwy	4.15	-	-	-	-	-	6.44	6.5	6.26			
Critical Hdwy Stg 1	-	-	-	-	-	-	5.44	5.5	-			
Critical Hdwy Stg 2	-	-	-	-	-	-	5.44	5.5	-			
Follow-up Hdwy	2.245	-	-	-	-	-	3.536	4	3.354			
Pot Cap-1 Maneuver	1327	-	0	0	-	-	~ 323	283	773			
Stage 1	-	-	0	0	-	-	506	459	-			
Stage 2	-	-	0	0	-	-	835	722	-			
Platoon blocked, %	-				-	-						
Mov Cap-1 Maneuver	1327	-	-	-	-	-	~ 273	0	773			
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 273	0	-			
Stage 1	-	-	-	-	-	-	428	0	-			
Stage 2	-	-	-	-	-	-	835	0	-			
Approach	EB		WB		NB							
HCM Control Delay, s	3.7		0		284.4							
HCM LOS					F							
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR							
Capacity (veh/h)	301	1327	-	-	-							
HCM Lane V/C Ratio	1.526	0.155	-	-	-							
HCM Control Delay (s)	284.4	8.2	-	-	-							
HCM Lane LOS	F	A	-	-	-							
HCM 95th %tile Q(veh)	26.3	0.6	-	-	-							
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s			+: Computation Not Defined				*: All major volume in platoon			

Intersection	
Intersection Delay, s/veh	18.3
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	198	246	0	0	155	60	376	1	64	0	0	0
Future Vol, veh/h	198	246	0	0	155	60	376	1	64	0	0	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	206	256	0	0	161	63	392	1	67	0	0	0
Number of Lanes	1	1	0	0	1	0	0	1	0	0	0	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	14.5	13.2	24.6
HCM LOS	B	B	C

Lane	NBLn1	EBLn1	EBLn2	WBLn1
Vol Left, %	85%	100%	0%	0%
Vol Thru, %	0%	0%	100%	72%
Vol Right, %	15%	0%	0%	28%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	441	198	246	215
LT Vol	376	198	0	0
Through Vol	1	0	246	155
RT Vol	64	0	0	60
Lane Flow Rate	459	206	256	224
Geometry Grp	2	7	7	5
Degree of Util (X)	0.751	0.398	0.458	0.387
Departure Headway (Hd)	5.885	6.943	6.434	6.225
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	616	518	559	576
Service Time	3.934	4.706	4.196	4.292
HCM Lane V/C Ratio	0.745	0.398	0.458	0.389
HCM Control Delay	24.6	14.3	14.6	13.2
HCM Lane LOS	C	B	B	B
HCM 95th-tile Q	6.7	1.9	2.4	1.8

Intersection						
Int Delay, s/veh	0.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	278	32	0	196	19	0
Future Vol, veh/h	278	32	0	196	19	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	200	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	302	35	0	213	21	0
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	337	0	533	320
Stage 1	-	-	-	-	320	-
Stage 2	-	-	-	-	213	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1222	-	507	721
Stage 1	-	-	-	-	736	-
Stage 2	-	-	-	-	823	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1222	-	507	721
Mov Cap-2 Maneuver	-	-	-	-	507	-
Stage 1	-	-	-	-	736	-
Stage 2	-	-	-	-	823	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		12.4	
HCM LOS					B	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	507	-	-	1222	-	
HCM Lane V/C Ratio	0.041	-	-	-	-	
HCM Control Delay (s)	12.4	-	-	0	-	
HCM Lane LOS	B	-	-	A	-	
HCM 95th %tile Q(veh)	0.1	-	-	0	-	

Intersection						
Int Delay, s/veh	2.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	124	155	0	85	111	0
Future Vol, veh/h	124	155	0	85	111	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	200	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	135	168	0	92	121	0
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	303	0	311	219
Stage 1	-	-	-	-	219	-
Stage 2	-	-	-	-	92	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1258	-	681	821
Stage 1	-	-	-	-	817	-
Stage 2	-	-	-	-	932	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1258	-	681	821
Mov Cap-2 Maneuver	-	-	-	-	681	-
Stage 1	-	-	-	-	817	-
Stage 2	-	-	-	-	932	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		11.4	
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	681	-	-	1258	-	
HCM Lane V/C Ratio	0.177	-	-	-	-	
HCM Control Delay (s)	11.4	-	-	0	-	
HCM Lane LOS	B	-	-	A	-	
HCM 95th %tile Q(veh)	0.6	-	-	0	-	

Intersection												
Int Delay, s/veh	1.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	25	0	3	1	0	4	4	82	1	6	107	41
Future Vol, veh/h	25	0	3	1	0	4	4	82	1	6	107	41
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	27	0	3	1	0	4	4	89	1	7	116	45
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	253	251	139	252	273	90	161	0	0	90	0	0
Stage 1	153	153	-	98	98	-	-	-	-	-	-	-
Stage 2	100	98	-	154	175	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	700	652	909	701	634	968	1418	-	-	1505	-	-
Stage 1	849	771	-	908	814	-	-	-	-	-	-	-
Stage 2	906	814	-	848	754	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	692	647	909	694	629	968	1418	-	-	1505	-	-
Mov Cap-2 Maneuver	692	647	-	694	629	-	-	-	-	-	-	-
Stage 1	846	767	-	905	812	-	-	-	-	-	-	-
Stage 2	899	812	-	841	750	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	10.3		9		0.3		0.3					
HCM LOS	B		A									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1418	-	-	710	897	1505	-	-				
HCM Lane V/C Ratio	0.003	-	-	0.043	0.006	0.004	-	-				
HCM Control Delay (s)	7.5	0	-	10.3	9	7.4	0	-				
HCM Lane LOS	A	A	-	B	A	A	A	-				
HCM 95th %tile O(veh)	0	-	-	0.1	0	0	-	-				

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	88	111	0
Future Vol, veh/h	0	0	0	88	111	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	0	96	121	0
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	217	121	121	0	-	0
Stage 1	121	-	-	-	-	-
Stage 2	96	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	771	930	1467	-	-	-
Stage 1	904	-	-	-	-	-
Stage 2	928	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	771	930	1467	-	-	-
Mov Cap-2 Maneuver	771	-	-	-	-	-
Stage 1	904	-	-	-	-	-
Stage 2	928	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	0	0		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1467	-	-	-	-	
HCM Lane V/C Ratio	-	-	-	-	-	
HCM Control Delay (s)	0	-	0	-	-	
HCM Lane LOS	A	-	A	-	-	
HCM 95th %tile Q(veh)	0	-	-	-	-	

Intersection

Int Delay, s/veh 0.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	100	81	11	6	6
Future Vol, veh/h	10	100	81	11	6	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	109	88	12	7	7

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	100	0	0 225 94
Stage 1	-	-	- 94 -
Stage 2	-	-	- 131 -
Critical Hdwy	4.12	-	- 6.42 6.22
Critical Hdwy Stg 1	-	-	- 5.42 -
Critical Hdwy Stg 2	-	-	- 5.42 -
Follow-up Hdwy	2.218	-	- 3.518 3.318
Pot Cap-1 Maneuver	1493	-	- 763 963
Stage 1	-	-	- 930 -
Stage 2	-	-	- 895 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1493	-	- 757 963
Mov Cap-2 Maneuver	-	-	- 757 -
Stage 1	-	-	- 923 -
Stage 2	-	-	- 895 -

Approach	EB	WB	SB
HCM Control Delay, s	0.7	0	9.3
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1493	-	-	-	848
HCM Lane V/C Ratio	0.007	-	-	-	0.015
HCM Control Delay (s)	7.4	0	-	-	9.3
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection						
Int Delay, s/veh	4.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	106	92	77	114	0
Future Vol, veh/h	0	106	92	77	114	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	115	100	84	124	0
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	408	124	124	0	-	0
Stage 1	124	-	-	-	-	-
Stage 2	284	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	599	927	1463	-	-	-
Stage 1	902	-	-	-	-	-
Stage 2	764	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	556	927	1463	-	-	-
Mov Cap-2 Maneuver	556	-	-	-	-	-
Stage 1	837	-	-	-	-	-
Stage 2	764	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	9.4	4.2		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1463	-	927	-	-	
HCM Lane V/C Ratio	0.068	-	0.124	-	-	
HCM Control Delay (s)	7.6	0	9.4	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0.2	-	0.4	-	-	

Intersection						
Int Delay, s/veh	1.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	14	18	151	27	51	169
Future Vol, veh/h	14	18	151	27	51	169
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	15	20	164	29	55	184
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	473	179	0	0	193	0
Stage 1	179	-	-	-	-	-
Stage 2	294	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	550	864	-	-	1380	-
Stage 1	852	-	-	-	-	-
Stage 2	756	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	526	864	-	-	1380	-
Mov Cap-2 Maneuver	526	-	-	-	-	-
Stage 1	815	-	-	-	-	-
Stage 2	756	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	10.6	0	1.8			
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	674	1380	-	
HCM Lane V/C Ratio	-	-	0.052	0.04	-	
HCM Control Delay (s)	-	-	10.6	7.7	0	
HCM Lane LOS	-	-	B	A	A	
HCM 95th %tile Q(veh)	-	-	0.2	0.1	-	

Intersection												
Int Delay, s/veh	1.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	15	0	31	5	0	1	14	161	4	6	166	11
Future Vol, veh/h	15	0	31	5	0	1	14	161	4	6	166	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	3
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	18	0	37	6	0	1	17	192	5	7	198	13
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	451	453	208	466	457	195	214	0	0	197	0	0
Stage 1	222	222	-	229	229	-	-	-	-	-	-	-
Stage 2	229	231	-	237	228	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	519	503	832	507	500	846	1356	-	-	1376	-	-
Stage 1	780	720	-	774	715	-	-	-	-	-	-	-
Stage 2	774	713	-	766	715	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	509	491	830	477	489	846	1352	-	-	1376	-	-
Mov Cap-2 Maneuver	509	491	-	477	489	-	-	-	-	-	-	-
Stage 1	767	714	-	763	705	-	-	-	-	-	-	-
Stage 2	762	703	-	728	709	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	10.7		12.1		0.6		0.3					
HCM LOS	B		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1352	-	-	688	514	1376	-	-				
HCM Lane V/C Ratio	0.012	-	-	0.08	0.014	0.005	-	-				
HCM Control Delay (s)	7.7	0	-	10.7	12.1	7.6	0	-				
HCM Lane LOS	A	A	-	B	B	A	A	-				
HCM 95th %tile O(veh)	0	-	-	0.3	0	0	-	-				

Timings
19: Dexter Av. & Central Av. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

06/28/2018

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	365	1892	189	166	1317	85	148	144	90	101	342
Future Volume (vph)	365	1892	189	166	1317	85	148	144	90	101	342
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2	1	6	7
Permitted Phases			4			8					6
Detector Phase	7	4	4	3	8	8	5	2	1	6	7
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0	5.0
Minimum Split (s)	9.6	26.8	26.8	9.6	26.8	26.8	9.6	42.4	9.6	15.8	9.6
Total Split (s)	33.3	47.0	47.0	18.0	31.7	31.7	20.3	44.0	11.0	34.7	33.3
Total Split (%)	27.8%	39.2%	39.2%	15.0%	26.4%	26.4%	16.9%	36.7%	9.2%	28.9%	27.8%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	4.8	3.6	4.4	3.6	4.8	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	5.8	4.6	5.8	5.8	4.6	5.4	4.6	5.8	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	None	Max	None
Act Effect Green (s)	27.2	41.2	41.2	13.0	27.0	27.0	13.4	38.6	6.4	31.2	59.6
Actuated g/C Ratio	0.23	0.34	0.34	0.11	0.23	0.23	0.11	0.32	0.05	0.26	0.50
v/c Ratio	0.93	1.10	0.31	0.88	0.93	0.17	0.76	0.57	0.98	0.21	0.42
Control Delay	75.2	92.6	9.0	93.5	57.6	0.8	75.3	32.2	143.0	37.2	12.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	75.2	92.6	9.0	93.5	57.6	0.8	75.3	32.2	143.0	37.2	12.7
LOS	E	F	A	F	E	A	E	C	F	D	B
Approach Delay		83.6			58.3			45.7		39.3	
Approach LOS		F			E			D		D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 119.6

Natural Cycle: 120

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.10

Intersection Signal Delay: 67.4

Intersection LOS: E

Intersection Capacity Utilization 98.6%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 19: Dexter Av. & Central Av. (SR-74)

			
11 s	44 s	18 s	47 s
			
20.3 s	34.7 s	33.3 s	31.7 s

HCM 6th Signalized Intersection Summary
19: Dexter Av. & Central Av. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

06/28/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  						 	
Traffic Volume (veh/h)	365	1892	189	166	1317	85	148	144	179	90	101	342
Future Volume (veh/h)	365	1892	189	166	1317	85	148	144	179	90	101	342
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	372	1931	151	169	1344	63	151	147	123	92	103	286
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	397	1751	530	195	1477	358	178	300	251	95	514	783
Arrive On Green	0.22	0.34	0.34	0.11	0.23	0.23	0.10	0.32	0.32	0.05	0.27	0.27
Sat Flow, veh/h	1781	5106	1545	1781	6434	1559	1781	933	781	1781	1870	1565
Grp Volume(v), veh/h	372	1931	151	169	1344	63	151	0	270	92	103	286
Grp Sat Flow(s),veh/h/ln	1781	1702	1545	1781	1609	1559	1781	0	1714	1781	1870	1565
Q Serve(g_s), s	24.6	41.2	8.6	11.2	24.4	3.9	10.0	0.0	15.2	6.2	5.1	13.5
Cycle Q Clear(g_c), s	24.6	41.2	8.6	11.2	24.4	3.9	10.0	0.0	15.2	6.2	5.1	13.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.46	1.00		1.00
Lane Grp Cap(c), veh/h	397	1751	530	195	1477	358	178	0	551	95	514	783
V/C Ratio(X)	0.94	1.10	0.29	0.87	0.91	0.18	0.85	0.00	0.49	0.97	0.20	0.37
Avail Cap(c_a), veh/h	425	1751	530	199	1477	358	233	0	551	95	514	783
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.9	39.5	28.8	52.6	45.1	37.2	53.2	0.0	32.9	56.8	33.5	18.6
Incr Delay (d2), s/veh	26.7	55.6	0.3	29.1	8.7	0.2	16.2	0.0	3.1	81.9	0.9	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	13.5	25.3	3.1	6.5	10.3	1.5	5.2	0.0	6.7	4.9	2.4	4.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	72.5	95.1	29.1	81.7	53.8	37.4	69.4	0.0	36.0	138.7	34.3	19.9
LnGrp LOS	E	F	C	F	D	D	E	A	D	F	C	B
Approach Vol, veh/h		2454			1576			421			481	
Approach Delay, s/veh		87.6			56.1			48.0			45.7	
Approach LOS		F			E			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.0	44.4	17.8	47.0	16.6	38.8	31.4	33.4				
Change Period (Y+Rc), s	4.6	* 5.8	4.6	5.8	4.6	5.8	4.6	5.8				
Max Green Setting (Gmax), s	6.4	* 39	13.4	41.2	15.7	28.9	28.7	25.9				
Max Q Clear Time (g_c+I1), s	8.2	17.2	13.2	43.2	12.0	15.5	26.6	26.4				
Green Ext Time (p_c), s	0.0	1.5	0.0	0.0	0.1	1.2	0.1	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			70.1									
HCM 6th LOS			E									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Timings

S. Nichols Mixed-Use Development (JN 10878)

20: Cambern Av./Cambern Av & Central Av. (SR-74)

06/28/2018

										
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	268	2010	18	1307	152	27	6	244	7	89
Future Volume (vph)	268	2010	18	1307	152	27	6	244	7	89
Turn Type	Prot	NA	Prot	NA	Perm	Perm	NA	Perm	NA	Perm
Protected Phases	7	4	3	8			2		6	
Permitted Phases					8	2		6		6
Detector Phase	7	4	3	8	8	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	24.8	9.6	25.5	25.5	34.7	34.7	14.7	14.7	14.7
Total Split (s)	19.8	74.0	9.6	63.8	63.8	36.4	36.4	36.4	36.4	36.4
Total Split (%)	16.5%	61.7%	8.0%	53.2%	53.2%	30.3%	30.3%	30.3%	30.3%	30.3%
Yellow Time (s)	3.6	4.8	3.6	5.5	5.5	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.6	5.8	4.6	6.5	6.5	4.7	4.7		4.7	4.7
Lead/Lag	Lead	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	Max	None	None	None	None	Max	Max	Max	Max	Max
Act Effect Green (s)	15.2	70.9	5.0	54.1	54.1	31.7	31.7		31.7	31.7
Actuated g/C Ratio	0.13	0.61	0.04	0.46	0.46	0.27	0.27		0.27	0.27
v/c Ratio	0.63	0.98	0.25	0.83	0.20	0.14	0.06		0.72	0.18
Control Delay	55.6	39.4	64.0	32.7	3.3	35.9	16.1		52.5	4.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay	55.6	39.4	64.0	32.7	3.3	35.9	16.1		52.5	4.6
LOS	E	D	E	C	A	D	B		D	A
Approach Delay		41.3		30.1			26.2		39.9	
Approach LOS		D		C			C		D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 116.9

Natural Cycle: 120

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.98

Intersection Signal Delay: 37.0

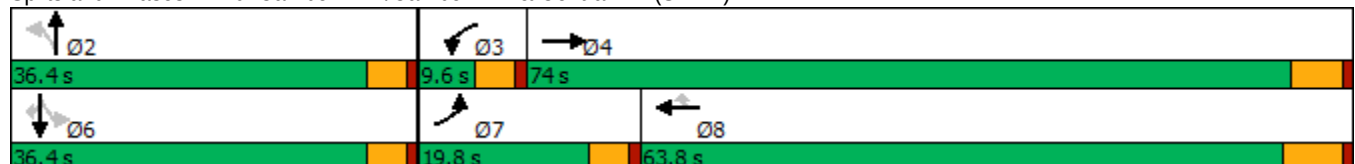
Intersection LOS: D

Intersection Capacity Utilization 93.3%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 20: Cambern Av./Cambern Av & Central Av. (SR-74)



HCM 6th Signalized Intersection Summary S. Nichols Mixed-Use Development (JN 10878)
 20: Cambern Av./Cambern Av & Central Av. (SR-74) 06/28/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	268	2010	15	18	1307	152	27	6	20	244	7	89
Future Volume (veh/h)	268	2010	15	18	1307	152	27	6	20	244	7	89
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	279	2094	16	19	1361	106	28	6	21	254	7	40
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	445	2088	16	35	1666	732	176	98	343	408	10	420
Arrive On Green	0.13	0.58	0.58	0.02	0.47	0.47	0.27	0.27	0.27	0.27	0.27	0.27
Sat Flow, veh/h	3456	3614	28	1781	3554	1562	1359	365	1276	1294	36	1565
Grp Volume(v), veh/h	279	1028	1082	19	1361	106	28	0	27	261	0	40
Grp Sat Flow(s),veh/h/ln	1728	1777	1865	1781	1777	1562	1359	0	1641	1330	0	1565
Q Serve(g_s), s	9.0	68.2	68.2	1.2	38.9	4.6	2.3	0.0	1.4	20.2	0.0	2.3
Cycle Q Clear(g_c), s	9.0	68.2	68.2	1.2	38.9	4.6	23.9	0.0	1.4	21.7	0.0	2.3
Prop In Lane	1.00		0.01	1.00		1.00	1.00		0.78	0.97		1.00
Lane Grp Cap(c), veh/h	445	1027	1078	35	1666	732	176	0	441	417	0	420
V/C Ratio(X)	0.63	1.00	1.00	0.54	0.82	0.14	0.16	0.00	0.06	0.63	0.00	0.10
Avail Cap(c_a), veh/h	445	1027	1078	75	1725	758	176	0	441	417	0	420
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	48.7	24.9	24.9	57.3	27.0	17.9	50.5	0.0	32.1	40.2	0.0	32.4
Incr Delay (d2), s/veh	6.5	28.4	28.4	4.8	3.3	0.1	1.9	0.0	0.3	6.9	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.2	33.1	34.8	0.6	15.6	1.6	0.9	0.0	0.6	7.7	0.0	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.3	53.3	53.3	62.1	30.3	18.0	52.4	0.0	32.4	47.1	0.0	32.8
LnGrp LOS	E	F	F	E	C	B	D	A	C	D	A	C
Approach Vol, veh/h	2389			1486			55			301		
Approach Delay, s/veh	53.5			29.8			42.5			45.2		
Approach LOS	D			C			D			D		
Timer - Assigned Phs	2		3	4		6	7	8				
Phs Duration (G+Y+Rc), s	36.4		6.9	74.7		36.4	19.8	61.8				
Change Period (Y+Rc), s	* 4.7		4.6	* 6.5		* 4.7	4.6	6.5				
Max Green Setting (Gmax), s	* 32		5.0	* 68		* 32	15.2	57.3				
Max Q Clear Time (g_c+I1), s	25.9		3.2	70.2		23.7	11.0	40.9				
Green Ext Time (p_c), s	0.1		0.0	0.0		1.0	0.2	10.7				
Intersection Summary												
HCM 6th Ctrl Delay			44.5									
HCM 6th LOS			D									
Notes												

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

APPENDIX 9.3:

EAPC (2024) CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS

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Timings
1: Lake St. & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

06/28/2018

									
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	228	258	250	133	114	812	492	40	325
Future Volume (vph)	228	258	250	133	114	812	492	40	325
Turn Type	Perm	NA	Perm	NA	Prot	NA	Perm	Prot	NA
Protected Phases		4		8	5	2		1	6
Permitted Phases	4		8				2		
Detector Phase	4	4	8	8	5	2	2	1	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	14.6	14.6	16.2	16.2	9.6	16.2	16.2	9.6	16.2
Total Split (s)	42.2	42.2	42.2	42.2	35.6	42.2	42.2	35.6	42.2
Total Split (%)	35.2%	35.2%	35.2%	35.2%	29.7%	35.2%	35.2%	29.7%	35.2%
Yellow Time (s)	3.6	3.6	5.2	5.2	3.6	5.2	5.2	3.6	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.6		6.2	4.6	6.2	6.2	4.6	6.2
Lead/Lag					Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	None	Max
Act Effect Green (s)		37.6		36.0	11.3	44.5	44.5	7.0	36.0
Actuated g/C Ratio		0.37		0.36	0.11	0.44	0.44	0.07	0.36
v/c Ratio		1.29		1.37	0.62	1.06	0.67	0.35	0.73
Control Delay		172.7		210.9	56.1	78.0	21.1	52.7	36.4
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		172.7		210.9	56.1	78.0	21.1	52.7	36.4
LOS		F		F	E	E	C	D	D
Approach Delay		172.7		210.9		56.5			37.8
Approach LOS		F		F		E			D

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 100.4

Natural Cycle: 150

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.37

Intersection Signal Delay: 100.2

Intersection LOS: F

Intersection Capacity Utilization 98.7%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 1: Lake St. & Nichols Rd.

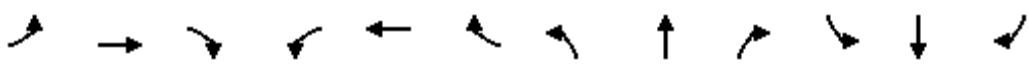


HCM 6th Signalized Intersection Summary

1: Lake St. & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

06/28/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↔	↑	↔	↔	↑	
Traffic Volume (veh/h)	228	258	108	250	133	57	114	812	492	40	325	111
Future Volume (veh/h)	228	258	108	250	133	57	114	812	492	40	325	111
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	245	277	116	269	143	49	123	873	0	43	349	119
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	263	243	101	272	114	39	154	775		62	484	165
Arrive On Green	0.38	0.38	0.38	0.38	0.38	0.38	0.09	0.41	0.00	0.03	0.36	0.36
Sat Flow, veh/h	561	641	267	567	301	103	1781	1870	1585	1781	1334	455
Grp Volume(v), veh/h	638	0	0	461	0	0	123	873	0	43	0	468
Grp Sat Flow(s),veh/h/ln	1470	0	0	971	0	0	1781	1870	1585	1781	0	1789
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	6.7	41.1	0.0	2.4	0.0	22.4
Cycle Q Clear(g_c), s	37.6	0.0	0.0	37.6	0.0	0.0	6.7	41.1	0.0	2.4	0.0	22.4
Prop In Lane	0.38		0.18	0.58		0.11	1.00		1.00	1.00		0.25
Lane Grp Cap(c), veh/h	608	0	0	426	0	0	154	775		62	0	649
V/C Ratio(X)	1.05	0.00	0.00	1.08	0.00	0.00	0.80	1.13		0.69	0.00	0.72
Avail Cap(c_a), veh/h	608	0	0	426	0	0	557	775		557	0	649
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	32.3	0.0	0.0	33.3	0.0	0.0	44.5	29.0	0.0	47.3	0.0	27.2
Incr Delay (d2), s/veh	50.4	0.0	0.0	67.7	0.0	0.0	3.6	73.1	0.0	5.0	0.0	6.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	23.5	0.0	0.0	18.1	0.0	0.0	3.0	32.0	0.0	1.1	0.0	9.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	82.7	0.0	0.0	101.1	0.0	0.0	48.1	102.1	0.0	52.3	0.0	34.0
LnGrp LOS	F	A	A	F	A	A	D	F		D	A	C
Approach Vol, veh/h		638			461			996	A		511	
Approach Delay, s/veh		82.7			101.1			95.4			35.6	
Approach LOS		F			F			F			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.1	47.3		43.8	13.2	42.2		43.8				
Change Period (Y+Rc), s	4.6	6.2		* 6.2	4.6	6.2		6.2				
Max Green Setting (Gmax), s	31.0	36.0		* 38	31.0	36.0		36.0				
Max Q Clear Time (g_c+I1), s	4.4	43.1		39.6	8.7	24.4		39.6				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.1	2.8		0.0				
Intersection Summary												
HCM 6th Ctrl Delay				81.6								
HCM 6th LOS				F								
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.												

Timings
2: Lake St. & Alberhill Ranch Rd.

S. Nichols Mixed-Use Development (JN 10878)

06/28/2018

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	67	63	1399	56	27	637
Future Volume (vph)	67	63	1399	56	27	637
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2		
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	15.1	15.1	16.2	16.2	11.2	16.2
Total Split (s)	15.1	15.1	93.7	93.7	11.2	104.9
Total Split (%)	12.6%	12.6%	78.1%	78.1%	9.3%	87.4%
Yellow Time (s)	4.1	4.1	5.2	5.2	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	6.2	6.2	6.2	6.2
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	Max	Max	None	Max
Act Effect Green (s)	10.0	10.0	96.0	96.0	5.0	102.7
Actuated g/C Ratio	0.08	0.08	0.80	0.80	0.04	0.86
v/c Ratio	0.48	0.35	1.00	0.05	0.40	0.42
Control Delay	64.1	17.5	38.8	2.1	71.9	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.1	17.5	38.8	2.1	71.9	3.5
LOS	E	B	D	A	E	A
Approach Delay	41.4		37.4			6.3
Approach LOS	D		D			A

Intersection Summary

Cycle Length: 120	
Actuated Cycle Length: 119.7	
Natural Cycle: 150	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.00	
Intersection Signal Delay: 28.5	Intersection LOS: C
Intersection Capacity Utilization 91.4%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 2: Lake St. & Alberhill Ranch Rd.



HCM 6th Signalized Intersection Summary
2: Lake St. & Alberhill Ranch Rd.

S. Nichols Mixed-Use Development (JN 10878)

06/28/2018

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	67	63	1399	56	27	637
Future Volume (veh/h)	67	63	1399	56	27	637
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	71	43	1488	51	29	678
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	145	129	1396	1181	46	1541
Arrive On Green	0.08	0.08	0.75	0.75	0.03	0.82
Sat Flow, veh/h	1781	1585	1870	1582	1781	1870
Grp Volume(v), veh/h	71	43	1488	51	29	678
Grp Sat Flow(s),veh/h/ln	1781	1585	1870	1582	1781	1870
Q Serve(g_s), s	4.6	3.1	89.4	1.0	1.9	12.0
Cycle Q Clear(g_c), s	4.6	3.1	89.4	1.0	1.9	12.0
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	145	129	1396	1181	46	1541
V/C Ratio(X)	0.49	0.33	1.07	0.04	0.63	0.44
Avail Cap(c_a), veh/h	149	132	1396	1181	74	1541
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.6	51.9	15.2	4.0	57.8	2.9
Incr Delay (d2), s/veh	0.9	0.6	43.7	0.1	5.2	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	1.2	42.6	0.3	0.9	2.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	53.6	52.5	58.9	4.0	63.0	3.8
LnGrp LOS	D	D	F	A	E	A
Approach Vol, veh/h	114		1539			707
Approach Delay, s/veh	53.1		57.1			6.2
Approach LOS	D		E			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	9.3	95.6			104.9	14.9
Change Period (Y+Rc), s	6.2	6.2			6.2	5.1
Max Green Setting (Gmax), s	5.0	87.5			98.7	10.0
Max Q Clear Time (g_c+I1), s	3.9	91.4			14.0	6.6
Green Ext Time (p_c), s	0.0	0.0			4.6	0.0
Intersection Summary						
HCM 6th Ctrl Delay			41.7			
HCM 6th LOS			D			

Intersection

Intersection Delay, s/veh 106.7

Intersection LOS F

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	780	18	54	398	43	99
Future Vol, veh/h	780	18	54	398	43	99
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	886	20	61	452	49	113
Number of Lanes	1	0	0	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	1
HCM Control Delay	169.6	25.3	11.9
HCM LOS	F	D	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1
Vol Left, %	100%	0%	0%	12%
Vol Thru, %	0%	0%	98%	88%
Vol Right, %	0%	100%	2%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	43	99	798	452
LT Vol	43	0	0	54
Through Vol	0	0	780	398
RT Vol	0	99	18	0
Lane Flow Rate	49	112	907	514
Geometry Grp	7	7	2	2
Degree of Util (X)	0.106	0.206	1.316	0.767
Departure Headway (Hd)	8.449	7.21	5.225	5.793
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	427	501	698	627
Service Time	6.149	4.91	3.225	3.793
HCM Lane V/C Ratio	0.115	0.224	1.299	0.82
HCM Control Delay	12.1	11.8	169.6	25.3
HCM Lane LOS	B	B	F	D
HCM 95th-tile Q	0.4	0.8	36.5	7.1

Timings
4: Lakeshore Dr. & Riverside Dr. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

06/28/2018

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	26	577	161	155	667	409	302	333	262	195	15
Future Volume (vph)	26	577	161	155	667	409	302	333	262	195	15
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2	1	6	
Permitted Phases			4			8					6
Detector Phase	7	4	4	3	8	8	5	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	32.4	32.4	9.6	33.4	33.4	9.6	34.7	9.6	32.7	32.7
Total Split (s)	9.6	35.0	35.0	22.6	48.0	48.0	28.0	38.4	24.0	34.4	34.4
Total Split (%)	8.0%	29.2%	29.2%	18.8%	40.0%	40.0%	23.3%	32.0%	20.0%	28.7%	28.7%
Yellow Time (s)	3.6	4.4	4.4	3.6	4.4	4.4	3.6	3.7	3.6	3.7	3.7
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.4	5.4	4.6	5.4	5.4	4.6	4.7	4.6	4.7	4.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	None	Max	Max
Act Effect Green (s)	5.0	28.9	28.9	14.8	42.7	42.7	23.4	33.8	19.4	29.8	29.8
Actuated g/C Ratio	0.04	0.25	0.25	0.13	0.37	0.37	0.20	0.29	0.17	0.26	0.26
v/c Ratio	0.38	0.74	0.36	0.78	1.10	0.60	0.95	0.52	0.99	0.24	0.03
Control Delay	70.2	46.3	10.4	72.1	99.2	12.9	83.4	33.6	100.0	35.9	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	70.2	46.3	10.4	72.1	99.2	12.9	83.4	33.6	100.0	35.9	0.1
LOS	E	D	B	E	F	B	F	C	F	D	A
Approach Delay		39.6			67.1			53.1		70.3	
Approach LOS		D			E			D		E	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 116.2

Natural Cycle: 130

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.10

Intersection Signal Delay: 57.7

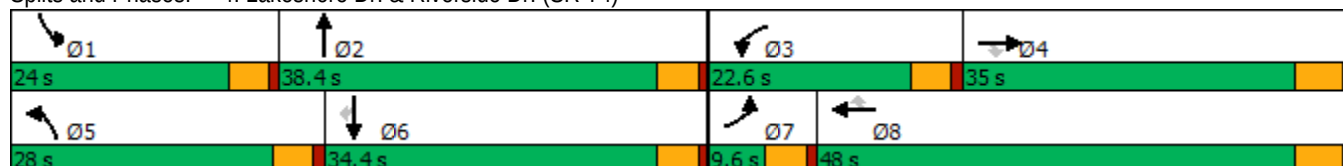
Intersection LOS: E

Intersection Capacity Utilization 94.9%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 4: Lakeshore Dr. & Riverside Dr. (SR-74)



HCM 6th Signalized Intersection Summary 4: Lakeshore Dr. & Riverside Dr. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

06/28/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	577	161	155	667	409	302	333	135	262	195	15
Future Volume (veh/h)	26	577	161	155	667	409	302	333	135	262	195	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	29	648	118	174	749	81	339	374	87	294	219	14
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	46	972	433	202	675	571	353	818	188	293	894	399
Arrive On Green	0.03	0.27	0.27	0.11	0.36	0.36	0.20	0.29	0.29	0.16	0.25	0.25
Sat Flow, veh/h	1781	3554	1582	1781	1870	1584	1781	2867	659	1781	3554	1585
Grp Volume(v), veh/h	29	648	118	174	749	81	339	230	231	294	219	14
Grp Sat Flow(s),veh/h/ln	1781	1777	1582	1781	1870	1584	1781	1777	1749	1781	1777	1585
Q Serve(g_s), s	1.9	19.1	6.9	11.3	42.6	4.1	22.3	12.6	12.8	19.4	5.8	0.8
Cycle Q Clear(g_c), s	1.9	19.1	6.9	11.3	42.6	4.1	22.3	12.6	12.8	19.4	5.8	0.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.38	1.00		1.00
Lane Grp Cap(c), veh/h	46	972	433	202	675	571	353	507	499	293	894	399
V/C Ratio(X)	0.63	0.67	0.27	0.86	1.11	0.14	0.96	0.45	0.46	1.00	0.24	0.04
Avail Cap(c_a), veh/h	75	972	433	272	675	571	353	507	499	293	894	399
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.9	38.1	33.7	51.4	37.7	25.4	46.9	34.6	34.7	49.3	35.2	33.4
Incr Delay (d2), s/veh	5.1	1.7	0.3	15.2	68.8	0.1	37.1	2.9	3.1	53.7	0.7	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	8.4	2.7	5.8	31.5	1.5	13.4	5.8	5.9	13.0	2.6	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.0	39.9	34.0	66.6	106.5	25.5	84.0	37.5	37.8	103.1	35.9	33.5
LnGrp LOS	E	D	C	E	F	C	F	D	D	F	D	C
Approach Vol, veh/h	795			1004			800			527		
Approach Delay, s/veh	39.8			93.1			57.3			73.3		
Approach LOS	D			F			E			E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	24.0	38.4	18.0	37.7	28.0	34.4	7.7	48.0				
Change Period (Y+Rc), s	4.6	* 4.7	4.6	5.4	4.6	* 4.7	4.6	5.4				
Max Green Setting (Gmax), s	19.4	* 34	18.0	29.6	23.4	* 30	5.0	42.6				
Max Q Clear Time (g_c+I1), s	21.4	14.8	13.3	21.1	24.3	7.8	3.9	44.6				
Green Ext Time (p_c), s	0.0	2.7	0.1	2.9	0.0	1.4	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay 67.0

HCM 6th LOS E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection												
Int Delay, s/veh	24.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕	↗		↕	↗
Traffic Vol, veh/h	2	1056	6	16	804	53	2	2	31	71	3	8
Future Vol, veh/h	2	1056	6	16	804	53	2	2	31	71	3	8
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Stop	-	-	Stop
Storage Length	-	-	-	-	-	-	-	-	75	-	-	75
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	1089	6	16	829	55	2	2	32	73	3	8
Major/Minor	Major1		Major2			Minor1			Minor2			
Conflicting Flow All	884	0	0	1095	0	0	1986	2012	1092	1986	1988	857
Stage 1	-	-	-	-	-	-	1096	1096	-	889	889	-
Stage 2	-	-	-	-	-	-	890	916	-	1097	1099	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	765	-	-	637	-	-	46	59	261	~ 46	61	357
Stage 1	-	-	-	-	-	-	259	289	-	338	361	-
Stage 2	-	-	-	-	-	-	337	351	-	258	288	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	765	-	-	637	-	-	41	56	261	~ 38	58	357
Mov Cap-2 Maneuver	-	-	-	-	-	-	41	56	-	~ 38	58	-
Stage 1	-	-	-	-	-	-	257	287	-	336	343	-
Stage 2	-	-	-	-	-	-	310	333	-	223	286	-
Approach	EB		WB			NB			SB			
HCM Control Delay, s	0		0.2			28.5			\$ 605.8			
HCM LOS						D			F			
Minor Lane/Major Mvmt	NBLn1 NBLn2		EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2		
Capacity (veh/h)	47 261		765	-	-	637	-	-	39	357		
HCM Lane V/C Ratio	0.088 0.122		0.003	-	-	0.026	-	-	1.956	0.023		
HCM Control Delay (s)	88.8 20.7		9.7	0	-	10.8	0	-	\$ 669.6	15.3		
HCM Lane LOS	F C		A	A	-	B	A	-	F	C		
HCM 95th %tile Q(veh)	0.3 0.4		0	-	-	0.1	-	-	8.2	0.1		
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s			+: Computation Not Defined				*: All major volume in platoon			

Intersection												
Int Delay, s/veh	24.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	1056	6	16	804	53	2	2	31	71	3	8
Future Vol, veh/h	2	1056	6	16	804	53	2	2	31	71	3	8
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Stop	-	-	Stop
Storage Length	100	-	-	100	-	-	-	-	75	-	-	75
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	1089	6	16	829	55	2	2	32	73	3	8
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	884	0	0	1095	0	0	1986	2012	1092	1986	1988	857
Stage 1	-	-	-	-	-	-	1096	1096	-	889	889	-
Stage 2	-	-	-	-	-	-	890	916	-	1097	1099	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	765	-	-	637	-	-	46	59	261	~ 46	61	357
Stage 1	-	-	-	-	-	-	259	289	-	338	361	-
Stage 2	-	-	-	-	-	-	337	351	-	258	288	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	765	-	-	637	-	-	42	57	261	~ 38	59	357
Mov Cap-2 Maneuver	-	-	-	-	-	-	42	57	-	~ 38	59	-
Stage 1	-	-	-	-	-	-	258	288	-	337	352	-
Stage 2	-	-	-	-	-	-	318	342	-	224	287	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.2			28.3			\$ 605.8		
HCM LOS							D			F		
Minor Lane/Major Mvmt	NBLn1 NBLn2		EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2		
Capacity (veh/h)	48	261	765	-	-	637	-	-	39	357		
HCM Lane V/C Ratio	0.086	0.122	0.003	-	-	0.026	-	-	1.956	0.023		
HCM Control Delay (s)	86.9	20.7	9.7	-	-	10.8	-	-	\$ 669.6	15.3		
HCM Lane LOS	F	C	A	-	-	B	-	-	F	C		
HCM 95th %tile Q(veh)	0.3	0.4	0	-	-	0.1	-	-	8.2	0.1		
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s			+: Computation Not Defined				*: All major volume in platoon			

Intersection						
Int Delay, s/veh	21.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	800	89	183	394	69	201
Future Vol, veh/h	800	89	183	394	69	201
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	120	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	920	102	210	453	79	231
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1022	0	1844	971
Stage 1	-	-	-	-	971	-
Stage 2	-	-	-	-	873	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	679	-	82	307
Stage 1	-	-	-	-	367	-
Stage 2	-	-	-	-	409	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	679	-	~ 57	307
Mov Cap-2 Maneuver	-	-	-	-	~ 57	-
Stage 1	-	-	-	-	254	-
Stage 2	-	-	-	-	409	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		4		129.1	
HCM LOS	F					
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	57	307	-	-	679	-
HCM Lane V/C Ratio	1.391	0.753	-	-	0.31	-
HCM Control Delay (s)	\$ 373.7	45.1	-	-	12.7	-
HCM Lane LOS	F	E	-	-	B	-
HCM 95th %tile Q(veh)	7	5.7	-	-	1.3	-
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

Timings

S. Nichols Mixed-Use Development (JN 10878)

7: Collier Av. (SR-74)/Collier Av. & Riverside Dr. (SR-74)/Riverside Dr.

06/28/2018

										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	144	11	1004	6	1	777	144	1	143	98
Future Volume (vph)	144	11	1004	6	1	777	144	1	143	98
Turn Type	Perm	NA	pm+ov	Perm	NA	Split	NA	Split	NA	Perm
Protected Phases		4	2		8	2	2	6	6	
Permitted Phases	4		4	8						6
Detector Phase	4	4	2	8	8	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	15.4	15.4	15.8	14.6	14.6	15.8	15.8	16.2	16.2	16.2
Total Split (s)	23.0	23.0	79.0	23.0	23.0	79.0	79.0	18.0	18.0	18.0
Total Split (%)	19.2%	19.2%	65.8%	19.2%	19.2%	65.8%	65.8%	15.0%	15.0%	15.0%
Yellow Time (s)	4.4	4.4	4.8	3.6	3.6	4.8	4.8	5.2	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.4	5.8		4.6	5.8	5.8	6.2	6.2	6.2
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	None	None	Max	None	None	Max	Max	Max	Max	Max
Act Effct Green (s)		16.7	95.3		17.5	73.2	73.2	11.8	11.8	11.8
Actuated g/C Ratio		0.14	0.80		0.15	0.61	0.61	0.10	0.10	0.10
v/c Ratio		0.86	0.82		0.04	0.75	0.14	0.01	0.82	0.41
Control Delay		87.1	12.3		39.3	22.3	9.9	49.0	85.3	14.9
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		87.1	12.3		39.3	22.3	9.9	49.0	85.3	14.9
LOS		F	B		D	C	A	D	F	B
Approach Delay		22.3			39.3		20.2		56.7	
Approach LOS		C			D		C		E	
Intersection Summary										
Cycle Length: 120										
Actuated Cycle Length: 119.1										
Natural Cycle: 90										
Control Type: Actuated-Uncoordinated										
Maximum v/c Ratio: 0.86										
Intersection Signal Delay: 25.1					Intersection LOS: C					
Intersection Capacity Utilization 92.7%					ICU Level of Service F					
Analysis Period (min) 15										

Splits and Phases: 7: Collier Av. (SR-74)/Collier Av. & Riverside Dr. (SR-74)/Riverside Dr.

 Ø2	 Ø6	 Ø4
79 s	18 s	23 s
		 Ø8
		23 s

HCM 6th Signalized Intersection Summary S. Nichols Mixed-Use Development (JN 10878)
 7: Collier Av. (SR-74)/Collier Av. & Riverside Dr. (SR-74)/Riverside Dr. 06/28/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	144	11	1004	6	1	2	777	144	11	1	143	98
Future Volume (veh/h)	144	11	1004	6	1	2	777	144	11	1	143	98
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	152	12	991	6	1	0	818	152	11	1	151	63
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	270	17	1199	83	10	0	1087	1051	76	175	184	156
Arrive On Green	0.15	0.15	0.15	0.15	0.15	0.00	0.61	0.61	0.61	0.10	0.10	0.10
Sat Flow, veh/h	1449	114	1585	185	66	0	1781	1723	125	1781	1870	1585
Grp Volume(v), veh/h	164	0	991	7	0	0	818	0	163	1	151	63
Grp Sat Flow(s),veh/h/ln	1563	0	1585	251	0	0	1781	0	1848	1781	1870	1585
Q Serve(g_s), s	0.0	0.0	17.6	0.3	0.0	0.0	39.7	0.0	4.5	0.1	9.5	4.5
Cycle Q Clear(g_c), s	11.5	0.0	17.6	11.8	0.0	0.0	39.7	0.0	4.5	0.1	9.5	4.5
Prop In Lane	0.93		1.00	0.86		0.00	1.00		0.07	1.00		1.00
Lane Grp Cap(c), veh/h	287	0	1199	93	0	0	1087	0	1127	175	184	156
V/C Ratio(X)	0.57	0.00	0.83	0.08	0.00	0.00	0.75	0.00	0.14	0.01	0.82	0.40
Avail Cap(c_a), veh/h	287	0	1199	97	0	0	1087	0	1127	175	184	156
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.6	0.0	5.7	45.7	0.0	0.0	16.9	0.0	10.0	48.8	53.1	50.8
Incr Delay (d2), s/veh	2.7	0.0	4.9	0.3	0.0	0.0	4.8	0.0	0.3	0.1	32.1	7.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.8	0.0	31.3	0.2	0.0	0.0	15.8	0.0	1.8	0.0	6.0	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.3	0.0	10.6	46.0	0.0	0.0	21.7	0.0	10.3	48.9	85.2	58.4
LnGrp LOS	D	A	B	D	A	A	C	A	B	D	F	E
Approach Vol, veh/h	1155			7				981			215	
Approach Delay, s/veh	16.4			46.0				19.8			77.2	
Approach LOS	B			D				B			E	
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	79.0			23.0			18.0			23.0		
Change Period (Y+Rc), s	5.8			5.4			6.2			* 5.4		
Max Green Setting (Gmax), s	73.2			17.6			11.8			* 18		
Max Q Clear Time (g_c+I1), s	41.7			19.6			11.5			13.8		
Green Ext Time (p_c), s	4.1			0.0			0.0			0.0		
Intersection Summary												
HCM 6th Ctrl Delay	23.4											
HCM 6th LOS	C											
Notes												

Timings

S. Nichols Mixed-Use Development (JN 10878)

8: Collier Av./Collier Av. (SR-74) & Central Av./Central Av. (SR-74)

06/28/2018

											
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 		 		 			 	 		
Traffic Volume (vph)	57	105	608	326	757	34	100	331	960	123	30
Future Volume (vph)	57	105	608	326	757	34	100	331	960	123	30
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	7	4	3	8	1	5	2	3	1	6	
Permitted Phases					8			2			6
Detector Phase	7	4	3	8	1	5	2	3	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	5.0	10.0	5.0	5.0	10.0	10.0
Minimum Split (s)	9.6	14.7	9.6	42.8	9.6	9.6	15.8	9.6	9.6	29.8	29.8
Total Split (s)	10.0	21.0	34.0	45.0	46.0	12.0	19.0	34.0	46.0	53.0	53.0
Total Split (%)	8.3%	17.5%	28.3%	37.5%	38.3%	10.0%	15.8%	28.3%	38.3%	44.2%	44.2%
Yellow Time (s)	3.6	3.7	3.6	4.8	3.6	3.6	4.8	3.6	3.6	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.7	4.6	5.8	4.6	4.6	5.8	4.6	4.6	5.8	5.8
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	None	None	Max	Max
Act Effect Green (s)	5.4	10.9	23.8	30.5	67.2	6.4	14.9	39.9	35.5	48.4	48.4
Actuated g/C Ratio	0.05	0.10	0.23	0.29	0.64	0.06	0.14	0.38	0.34	0.46	0.46
v/c Ratio	0.35	0.39	0.83	0.64	0.42	0.34	0.40	0.52	0.88	0.08	0.04
Control Delay	57.5	39.6	49.4	40.0	3.2	59.5	50.0	18.1	43.0	18.7	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.5	39.6	49.4	40.0	3.2	59.5	50.0	18.1	43.0	18.7	0.1
LOS	E	D	D	D	A	E	D	B	D	B	A
Approach Delay		44.8		26.9			27.9			39.1	
Approach LOS		D		C			C			D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 105

Natural Cycle: 95

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 32.0

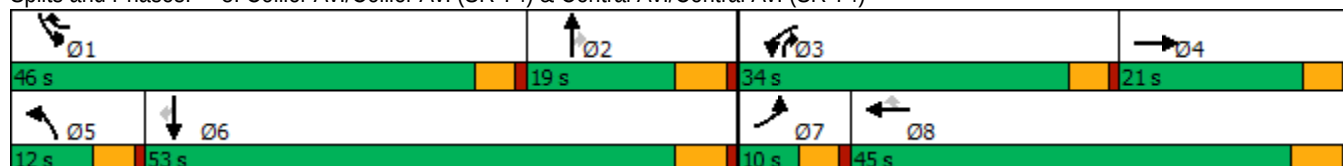
Intersection LOS: C

Intersection Capacity Utilization 72.3%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 8: Collier Av./Collier Av. (SR-74) & Central Av./Central Av. (SR-74)



HCM 6th Signalized Intersection Summary S. Nichols Mixed-Use Development (JN 10878)
 8: Collier Av./Collier Av. (SR-74) & Central Av./Central Av. (SR-74) 06/28/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	57	105	35	608	326	757	34	100	331	960	123	30
Future Volume (veh/h)	57	105	35	608	326	757	34	100	331	960	123	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	61	112	28	647	347	410	36	106	188	1021	131	29
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	139	275	66	727	501	1625	56	316	598	1110	1631	717
Arrive On Green	0.04	0.10	0.10	0.21	0.27	0.27	0.03	0.17	0.17	0.32	0.46	0.46
Sat Flow, veh/h	3456	2828	683	3456	1870	2725	1781	1870	1562	3456	3554	1562
Grp Volume(v), veh/h	61	69	71	647	347	410	36	106	188	1021	131	29
Grp Sat Flow(s),veh/h/ln	1728	1777	1734	1728	1870	1362	1781	1870	1562	1728	1777	1562
Q Serve(g_s), s	1.8	3.7	4.0	18.7	17.2	7.5	2.1	5.1	8.7	29.3	2.1	1.1
Cycle Q Clear(g_c), s	1.8	3.7	4.0	18.7	17.2	7.5	2.1	5.1	8.7	29.3	2.1	1.1
Prop In Lane	1.00		0.39	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	139	173	169	727	501	1625	56	316	598	1110	1631	717
V/C Ratio(X)	0.44	0.40	0.42	0.89	0.69	0.25	0.65	0.34	0.31	0.92	0.08	0.04
Avail Cap(c_a), veh/h	181	282	275	988	713	1934	128	316	598	1391	1631	717
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.2	43.6	43.7	39.4	33.9	10.2	49.3	37.7	22.5	33.7	15.6	15.3
Incr Delay (d2), s/veh	0.8	1.5	1.7	6.4	1.7	0.1	4.6	2.8	1.4	7.8	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	1.7	1.8	8.2	7.6	2.0	1.0	2.5	3.3	12.7	0.8	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.1	45.1	45.4	45.9	35.6	10.3	53.9	40.5	23.9	41.5	15.7	15.5
LnGrp LOS	D	D	D	D	D	B	D	D	C	D	B	B
Approach Vol, veh/h		201			1404			330			1181	
Approach Delay, s/veh		46.4			33.0			32.5			38.0	
Approach LOS		D			C			C			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	37.6	23.2	26.3	15.8	7.8	53.0	8.7	33.3				
Change Period (Y+Rc), s	4.6	5.8	4.6	* 5.8	4.6	5.8	4.6	5.8				
Max Green Setting (Gmax), s	41.4	13.2	29.4	* 16	7.4	47.2	5.4	39.2				
Max Q Clear Time (g_c+I1), s	31.3	10.7	20.7	6.0	4.1	4.1	3.8	19.2				
Green Ext Time (p_c), s	1.7	0.3	0.9	0.5	0.0	0.9	0.0	3.5				
Intersection Summary												
HCM 6th Ctrl Delay			35.7									
HCM 6th LOS			D									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Intersection

Intersection Delay, s/veh 162.6

Intersection LOS F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗	↖	↑						↕	
Traffic Vol, veh/h	0	529	472	131	455	0	0	0	0	257	7	121
Future Vol, veh/h	0	529	472	131	455	0	0	0	0	257	7	121
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles, %	0	3	3	25	3	0	0	0	0	8	67	13
Mvmt Flow	0	705	629	175	607	0	0	0	0	343	9	161
Number of Lanes	0	1	1	1	1	0	0	0	0	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	2
HCM Control Delay	207.6	146.8	69.7
HCM LOS	F	F	F

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	100%	0%	67%
Vol Thru, %	100%	0%	0%	100%	2%
Vol Right, %	0%	100%	0%	0%	31%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	529	472	131	455	385
LT Vol	0	0	131	0	257
Through Vol	529	0	0	455	7
RT Vol	0	472	0	0	121
Lane Flow Rate	705	629	175	607	513
Geometry Grp	7	7	7	7	2
Degree of Util (X)	1.514	1.229	0.423	1.323	1.008
Departure Headway (Hd)	8.198	7.469	8.963	8.058	7.303
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	451	491	403	455	503
Service Time	5.898	5.169	6.663	5.758	5.303
HCM Lane V/C Ratio	1.563	1.281	0.434	1.334	1.02
HCM Control Delay	264.2	144.1	18.1	183.8	69.7
HCM Lane LOS	F	F	C	F	F
HCM 95th-tile Q	35.3	23.3	2.1	26.4	13.9

Intersection												
Int Delay, s/veh	1724.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	189	597	0	0	345	164	241	3	201	0	0	0
Future Vol, veh/h	189	597	0	0	345	164	241	3	201	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	230	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	62	62	62	62	62	62	62	62	62	62	62	62
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	305	963	0	0	556	265	389	5	324	0	0	0
Major/Minor	Major1			Major2			Minor1					
Conflicting Flow All	821	0	-	-	-	-	0	2262	2394	963		
Stage 1	-	-	-	-	-	-	-	1573	1573	-		
Stage 2	-	-	-	-	-	-	-	689	821	-		
Critical Hdwy	4.15	-	-	-	-	-	-	6.44	6.5	6.26		
Critical Hdwy Stg 1	-	-	-	-	-	-	-	5.44	5.5	-		
Critical Hdwy Stg 2	-	-	-	-	-	-	-	5.44	5.5	-		
Follow-up Hdwy	2.245	-	-	-	-	-	-	3.536	4	3.354		
Pot Cap-1 Maneuver	795	-	0	0	-	-	-	~ 44	34	~ 305		
Stage 1	-	-	0	0	-	-	-	~ 186	172	-		
Stage 2	-	-	0	0	-	-	-	495	391	-		
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	795	-	-	-	-	-	-	~ 27	0	~ 305		
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	~ 27	0	-		
Stage 1	-	-	-	-	-	-	-	~ 115	0	-		
Stage 2	-	-	-	-	-	-	-	495	0	-		
Approach	EB			WB			NB					
HCM Control Delay, s	3			0				\$ 6737.2				
HCM LOS								F				
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR							
Capacity (veh/h)	46	795	-	-	-							
HCM Lane V/C Ratio	15.603	0.383	-	-	-							
HCM Control Delay (s)	\$ 6737.2	12.3	-	-	-							
HCM Lane LOS	F	B	-	-	-							
HCM 95th %tile Q(veh)	87.1	1.8	-	-	-							
Notes												
~: Volume exceeds capacity	\$: Delay exceeds 300s			+: Computation Not Defined			*: All major volume in platoon					

Intersection	
Intersection Delay, s/veh	320.5
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	189	597	0	0	345	164	241	3	201	0	0	0
Future Vol, veh/h	189	597	0	0	345	164	241	3	201	0	0	0
Peak Hour Factor	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	305	963	0	0	556	265	389	5	324	0	0	0
Number of Lanes	1	1	0	0	1	0	0	1	0	0	0	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	392.1	309.9	206.1
HCM LOS	F	F	F

Lane	NBLn1	EBLn1	EBLn2	WBLn1
Vol Left, %	54%	100%	0%	0%
Vol Thru, %	1%	0%	100%	68%
Vol Right, %	45%	0%	0%	32%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	445	189	597	509
LT Vol	241	189	0	0
Through Vol	3	0	597	345
RT Vol	201	0	0	164
Lane Flow Rate	718	305	963	821
Geometry Grp	2	7	7	5
Degree of Util (X)	1.376	0.693	2.055	1.616
Departure Headway (Hd)	8.118	10.336	9.81	8.632
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	452	354	385	427
Service Time	6.118	8.036	7.51	6.632
HCM Lane V/C Ratio	1.588	0.862	2.501	1.923
HCM Control Delay	206.1	33.4	505.7	309.9
HCM Lane LOS	F	D	F	F
HCM 95th-tile Q	28.8	4.9	53.7	38.7

Timings
11: A Street & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

07/19/2018

	→	↖	←	↙
Lane Group	EBT	WBL	WBT	NBL
Lane Configurations	↻	↻	↻	↻
Traffic Volume (vph)	442	17	290	399
Future Volume (vph)	442	17	290	399
Turn Type	NA	Prot	NA	Prot
Protected Phases	4	3	8	2
Permitted Phases				
Detector Phase	4	3	8	2
Switch Phase				
Minimum Initial (s)	10.0	5.0	10.0	10.0
Minimum Split (s)	22.8	9.6	22.8	21.6
Total Split (s)	57.0	16.0	73.0	47.0
Total Split (%)	47.5%	13.3%	60.8%	39.2%
Yellow Time (s)	4.8	3.6	4.8	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	4.6	5.8	4.6
Lead/Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		
Recall Mode	None	None	None	Min
Act Effect Green (s)	32.6	7.3	36.0	26.5
Actuated g/C Ratio	0.44	0.10	0.48	0.35
v/c Ratio	0.78	0.10	0.35	0.70
Control Delay	27.6	45.8	13.4	30.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	27.6	45.8	13.4	30.4
LOS	C	D	B	C
Approach Delay	27.6		15.1	30.4
Approach LOS	C		B	C

Intersection Summary

Cycle Length: 120	
Actuated Cycle Length: 74.7	
Natural Cycle: 70	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.78	
Intersection Signal Delay: 25.5	Intersection LOS: C
Intersection Capacity Utilization 62.0%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 11: A Street & Nichols Rd.

↙ Ø2	↖ Ø3	→ Ø4
47 s	16 s	57 s
	← Ø8	
	73 s	

HCM 6th Signalized Intersection Summary 11: A Street & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)
07/19/2018

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	442	126	17	290	399	5
Future Volume (veh/h)	442	126	17	290	399	5
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1900	1900
Adj Flow Rate, veh/h	480	137	18	315	434	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	0	0
Cap, veh/h	583	166	39	975	518	6
Arrive On Green	0.42	0.42	0.02	0.52	0.29	0.29
Sat Flow, veh/h	1399	399	1781	1870	1783	21
Grp Volume(v), veh/h	0	617	18	315	440	0
Grp Sat Flow(s),veh/h/ln	0	1798	1781	1870	1807	0
Q Serve(g_s), s	0.0	16.9	0.6	5.4	12.6	0.0
Cycle Q Clear(g_c), s	0.0	16.9	0.6	5.4	12.6	0.0
Prop In Lane		0.22	1.00		0.99	0.01
Lane Grp Cap(c), veh/h	0	749	39	975	526	0
V/C Ratio(X)	0.00	0.82	0.46	0.32	0.84	0.00
Avail Cap(c_a), veh/h	0	1663	367	2269	1383	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	14.4	26.8	7.6	18.4	0.0
Incr Delay (d2), s/veh	0.0	2.4	8.3	0.2	3.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	5.6	0.3	1.5	5.3	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	16.7	35.1	7.8	22.0	0.0
LnGrp LOS	A	B	D	A	C	A
Approach Vol, veh/h	617			333	440	
Approach Delay, s/veh	16.7			9.3	22.0	
Approach LOS	B			A	C	
Timer - Assigned Phs	2		3	4	8	
Phs Duration (G+Y+Rc), s	20.7		5.8	28.9	34.7	
Change Period (Y+Rc), s	4.6		4.6	5.8	5.8	
Max Green Setting (Gmax), s	42.4		11.4	51.2	67.2	
Max Q Clear Time (g_c+I1), s	14.6		2.6	18.9	7.4	
Green Ext Time (p_c), s	1.5		0.0	4.2	1.8	
Intersection Summary						
HCM 6th Ctrl Delay			16.6			
HCM 6th LOS			B			
Notes						

Intersection						
Int Delay, s/veh	3.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	259	251	0	151	156	0
Future Vol, veh/h	259	251	0	151	156	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	200	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	282	273	0	164	170	0
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	555	0	583	419
Stage 1	-	-	-	-	419	-
Stage 2	-	-	-	-	164	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1015	-	475	634
Stage 1	-	-	-	-	664	-
Stage 2	-	-	-	-	865	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1015	-	475	634
Mov Cap-2 Maneuver	-	-	-	-	475	-
Stage 1	-	-	-	-	664	-
Stage 2	-	-	-	-	865	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		16.7	
HCM LOS	C					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	475	-	-	1015	-	
HCM Lane V/C Ratio	0.357	-	-	-	-	
HCM Control Delay (s)	16.7	-	-	0	-	
HCM Lane LOS	C	-	-	A	-	
HCM 95th %tile O(veh)	1.6	-	-	0	-	

Intersection												
Int Delay, s/veh	1.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	29	0	3	1	0	4	1	123	0	2	237	12
Future Vol, veh/h	29	0	3	1	0	4	1	123	0	2	237	12
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	32	0	3	1	0	4	1	134	0	2	258	13
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	407	405	265	406	411	134	271	0	0	134	0	0
Stage 1	269	269	-	136	136	-	-	-	-	-	-	-
Stage 2	138	136	-	270	275	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	555	535	774	555	531	915	1292	-	-	1451	-	-
Stage 1	737	687	-	867	784	-	-	-	-	-	-	-
Stage 2	865	784	-	736	683	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	551	533	774	552	529	915	1292	-	-	1451	-	-
Mov Cap-2 Maneuver	551	533	-	552	529	-	-	-	-	-	-	-
Stage 1	736	686	-	866	783	-	-	-	-	-	-	-
Stage 2	860	783	-	731	682	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	11.8		9.5		0.1		0.1					
HCM LOS	B		A									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1292	-	-	566	809	1451	-	-				
HCM Lane V/C Ratio	0.001	-	-	0.061	0.007	0.001	-	-				
HCM Control Delay (s)	7.8	0	-	11.8	9.5	7.5	0	-				
HCM Lane LOS	A	A	-	B	A	A	A	-				
HCM 95th %tile O(veh)	0	-	-	0.2	0	0	-	-				

Intersection						
Int Delay, s/veh	2.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	48	68	125	241	0
Future Vol, veh/h	0	48	68	125	241	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	52	74	136	262	0
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	546	262	262	0	-	0
Stage 1	262	-	-	-	-	-
Stage 2	284	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	499	777	1302	-	-	-
Stage 1	782	-	-	-	-	-
Stage 2	764	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	469	777	1302	-	-	-
Mov Cap-2 Maneuver	469	-	-	-	-	-
Stage 1	734	-	-	-	-	-
Stage 2	764	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	10	2.8		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1302	-	777	-	-	
HCM Lane V/C Ratio	0.057	-	0.067	-	-	
HCM Control Delay (s)	7.9	0	10	-	-	
HCM Lane LOS	A	A	B	-	-	
HCM 95th %tile Q(veh)	0.2	-	0.2	-	-	

Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	3	285	185	3	7	7
Future Vol, veh/h	3	285	185	3	7	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	310	201	3	8	8
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	204	0	-	0	519	203
Stage 1	-	-	-	-	203	-
Stage 2	-	-	-	-	316	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1368	-	-	-	517	838
Stage 1	-	-	-	-	831	-
Stage 2	-	-	-	-	739	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1368	-	-	-	515	838
Mov Cap-2 Maneuver	-	-	-	-	515	-
Stage 1	-	-	-	-	829	-
Stage 2	-	-	-	-	739	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.1	0		10.8		
HCM LOS				B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1368	-	-	-	638	
HCM Lane V/C Ratio	0.002	-	-	-	0.024	
HCM Control Delay (s)	7.6	0	-	-	10.8	
HCM Lane LOS	A	A	-	-	B	
HCM 95th %tile Q(veh)	0	-	-	-	0.1	

Intersection						
Int Delay, s/veh	7.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	293	278	27	252	0
Future Vol, veh/h	0	293	278	27	252	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	318	302	29	274	0
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	907	274	274	0	-	0
Stage 1	274	-	-	-	-	-
Stage 2	633	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	306	765	1289	-	-	-
Stage 1	772	-	-	-	-	-
Stage 2	529	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	233	765	1289	-	-	-
Mov Cap-2 Maneuver	233	-	-	-	-	-
Stage 1	588	-	-	-	-	-
Stage 2	529	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	13	7.9		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1289	-	765	-	-	
HCM Lane V/C Ratio	0.234	-	0.416	-	-	
HCM Control Delay (s)	8.6	0	13	-	-	
HCM Lane LOS	A	A	B	-	-	
HCM 95th %tile Q(veh)	0.9	-	2.1	-	-	

Intersection						
Int Delay, s/veh	97.9					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	188	40	266	74	30	515
Future Vol, veh/h	188	40	266	74	30	515
Conflicting Peds, #/hr	0	1	0	3	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	66	66	66	66	66	66
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	285	61	403	112	45	780
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	1332	463	0	0	518	0
Stage 1	462	-	-	-	-	-
Stage 2	870	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	~ 170	599	-	-	1048	-
Stage 1	634	-	-	-	-	-
Stage 2	410	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 157	597	-	-	1045	-
Mov Cap-2 Maneuver	~ 157	-	-	-	-	-
Stage 1	584	-	-	-	-	-
Stage 2	410	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s\$	476.9	0		0.5		
HCM LOS	F					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	-	180	1045	-	
HCM Lane V/C Ratio	-	-	1.919	0.043	-	
HCM Control Delay (s)	-	\$ 476.9		8.6	0	
HCM Lane LOS	-	-	F	A	A	
HCM 95th %tile Q(veh)	-	-	25.7	0.1	-	
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

Intersection						
Int Delay, s/veh	10.9					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	188	40	266	74	30	515
Future Vol, veh/h	188	40	266	74	30	515
Conflicting Peds, #/hr	0	1	0	3	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	204	43	289	80	33	560
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	958	333	0	0	372	0
Stage 1	332	-	-	-	-	-
Stage 2	626	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	285	709	-	-	1186	-
Stage 1	727	-	-	-	-	-
Stage 2	533	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	273	706	-	-	1183	-
Mov Cap-2 Maneuver	273	-	-	-	-	-
Stage 1	696	-	-	-	-	-
Stage 2	533	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	52.2	0	0.4			
HCM LOS	F					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	306	1183	-	
HCM Lane V/C Ratio	-	-	0.81	0.028	-	
HCM Control Delay (s)	-	-	52.2	8.1	0	
HCM Lane LOS	-	-	F	A	A	
HCM 95th %tile Q(veh)	-	-	6.7	0.1	-	

Intersection												
Int Delay, s/veh	657.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	145	0	296	7	0	17	187	177	7	9	438	257
Future Vol, veh/h	145	0	296	7	0	17	187	177	7	9	438	257
Conflicting Peds, #/hr	0	0	0	0	0	21	0	0	14	0	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	69	69	69	69	69	69	69	69	69	69	69	69
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	210	0	429	10	0	25	271	257	10	13	635	372
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1686	1671	822	1880	1852	297	1008	0	0	281	0	0
Stage 1	848	848	-	818	818	-	-	-	-	-	-	-
Stage 2	838	823	-	1062	1034	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	~ 74	96	~ 374	54	74	742	687	-	-	1282	-	-
Stage 1	356	378	-	370	390	-	-	-	-	-	-	-
Stage 2	361	388	-	270	309	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 44	49	~ 374	-	38	717	686	-	-	1265	-	-
Mov Cap-2 Maneuver	~ 44	49	-	-	38	-	-	-	-	-	-	-
Stage 1	~ 190	368	-	196	206	-	-	-	-	-	-	-
Stage 2	~ 183	205	-	-	301	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, \$	2290.8				6.9		0.1					
HCM LOS	F		-									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	686	-	-	108	-	1265	-	-				
HCM Lane V/C Ratio	0.395	-	-	5.918	-	0.01	-	-				
HCM Control Delay (s)	13.6	0		\$ 2290.8	-	7.9	0	-				
HCM Lane LOS	B	A	-	F	-	A	A	-				
HCM 95th %tile Q(veh)	1.9	-	-	69.8	-	0	-	-				
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s			+: Computation Not Defined				*: All major volume in platoon			

Intersection												
Int Delay, s/veh	158.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	145	0	296	7	0	17	187	177	7	9	438	257
Future Vol, veh/h	145	0	296	7	0	17	187	177	7	9	438	257
Conflicting Peds, #/hr	0	0	0	0	0	21	0	0	14	0	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	158	0	322	8	0	18	203	192	8	10	476	279
Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	1269	1257	617	1413	1392	231	756	0	0	214	0	0
Stage 1	637	637	-	616	616	-	-	-	-	-	-	-
Stage 2	632	620	-	797	776	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	~ 145	171	490	115	142	808	855	-	-	1356	-	-
Stage 1	465	471	-	478	482	-	-	-	-	-	-	-
Stage 2	468	480	-	380	407	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	~ 109	122	490	31	101	781	854	-	-	1338	-	-
Mov Cap-2 Maneuver	~ 109	122	-	31	101	-	-	-	-	-	-	-
Stage 1	340	464	-	345	348	-	-	-	-	-	-	-
Stage 2	328	347	-	129	401	-	-	-	-	-	-	-
Approach	EB		WB			NB			SB			
HCM Control Delay, s\$	545.3		55.2			5.3			0.1			
HCM LOS	F		F									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	854	-	-	228	97	1338	-	-				
HCM Lane V/C Ratio	0.238	-	-	2.102	0.269	0.007	-	-				
HCM Control Delay (s)	10.5	0	-	\$ 545.3	55.2	7.7	0	-				
HCM Lane LOS	B	A	-	F	F	A	A	-				
HCM 95th %tile Q(veh)	0.9	-	-	36.4	1	0	-	-				
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s			+: Computation Not Defined				*: All major volume in platoon			

Timings
19: Dexter Av. & Central Av. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

06/28/2018

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	265	1154	170	137	1809	267	138	289	111	165	427
Future Volume (vph)	265	1154	170	137	1809	267	138	289	111	165	427
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2	1	6	7
Permitted Phases			4			8					6
Detector Phase	7	4	4	3	8	8	5	2	1	6	7
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0	5.0
Minimum Split (s)	9.6	26.8	26.8	9.6	26.8	26.8	9.6	42.4	9.6	15.8	9.6
Total Split (s)	26.0	42.4	42.4	21.1	37.5	37.5	19.5	43.5	13.0	37.0	26.0
Total Split (%)	21.7%	35.3%	35.3%	17.6%	31.3%	31.3%	16.3%	36.3%	10.8%	30.8%	21.7%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	4.8	3.6	4.4	3.6	4.8	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	5.8	4.6	5.8	5.8	4.6	5.4	4.6	5.8	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	None	Max	None
Act Effect Green (s)	20.9	38.9	38.9	13.7	31.7	31.7	13.2	38.1	8.4	32.9	59.6
Actuated g/C Ratio	0.17	0.33	0.33	0.11	0.27	0.27	0.11	0.32	0.07	0.28	0.50
v/c Ratio	0.94	0.77	0.29	0.75	1.17	0.50	0.78	0.74	0.98	0.35	0.56
Control Delay	87.6	40.3	5.6	73.2	122.7	12.6	77.5	43.8	133.6	38.0	18.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	87.6	40.3	5.6	73.2	122.7	12.6	77.5	43.8	133.6	38.0	18.8
LOS	F	D	A	E	F	B	E	D	F	D	B
Approach Delay		44.5			106.4			52.7		41.5	
Approach LOS		D			F			D		D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 119.5

Natural Cycle: 130

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.17

Intersection Signal Delay: 72.1

Intersection LOS: E

Intersection Capacity Utilization 94.9%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 19: Dexter Av. & Central Av. (SR-74)

			
Ø1	Ø2	Ø3	Ø4
13 s	43.5 s	21.1 s	42.4 s
			
Ø5	Ø6	Ø7	Ø8
19.5 s	37 s	26 s	37.5 s

HCM 6th Signalized Intersection Summary
19: Dexter Av. & Central Av. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

06/28/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  							
Traffic Volume (veh/h)	265	1154	170	137	1809	267	138	289	98	111	165	427
Future Volume (veh/h)	265	1154	170	137	1809	267	138	289	98	111	165	427
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	291	1268	144	151	1988	251	152	318	67	122	181	413
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	316	1740	540	178	1695	412	179	474	100	124	535	734
Arrive On Green	0.18	0.34	0.34	0.10	0.26	0.26	0.10	0.32	0.32	0.07	0.29	0.29
Sat Flow, veh/h	1781	5106	1585	1781	6434	1565	1781	1498	316	1781	1870	1585
Grp Volume(v), veh/h	291	1268	144	151	1988	251	152	0	385	122	181	413
Grp Sat Flow(s),veh/h/ln	1781	1702	1585	1781	1609	1565	1781	0	1813	1781	1870	1585
Q Serve(g_s), s	19.3	26.2	7.9	10.0	31.7	16.9	10.1	0.0	22.2	8.2	9.2	22.8
Cycle Q Clear(g_c), s	19.3	26.2	7.9	10.0	31.7	16.9	10.1	0.0	22.2	8.2	9.2	22.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.17	1.00		1.00
Lane Grp Cap(c), veh/h	316	1740	540	178	1695	412	179	0	574	124	535	734
V/C Ratio(X)	0.92	0.73	0.27	0.85	1.17	0.61	0.85	0.00	0.67	0.98	0.34	0.56
Avail Cap(c_a), veh/h	317	1740	540	244	1695	412	221	0	574	124	535	734
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.7	34.8	28.8	53.3	44.3	38.9	53.2	0.0	35.7	55.9	34.0	23.4
Incr Delay (d2), s/veh	30.5	1.6	0.3	14.0	84.4	2.6	19.1	0.0	6.1	74.4	1.7	3.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.0	10.6	3.0	5.1	22.1	6.6	5.4	0.0	10.5	6.2	4.3	8.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	79.2	36.4	29.0	67.2	128.8	41.5	72.3	0.0	41.8	130.3	35.7	26.5
LnGrp LOS	E	D	C	E	F	D	E	A	D	F	D	C
Approach Vol, veh/h		1703			2390			537			716	
Approach Delay, s/veh		43.1			115.7			50.4			46.5	
Approach LOS		D			F			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.0	43.9	16.6	46.8	16.7	40.2	25.9	37.5				
Change Period (Y+Rc), s	4.6	* 5.8	4.6	5.8	4.6	5.8	4.6	5.8				
Max Green Setting (Gmax), s	8.4	* 38	16.5	36.6	14.9	31.2	21.4	31.7				
Max Q Clear Time (g_c+I1), s	10.2	24.2	12.0	28.2	12.1	24.8	21.3	33.7				
Green Ext Time (p_c), s	0.0	1.8	0.1	5.1	0.0	1.4	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay	76.7
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Timings

S. Nichols Mixed-Use Development (JN 10878)

20: Cambern Av./Cambern Av & Central Av. (SR-74)

06/28/2018

										
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations	 	 		 				 	 	
Traffic Volume (vph)	141	1298	22	2080	125	40	8	142	8	101
Future Volume (vph)	141	1298	22	2080	125	40	8	142	8	101
Turn Type	Prot	NA	Prot	NA	Perm	Perm	NA	Perm	NA	Perm
Protected Phases	7	4	3	8			2		6	
Permitted Phases					8	2		6		6
Detector Phase	7	4	3	8	8	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	24.8	9.6	25.5	25.5	34.7	34.7	14.7	14.7	14.7
Total Split (s)	12.0	75.4	9.6	73.0	73.0	35.0	35.0	35.0	35.0	35.0
Total Split (%)	10.0%	62.8%	8.0%	60.8%	60.8%	29.2%	29.2%	29.2%	29.2%	29.2%
Yellow Time (s)	3.6	4.8	3.6	5.5	5.5	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.6	5.8	4.6	6.5	6.5	4.7	4.7		4.7	4.7
Lead/Lag	Lead	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	Max	None	None	None	None	Max	Max	Max	Max	Max
Act Effect Green (s)	7.4	73.4	5.0	66.5	66.5	30.3	30.3		30.3	30.3
Actuated g/C Ratio	0.06	0.61	0.04	0.55	0.55	0.25	0.25		0.25	0.25
v/c Ratio	0.73	0.67	0.33	1.17	0.15	0.17	0.12		0.50	0.24
Control Delay	75.9	17.9	68.0	107.5	3.2	37.2	13.5		44.7	13.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay	75.9	17.9	68.0	107.5	3.2	37.2	13.5		44.7	13.9
LOS	E	B	E	F	A	D	B		D	B
Approach Delay		23.5		101.3			24.2		32.3	
Approach LOS		C		F			C		C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Natural Cycle: 150

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.17

Intersection Signal Delay: 67.1

Intersection LOS: E

Intersection Capacity Utilization 104.1%

ICU Level of Service G

Analysis Period (min) 15

Splits and Phases: 20: Cambern Av./Cambern Av & Central Av. (SR-74)

 Ø2	 Ø3	 Ø4
35 s	9.6 s	75.4 s
 Ø6	 Ø7	 Ø8
35 s	12 s	73 s

HCM 6th Signalized Intersection Summary S. Nichols Mixed-Use Development (JN 10878)
 20: Cambern Av./Cambern Av & Central Av. (SR-74) 06/28/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	141	1298	20	22	2080	125	40	8	40	142	8	101
Future Volume (veh/h)	141	1298	20	22	2080	125	40	8	40	142	8	101
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	155	1426	22	24	2286	95	44	9	43	156	9	67
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	213	2124	33	41	1969	867	221	71	339	353	17	400
Arrive On Green	0.06	0.59	0.59	0.02	0.55	0.55	0.25	0.25	0.25	0.25	0.25	0.25
Sat Flow, veh/h	3456	3582	55	1781	3554	1564	1322	281	1344	1169	67	1583
Grp Volume(v), veh/h	155	707	741	24	2286	95	44	0	52	165	0	67
Grp Sat Flow(s),veh/h/ln	1728	1777	1860	1781	1777	1564	1322	0	1625	1236	0	1583
Q Serve(g_s), s	5.3	32.3	32.3	1.6	66.5	3.5	3.6	0.0	3.0	12.7	0.0	4.0
Cycle Q Clear(g_c), s	5.3	32.3	32.3	1.6	66.5	3.5	19.3	0.0	3.0	15.6	0.0	4.0
Prop In Lane	1.00		0.03	1.00		1.00	1.00		0.83	0.95		1.00
Lane Grp Cap(c), veh/h	213	1053	1103	41	1969	867	221	0	410	371	0	400
V/C Ratio(X)	0.73	0.67	0.67	0.59	1.16	0.11	0.20	0.00	0.13	0.45	0.00	0.17
Avail Cap(c_a), veh/h	213	1053	1103	74	1969	867	221	0	410	371	0	400
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	55.3	16.5	16.5	58.1	26.7	12.7	47.8	0.0	34.6	40.7	0.0	35.0
Incr Delay (d2), s/veh	19.4	1.9	1.8	4.9	78.4	0.1	2.0	0.0	0.6	3.8	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	12.3	12.9	0.8	45.4	1.1	1.3	0.0	1.3	4.7	0.0	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	74.8	18.4	18.3	63.0	105.2	12.8	49.8	0.0	35.3	44.5	0.0	35.9
LnGrp LOS	E	B	B	E	F	B	D	A	D	D	A	D
Approach Vol, veh/h		1603			2405			96			232	
Approach Delay, s/veh		23.8			101.1			41.9			42.0	
Approach LOS		C			F			D			D	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		35.0	7.4	77.6		35.0	12.0	73.0				
Change Period (Y+Rc), s		* 4.7	4.6	* 6.5		* 4.7	4.6	6.5				
Max Green Setting (Gmax), s		* 30	5.0	* 70		* 30	7.4	66.5				
Max Q Clear Time (g_c+I1), s		21.3	3.6	34.3		17.6	7.3	68.5				
Green Ext Time (p_c), s		0.2	0.0	17.7		0.9	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			68.1									
HCM 6th LOS			E									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Intersection						
Int Delay, s/veh	0.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	444	354	0	329	0	7
Future Vol, veh/h	444	354	0	329	0	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	483	385	0	358	0	8
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	676
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.318
Pot Cap-1 Maneuver	-	-	0	-	0	453
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	453
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		13.1	
HCM LOS					B	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT		
Capacity (veh/h)	453	-	-	-		
HCM Lane V/C Ratio	0.017	-	-	-		
HCM Control Delay (s)	13.1	-	-	-		
HCM Lane LOS	B	-	-	-		
HCM 95th %tile O(veh)	0.1	-	-	-		

Timings

S. Nichols Mixed-Use Development (JN 10878)

1: Lake St. & Nichols Rd.

06/28/2018

									
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	207	254	357	328	158	442	259	50	1011
Future Volume (vph)	207	254	357	328	158	442	259	50	1011
Turn Type	Perm	NA	Perm	NA	Prot	NA	Perm	Prot	NA
Protected Phases		4		8	5	2		1	6
Permitted Phases	4		8				2		
Detector Phase	4	4	8	8	5	2	2	1	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	14.6	14.6	16.2	16.2	9.6	16.2	16.2	9.6	16.2
Total Split (s)	42.2	42.2	42.2	42.2	35.6	42.2	42.2	35.6	42.2
Total Split (%)	35.2%	35.2%	35.2%	35.2%	29.7%	35.2%	35.2%	29.7%	35.2%
Yellow Time (s)	3.6	3.6	5.2	5.2	3.6	5.2	5.2	3.6	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.6		6.2	4.6	6.2	6.2	4.6	6.2
Lead/Lag					Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	None	Max
Act Effect Green (s)		37.7		36.1	14.4	44.8	44.8	7.7	36.1
Actuated g/C Ratio		0.36		0.35	0.14	0.43	0.43	0.07	0.35
v/c Ratio		1.45		2.40	0.71	0.60	0.37	0.42	2.25
Control Delay		242.4		659.0	58.2	27.4	10.8	56.0	590.7
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		242.4		659.0	58.2	27.4	10.8	56.0	590.7
LOS		F		F	E	C	B	E	F
Approach Delay		242.4		659.0		28.1			570.6
Approach LOS		F		F		C			F

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 103.6

Natural Cycle: 150

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 2.40

Intersection Signal Delay: 399.1

Intersection LOS: F

Intersection Capacity Utilization 154.6%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 1: Lake St. & Nichols Rd.



HCM 6th Signalized Intersection Summary

1: Lake St. & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

06/28/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	207	254	164	357	328	37	158	442	259	50	1011	275
Future Volume (veh/h)	207	254	164	357	328	37	158	442	259	50	1011	275
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	227	279	180	392	360	33	174	486	0	55	1111	302
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	216	212	136	225	158	15	207	799		71	497	135
Arrive On Green	0.37	0.37	0.37	0.37	0.37	0.37	0.12	0.43	0.00	0.04	0.35	0.35
Sat Flow, veh/h	461	578	370	470	432	40	1781	1870	1585	1781	1416	385
Grp Volume(v), veh/h	686	0	0	785	0	0	174	486	0	55	0	1413
Grp Sat Flow(s),veh/h/ln	1408	0	0	941	0	0	1781	1870	1585	1781	0	1801
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	9.8	20.6	0.0	3.1	0.0	36.0
Cycle Q Clear(g_c), s	37.6	0.0	0.0	37.6	0.0	0.0	9.8	20.6	0.0	3.1	0.0	36.0
Prop In Lane	0.33		0.26	0.50		0.04	1.00		1.00	1.00		0.21
Lane Grp Cap(c), veh/h	563	0	0	398	0	0	207	799		71	0	632
V/C Ratio(X)	1.22	0.00	0.00	1.97	0.00	0.00	0.84	0.61		0.77	0.00	2.23
Avail Cap(c_a), veh/h	563	0	0	398	0	0	539	799		539	0	632
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	34.0	0.0	0.0	34.9	0.0	0.0	44.4	22.7	0.0	48.7	0.0	33.3
Incr Delay (d2), s/veh	113.5	0.0	0.0	446.8	0.0	0.0	3.5	3.4	0.0	6.4	0.0	560.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	32.2	0.0	0.0	59.2	0.0	0.0	4.3	9.0	0.0	1.5	0.0	112.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	147.5	0.0	0.0	481.7	0.0	0.0	47.9	26.1	0.0	55.2	0.0	593.7
LnGrp LOS	F	A	A	F	A	A	D	C		E	A	F
Approach Vol, veh/h		686			785			660	A		1468	
Approach Delay, s/veh		147.5			481.7			31.9			573.5	
Approach LOS		F			F			C			F	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.7	50.0		43.8	16.5	42.2		43.8				
Change Period (Y+Rc), s	4.6	6.2		* 6.2	4.6	6.2		6.2				
Max Green Setting (Gmax), s	31.0	36.0		* 38	31.0	36.0		36.0				
Max Q Clear Time (g_c+I1), s	5.1	22.6		39.6	11.8	38.0		39.6				
Green Ext Time (p_c), s	0.0	3.1		0.0	0.2	0.0		0.0				
Intersection Summary												
HCM 6th Ctrl Delay				372.9								
HCM 6th LOS				F								
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.												

Timings
2: Lake St. & Alberhill Ranch Rd.

S. Nichols Mixed-Use Development (JN 10878)

06/28/2018

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	42	28	801	35	33	1457
Future Volume (vph)	42	28	801	35	33	1457
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2		
Detector Phase	8	8	2	2	1	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	15.1	15.1	16.2	16.2	11.2	16.2
Total Split (s)	16.0	16.0	91.0	91.0	13.0	104.0
Total Split (%)	13.3%	13.3%	75.8%	75.8%	10.8%	86.7%
Yellow Time (s)	4.1	4.1	5.2	5.2	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	6.2	6.2	6.2	6.2
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	Max	Max	None	Max
Act Effect Green (s)	10.1	10.1	94.3	94.3	6.2	102.1
Actuated g/C Ratio	0.08	0.08	0.79	0.79	0.05	0.86
v/c Ratio	0.29	0.18	0.55	0.03	0.37	0.93
Control Delay	56.6	20.3	8.7	1.7	66.1	21.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.6	20.3	8.7	1.7	66.1	21.4
LOS	E	C	A	A	E	C
Approach Delay	42.0		8.4			22.4
Approach LOS	D		A			C

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 119.2
Natural Cycle: 110
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.93
Intersection Signal Delay: 18.1
Intersection LOS: B
Intersection Capacity Utilization 94.4%
ICU Level of Service F
Analysis Period (min) 15

Splits and Phases: 2: Lake St. & Alberhill Ranch Rd.



HCM 6th Signalized Intersection Summary
2: Lake St. & Alberhill Ranch Rd.

S. Nichols Mixed-Use Development (JN 10878)

06/28/2018

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	42	28	801	35	33	1457
Future Volume (veh/h)	42	28	801	35	33	1457
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		0.98	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	43	16	817	33	34	1487
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	129	115	1403	1165	51	1555
Arrive On Green	0.07	0.07	0.75	0.75	0.03	0.83
Sat Flow, veh/h	1781	1585	1870	1553	1781	1870
Grp Volume(v), veh/h	43	16	817	33	34	1487
Grp Sat Flow(s),veh/h/ln	1781	1585	1870	1553	1781	1870
Q Serve(g_s), s	2.7	1.1	22.8	0.6	2.2	77.0
Cycle Q Clear(g_c), s	2.7	1.1	22.8	0.6	2.2	77.0
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	129	115	1403	1165	51	1555
V/C Ratio(X)	0.33	0.14	0.58	0.03	0.67	0.96
Avail Cap(c_a), veh/h	165	147	1403	1165	103	1555
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.8	51.1	6.5	3.8	56.6	8.2
Incr Delay (d2), s/veh	0.6	0.2	1.8	0.0	5.6	14.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.4	7.0	0.2	1.0	18.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	52.4	51.3	8.3	3.8	62.2	22.7
LnGrp LOS	D	D	A	A	E	C
Approach Vol, veh/h	59		850			1521
Approach Delay, s/veh	52.1		8.1			23.6
Approach LOS	D		A			C
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	9.6	94.4			104.0	13.6
Change Period (Y+Rc), s	6.2	6.2			6.2	5.1
Max Green Setting (Gmax), s	6.8	84.8			97.8	10.9
Max Q Clear Time (g_c+I1), s	4.2	24.8			79.0	4.7
Green Ext Time (p_c), s	0.0	6.4			13.8	0.0
Intersection Summary						
HCM 6th Ctrl Delay			18.9			
HCM 6th LOS			B			

Intersection

Intersection Delay, s/veh 83

Intersection LOS F

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	545	20	102	714	10	87
Future Vol, veh/h	545	20	102	714	10	87
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	580	21	109	760	11	93
Number of Lanes	1	0	0	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	1
HCM Control Delay	31.7	127	11.3
HCM LOS	D	F	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1
Vol Left, %	100%	0%	0%	12%
Vol Thru, %	0%	0%	96%	88%
Vol Right, %	0%	100%	4%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	10	87	565	816
LT Vol	10	0	0	102
Through Vol	0	0	545	714
RT Vol	0	87	20	0
Lane Flow Rate	11	93	601	868
Geometry Grp	7	7	2	2
Degree of Util (X)	0.023	0.172	0.854	1.212
Departure Headway (Hd)	8.398	7.159	5.399	5.027
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	429	504	673	721
Service Time	6.098	4.859	3.399	3.117
HCM Lane V/C Ratio	0.026	0.185	0.893	1.204
HCM Control Delay	11.3	11.3	31.7	127
HCM Lane LOS	B	B	D	F
HCM 95th-tile Q	0.1	0.6	9.7	29.5

Timings

S. Nichols Mixed-Use Development (JN 10878)

4: Lakeshore Dr. & Riverside Dr. (SR-74)

06/28/2018

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	38	633	299	144	766	377	221	286	329	349	21
Future Volume (vph)	38	633	299	144	766	377	221	286	329	349	21
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2	1	6	
Permitted Phases			4			8					6
Detector Phase	7	4	4	3	8	8	5	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	32.4	32.4	9.6	33.4	33.4	9.6	34.7	9.6	32.7	32.7
Total Split (s)	9.6	38.3	38.3	20.3	49.0	49.0	27.6	35.4	26.0	33.8	33.8
Total Split (%)	8.0%	31.9%	31.9%	16.9%	40.8%	40.8%	23.0%	29.5%	21.7%	28.2%	28.2%
Yellow Time (s)	3.6	4.4	4.4	3.6	4.4	4.4	3.6	3.7	3.6	3.7	3.7
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.4	5.4	4.6	5.4	5.4	4.6	4.7	4.6	4.7	4.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	None	Max	Max
Act Effect Green (s)	5.0	33.5	33.5	13.2	43.7	43.7	18.7	30.7	21.4	33.5	33.5
Actuated g/C Ratio	0.04	0.28	0.28	0.11	0.37	0.37	0.16	0.26	0.18	0.28	0.28
v/c Ratio	0.53	0.65	0.48	0.75	1.15	0.53	0.81	0.51	1.06	0.36	0.04
Control Delay	81.0	41.1	8.7	74.2	118.4	12.7	70.3	29.9	113.2	36.6	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	81.0	41.1	8.7	74.2	118.4	12.7	70.3	29.9	113.2	36.6	0.1
LOS	F	D	A	E	F	B	E	C	F	D	A
Approach Delay		32.7			82.5			42.7		71.5	
Approach LOS		C			F			D		E	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 118.1

Natural Cycle: 140

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.15

Intersection Signal Delay: 59.6

Intersection LOS: E

Intersection Capacity Utilization 103.8%

ICU Level of Service G

Analysis Period (min) 15

Splits and Phases: 4: Lakeshore Dr. & Riverside Dr. (SR-74)

			
Ø1	Ø2	Ø3	Ø4
26 s	35.4 s	20.3 s	38.3 s
			
Ø5	Ø6	Ø7	Ø8
27.6 s	33.8 s	9.6 s	49 s

HCM 6th Signalized Intersection Summary 4: Lakeshore Dr. & Riverside Dr. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

06/28/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	38	633	299	144	766	377	221	286	188	329	349	21
Future Volume (veh/h)	38	633	299	144	766	377	221	286	188	329	349	21
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	39	653	188	148	790	235	228	295	90	339	360	18
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	54	1065	475	175	687	575	256	697	209	321	1049	462
Arrive On Green	0.03	0.30	0.30	0.10	0.37	0.37	0.14	0.26	0.26	0.18	0.30	0.30
Sat Flow, veh/h	1781	3554	1585	1781	1870	1564	1781	2694	806	1781	3554	1565
Grp Volume(v), veh/h	39	653	188	148	790	235	228	193	192	339	360	18
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1870	1564	1781	1777	1723	1781	1777	1565
Q Serve(g_s), s	2.6	18.7	11.2	9.7	43.6	13.3	14.9	10.7	11.0	21.4	9.4	1.0
Cycle Q Clear(g_c), s	2.6	18.7	11.2	9.7	43.6	13.3	14.9	10.7	11.0	21.4	9.4	1.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.47	1.00		1.00
Lane Grp Cap(c), veh/h	54	1065	475	175	687	575	256	460	446	321	1049	462
V/C Ratio(X)	0.72	0.61	0.40	0.84	1.15	0.41	0.89	0.42	0.43	1.05	0.34	0.04
Avail Cap(c_a), veh/h	75	1065	475	236	687	575	345	460	446	321	1049	462
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	57.0	35.6	33.0	52.6	37.5	27.9	49.8	36.5	36.7	48.6	32.8	29.8
Incr Delay (d2), s/veh	9.1	1.0	0.5	14.6	83.3	0.5	16.0	2.8	3.0	65.4	0.9	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	8.0	4.3	5.0	34.9	4.9	7.8	5.0	5.0	15.3	4.2	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.1	36.7	33.5	67.2	120.9	28.4	65.8	39.3	39.7	114.0	33.7	30.0
LnGrp LOS	E	D	C	E	F	C	E	D	D	F	C	C
Approach Vol, veh/h		880			1173			613			717	
Approach Delay, s/veh		37.3			95.6			49.3			71.5	
Approach LOS		D			F			D			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	26.0	35.4	16.3	41.0	21.7	39.7	8.2	49.0				
Change Period (Y+Rc), s	4.6	* 4.7	4.6	5.4	4.6	* 4.7	4.6	5.4				
Max Green Setting (Gmax), s	21.4	* 31	15.7	32.9	23.0	* 29	5.0	43.6				
Max Q Clear Time (g_c+I1), s	23.4	13.0	11.7	20.7	16.9	11.4	4.6	45.6				
Green Ext Time (p_c), s	0.0	2.1	0.1	3.8	0.2	2.2	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			66.9									
HCM 6th LOS			E									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Intersection												
Int Delay, s/veh	24.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕	↗		↕	↗
Traffic Vol, veh/h	5	1075	7	23	1110	146	3	0	22	47	1	5
Future Vol, veh/h	5	1075	7	23	1110	146	3	0	22	47	1	5
Conflicting Peds, #/hr	0	0	0	0	0	1	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Stop	-	-	Stop
Storage Length	-	-	-	-	-	-	-	-	75	-	-	75
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	1108	7	24	1144	151	3	0	23	48	1	5
Major/Minor	Major1		Major2			Minor1			Minor2			
Conflicting Flow All	1296	0	0	1115	0	0	2390	2466	1112	2391	2394	1221
Stage 1	-	-	-	-	-	-	1122	1122	-	1269	1269	-
Stage 2	-	-	-	-	-	-	1268	1344	-	1122	1125	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	535	-	-	626	-	-	23	30	254	~ 23	34	219
Stage 1	-	-	-	-	-	-	250	281	-	206	239	-
Stage 2	-	-	-	-	-	-	207	220	-	250	280	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	534	-	-	626	-	-	19	25	254	~ 18	28	219
Mov Cap-2 Maneuver	-	-	-	-	-	-	19	25	-	~ 18	28	-
Stage 1	-	-	-	-	-	-	244	274	-	201	204	-
Stage 2	-	-	-	-	-	-	172	188	-	222	273	-
Approach	EB		WB			NB			SB			
HCM Control Delay, s	0.1		0.2			45.5			\$ 1118.6			
HCM LOS						E			F			
Minor Lane/Major Mvmt	NBLn1 NBLn2		EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2		
Capacity (veh/h)	19 254		534	-	-	626	-	-	18	219		
HCM Lane V/C Ratio	0.163 0.089		0.01	-	-	0.038	-	-	2.749	0.024		
HCM Control Delay (s)	228.3 20.6		11.8	0	-	11	0	\$ 1232.8	21.8			
HCM Lane LOS	F C		B	A	-	B	A	-	F	C		
HCM 95th %tile Q(veh)	0.5 0.3		0	-	-	0.1	-	-	6.7	0.1		
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s			+: Computation Not Defined				*: All major volume in platoon			

Intersection

Int Delay, s/veh 21.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	1075	7	23	1110	146	3	0	22	47	1	5
Future Vol, veh/h	5	1075	7	23	1110	146	3	0	22	47	1	5
Conflicting Peds, #/hr	0	0	0	0	0	1	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Stop	-	-	Stop
Storage Length	100	-	-	100	-	-	-	-	75	-	-	75
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	1108	7	24	1144	151	3	0	23	48	1	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1296	0	0	1115	0	0	2390	2466	1112	2391	2394	1221
Stage 1	-	-	-	-	-	-	1122	1122	-	1269	1269	-
Stage 2	-	-	-	-	-	-	1268	1344	-	1122	1125	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	535	-	-	626	-	-	23	30	254	~ 23	34	219
Stage 1	-	-	-	-	-	-	250	281	-	206	239	-
Stage 2	-	-	-	-	-	-	207	220	-	250	280	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	534	-	-	626	-	-	21	29	254	~ 20	32	219
Mov Cap-2 Maneuver	-	-	-	-	-	-	21	29	-	~ 20	32	-
Stage 1	-	-	-	-	-	-	248	278	-	204	230	-
Stage 2	-	-	-	-	-	-	194	211	-	226	277	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0.2			42.6			\$ 974.6		
HCM LOS							E			F		

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	21	254	534	-	-	626	-	-	20	219
HCM Lane V/C Ratio	0.147	0.089	0.01	-	-	0.038	-	-	2.474	0.024
HCM Control Delay (s)	204	20.6	11.8	-	-	11	-	-	\$ 1073.9	21.8
HCM Lane LOS	F	C	B	-	-	B	-	-	F	C
HCM 95th %tile Q(veh)	0.4	0.3	0	-	-	0.1	-	-	6.5	0.1

Notes

~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

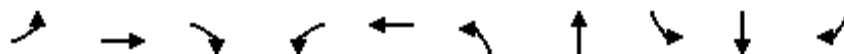
Intersection						
Int Delay, s/veh	132.9					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	516	119	322	675	161	365
Future Vol, veh/h	516	119	322	675	161	365
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	120	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	549	127	343	718	171	388
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	676	0	2017	613
Stage 1	-	-	-	-	613	-
Stage 2	-	-	-	-	1404	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	915	-	~ 64	492
Stage 1	-	-	-	-	541	-
Stage 2	-	-	-	-	227	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	915	-	~ 40	492
Mov Cap-2 Maneuver	-	-	-	-	~ 40	-
Stage 1	-	-	-	-	338	-
Stage 2	-	-	-	-	227	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		3.6		\$ 538.5	
HCM LOS	F					
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	40	492	-	-	915	-
HCM Lane V/C Ratio	4.282	0.789	-	-	0.374	-
HCM Control Delay (s)	\$ 1681.2	34.5	-	-	11.3	-
HCM Lane LOS	F	D	-	-	B	-
HCM 95th %tile Q(veh)	19.7	7.2	-	-	1.8	-
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

Timings

S. Nichols Mixed-Use Development (JN 10878)

7: Collier Av. (SR-74)/Collier Av. & Riverside Dr. (SR-74)/Riverside Dr.

06/28/2018



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations		↖	↗		↖	↗	↖	↗	↖	↗
Traffic Volume (vph)	162	12	984	23	19	1122	352	3	283	149
Future Volume (vph)	162	12	984	23	19	1122	352	3	283	149
Turn Type	Perm	NA	pm+ov	Perm	NA	Split	NA	Split	NA	Perm
Protected Phases		4	2		8	2	2	6	6	
Permitted Phases	4		4	8						6
Detector Phase	4	4	2	8	8	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	15.4	15.4	15.8	14.6	14.6	15.8	15.8	16.2	16.2	16.2
Total Split (s)	19.0	19.0	79.0	19.0	19.0	79.0	79.0	22.0	22.0	22.0
Total Split (%)	15.8%	15.8%	65.8%	15.8%	15.8%	65.8%	65.8%	18.3%	18.3%	18.3%
Yellow Time (s)	4.4	4.4	4.8	3.6	3.6	4.8	4.8	5.2	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.4	5.8		4.6	5.8	5.8	6.2	6.2	6.2
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	None	None	Max	None	None	Max	Max	Max	Max	Max
Act Effect Green (s)		13.6	86.4		14.4	73.2	73.2	15.8	15.8	15.8
Actuated g/C Ratio		0.11	0.72		0.12	0.61	0.61	0.13	0.13	0.13
v/c Ratio		1.16	0.89		0.40	1.08	0.34	0.01	1.20	0.45
Control Delay		167.9	23.3		54.2	77.3	12.4	45.7	168.4	11.8
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		167.9	23.3		54.2	77.3	12.4	45.7	168.4	11.8
LOS		F	C		D	E	B	D	F	B
Approach Delay		45.1			54.2		61.1		114.0	
Approach LOS		D			D		E		F	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Natural Cycle: 140

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.20

Intersection Signal Delay: 62.4

Intersection LOS: E

Intersection Capacity Utilization 107.8%

ICU Level of Service G

Analysis Period (min) 15

Splits and Phases: 7: Collier Av. (SR-74)/Collier Av. & Riverside Dr. (SR-74)/Riverside Dr.

↖ Ø2	↖ Ø6	↖ Ø4
79 s	22 s	19 s
		↖ Ø8
		19 s

HCM 6th Signalized Intersection Summary S. Nichols Mixed-Use Development (JN 10878)
 7: Collier Av. (SR-74)/Collier Av. & Riverside Dr. (SR-74)/Riverside Dr. 06/28/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	162	12	984	23	19	8	1122	352	21	3	283	149
Future Volume (veh/h)	162	12	984	23	19	8	1122	352	21	3	283	149
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	169	12	977	24	20	2	1169	367	21	3	295	82
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	176	8	1145	45	27	1	1079	1060	61	233	245	207
Arrive On Green	0.12	0.12	0.12	0.12	0.12	0.12	0.61	0.61	0.61	0.13	0.13	0.13
Sat Flow, veh/h	991	70	1548	0	225	10	1781	1750	100	1781	1870	1585
Grp Volume(v), veh/h	181	0	977	46	0	0	1169	0	388	3	295	82
Grp Sat Flow(s),veh/h/ln	1061	0	1548	235	0	0	1781	0	1850	1781	1870	1585
Q Serve(g_s), s	0.0	0.0	14.4	0.0	0.0	0.0	73.2	0.0	12.6	0.2	15.8	5.7
Cycle Q Clear(g_c), s	14.4	0.0	14.4	14.4	0.0	0.0	73.2	0.0	12.6	0.2	15.8	5.7
Prop In Lane	0.93		1.00	0.52		0.04	1.00		0.05	1.00		1.00
Lane Grp Cap(c), veh/h	184	0	1145	73	0	0	1079	0	1121	233	245	207
V/C Ratio(X)	0.98	0.00	0.85	0.63	0.00	0.00	1.08	0.00	0.35	0.01	1.21	0.40
Avail Cap(c_a), veh/h	184	0	1145	73	0	0	1079	0	1121	233	245	207
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.4	0.0	6.5	52.2	0.0	0.0	23.8	0.0	11.9	45.7	52.5	48.1
Incr Delay (d2), s/veh	61.1	0.0	6.4	15.7	0.0	0.0	52.8	0.0	0.8	0.1	124.7	5.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.6	0.0	31.5	1.7	0.0	0.0	42.4	0.0	5.0	0.1	15.6	2.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	116.5	0.0	13.0	67.9	0.0	0.0	76.6	0.0	12.7	45.8	177.2	53.7
LnGrp LOS	F	A	B	E	A	A	F	A	B	D	F	D
Approach Vol, veh/h	1158		46				1557				380	
Approach Delay, s/veh	29.1		67.9				60.7				149.5	
Approach LOS	C		E				E				F	
Timer - Assigned Phs	2		4				6				8	
Phs Duration (G+Y+Rc), s	79.0		19.8				22.0				19.8	
Change Period (Y+Rc), s	5.8		5.4				6.2				* 5.4	
Max Green Setting (Gmax), s	73.2		13.6				15.8				* 14	
Max Q Clear Time (g_c+I1), s	75.2		16.4				17.8				16.4	
Green Ext Time (p_c), s	0.0		0.0				0.0				0.0	
Intersection Summary												
HCM 6th Ctrl Delay			59.9									
HCM 6th LOS			E									
Notes												

Timings

S. Nichols Mixed-Use Development (JN 10878)

8: Collier Av./Collier Av. (SR-74) & Central Av./Central Av. (SR-74)

06/28/2018

											
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	229	375	280	229	949	59	208	443	1149	212	51
Future Volume (vph)	229	375	280	229	949	59	208	443	1149	212	51
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	7	4	3	8	1	5	2	3	1	6	
Permitted Phases					8			2			6
Detector Phase	7	4	3	8	1	5	2	3	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	5.0	10.0	5.0	5.0	10.0	10.0
Minimum Split (s)	9.6	14.7	9.6	42.8	9.6	9.6	15.8	9.6	9.6	29.8	29.8
Total Split (s)	14.0	28.8	28.0	42.8	43.0	13.6	20.2	28.0	43.0	49.6	49.6
Total Split (%)	11.7%	24.0%	23.3%	35.7%	35.8%	11.3%	16.8%	23.3%	35.8%	41.3%	41.3%
Yellow Time (s)	3.6	3.7	3.6	4.8	3.6	3.6	4.8	3.6	3.6	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.7	4.6	5.8	4.6	4.6	5.8	4.6	4.6	5.8	5.8
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	None	None	Max	Max
Act Effect Green (s)	9.4	18.7	15.5	23.7	63.6	7.5	14.5	31.3	38.7	47.9	47.9
Actuated g/C Ratio	0.09	0.17	0.14	0.22	0.59	0.07	0.14	0.29	0.36	0.45	0.45
v/c Ratio	0.79	0.73	0.58	0.57	0.58	0.50	0.85	0.85	0.96	0.14	0.07
Control Delay	68.6	48.8	47.8	42.1	10.8	64.8	76.4	41.8	52.3	21.0	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	68.6	48.8	47.8	42.1	10.8	64.8	76.4	41.8	52.3	21.0	0.2
LOS	E	D	D	D	B	E	E	D	D	C	A
Approach Delay		55.6		22.8			53.9			45.7	
Approach LOS		E		C			D			D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 107.3

Natural Cycle: 125

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.96

Intersection Signal Delay: 40.8

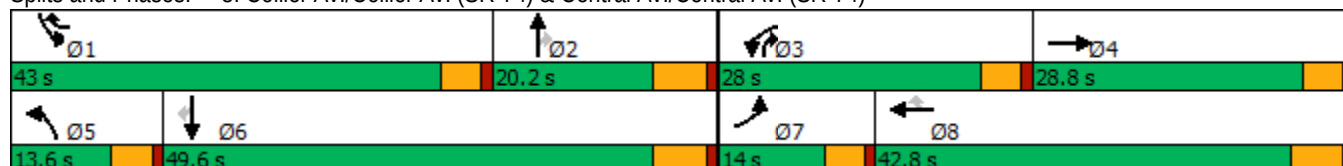
Intersection LOS: D

Intersection Capacity Utilization 84.1%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 8: Collier Av./Collier Av. (SR-74) & Central Av./Central Av. (SR-74)



HCM 6th Signalized Intersection Summary S. Nichols Mixed-Use Development (JN 10878)
 8: Collier Av./Collier Av. (SR-74) & Central Av./Central Av. (SR-74) 06/28/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	229	375	60	280	229	949	59	208	443	1149	212	51
Future Volume (veh/h)	229	375	60	280	229	949	59	208	443	1149	212	51
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	236	387	58	289	236	455	61	214	229	1185	219	40
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	303	514	76	368	345	1527	79	277	400	1263	1669	734
Arrive On Green	0.09	0.17	0.17	0.11	0.18	0.18	0.04	0.15	0.15	0.37	0.47	0.47
Sat Flow, veh/h	3456	3103	462	3456	1870	2752	1781	1870	1559	3456	3554	1563
Grp Volume(v), veh/h	236	220	225	289	236	455	61	214	229	1185	219	40
Grp Sat Flow(s),veh/h/ln	1728	1777	1787	1728	1870	1376	1781	1870	1559	1728	1777	1563
Q Serve(g_s), s	6.5	11.5	11.6	7.9	11.4	8.7	3.3	10.7	12.5	32.2	3.4	1.4
Cycle Q Clear(g_c), s	6.5	11.5	11.6	7.9	11.4	8.7	3.3	10.7	12.5	32.2	3.4	1.4
Prop In Lane	1.00		0.26	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	303	295	296	368	345	1527	79	277	400	1263	1669	734
V/C Ratio(X)	0.78	0.75	0.76	0.79	0.68	0.30	0.78	0.77	0.57	0.94	0.13	0.05
Avail Cap(c_a), veh/h	334	441	443	833	713	2068	165	277	400	1366	1669	734
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.4	38.6	38.7	42.3	37.0	11.8	45.9	39.8	31.6	29.8	14.6	14.0
Incr Delay (d2), s/veh	8.8	3.8	4.2	1.4	2.4	0.1	6.0	18.6	5.9	11.6	0.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	5.3	5.4	3.3	5.2	2.4	1.5	6.1	5.1	14.3	1.3	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.1	42.4	42.8	43.7	39.4	11.9	52.0	58.4	37.5	41.4	14.7	14.2
LnGrp LOS	D	D	D	D	D	B	D	E	D	D	B	B
Approach Vol, veh/h		681			980			504			1444	
Approach Delay, s/veh		45.9			27.9			48.1			36.6	
Approach LOS		D			C			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	40.1	20.2	14.9	21.9	8.9	51.4	13.1	23.7				
Change Period (Y+Rc), s	4.6	5.8	4.6	* 5.8	4.6	5.8	4.6	5.8				
Max Green Setting (Gmax), s	38.4	14.4	23.4	* 24	9.0	43.8	9.4	37.0				
Max Q Clear Time (g_c+I1), s	34.2	14.5	9.9	13.6	5.3	5.4	8.5	13.4				
Green Ext Time (p_c), s	1.3	0.0	0.4	1.9	0.0	1.4	0.0	3.1				

Intersection Summary

HCM 6th Ctrl Delay	37.6
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection

Intersection Delay, s/veh 40.6

Intersection LOS F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗	↖	↑						↕	
Traffic Vol, veh/h	0	494	461	88	714	0	0	0	0	155	2	282
Future Vol, veh/h	0	494	461	88	714	0	0	0	0	155	2	282
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	0	3	3	25	3	0	0	0	0	8	67	13
Mvmt Flow	0	526	490	94	760	0	0	0	0	165	2	300
Number of Lanes	0	1	1	1	1	0	0	0	0	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	2
HCM Control Delay	73.5	273.2	44.3
HCM LOS	F	F	E

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	100%	0%	35%
Vol Thru, %	100%	0%	0%	100%	0%
Vol Right, %	0%	100%	0%	0%	64%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	494	461	88	714	439
LT Vol	0	0	88	0	155
Through Vol	494	0	0	714	2
RT Vol	0	461	0	0	282
Lane Flow Rate	526	490	94	760	467
Geometry Grp	7	7	7	7	2
Degree of Util (X)	1.084	0.916	0.221	1.612	0.878
Departure Headway (Hd)	8.173	7.444	8.725	7.821	7.563
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	447	490	414	471	481
Service Time	5.873	5.144	6.425	5.521	5.563
HCM Lane V/C Ratio	1.177	1	0.227	1.614	0.971
HCM Control Delay	95.7	49.8	13.9	305.2	44.3
HCM Lane LOS	F	E	B	F	E
HCM 95th-tile Q	15.9	10.6	0.8	41.9	9.4

Intersection												
Int Delay, s/veh	537.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	256	394	0	0	302	99	500	1	105	0	0	0
Future Vol, veh/h	256	394	0	0	302	99	500	1	105	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	230	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	267	410	0	0	315	103	521	1	109	0	0	0
Major/Minor	Major1			Major2			Minor1					
Conflicting Flow All	418	0	-	-	-	0	1311	1362	410			
Stage 1	-	-	-	-	-	-	944	944	-			
Stage 2	-	-	-	-	-	-	367	418	-			
Critical Hdwy	4.15	-	-	-	-	-	6.44	6.5	6.26			
Critical Hdwy Stg 1	-	-	-	-	-	-	5.44	5.5	-			
Critical Hdwy Stg 2	-	-	-	-	-	-	5.44	5.5	-			
Follow-up Hdwy	2.245	-	-	-	-	-	3.536	4	3.354			
Pot Cap-1 Maneuver	1125	-	0	0	-	-	~ 173	149	633			
Stage 1	-	-	0	0	-	-	~ 375	344	-			
Stage 2	-	-	0	0	-	-	696	594	-			
Platoon blocked, %	-	-	-	-	-	-	-	-	-			
Mov Cap-1 Maneuver	1125	-	-	-	-	-	~ 132	0	633			
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 132	0	-			
Stage 1	-	-	-	-	-	-	~ 286	0	-			
Stage 2	-	-	-	-	-	-	696	0	-			
Approach	EB			WB			NB					
HCM Control Delay, s	3.6			0			\$ 1465.5					
HCM LOS							F					
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR							
Capacity (veh/h)	153	1125	-	-	-							
HCM Lane V/C Ratio	4.126	0.237	-	-	-							
HCM Control Delay (s)	\$ 1465.5	9.2	-	-	-							
HCM Lane LOS	F	A	-	-	-							
HCM 95th %tile Q(veh)	63.5	0.9	-	-	-							
Notes												
~: Volume exceeds capacity	\$: Delay exceeds 300s			+: Computation Not Defined			*: All major volume in platoon					

Intersection	
Intersection Delay, s/veh	72.3
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	256	394	0	0	302	99	500	1	105	0	0	0
Future Vol, veh/h	256	394	0	0	302	99	500	1	105	0	0	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	267	410	0	0	315	103	521	1	109	0	0	0
Number of Lanes	1	1	0	0	1	0	0	1	0	0	0	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	34	37.1	136.6
HCM LOS	D	E	F

Lane	NBLn1	EBLn1	EBLn2	WBLn1
Vol Left, %	83%	100%	0%	0%
Vol Thru, %	0%	0%	100%	75%
Vol Right, %	17%	0%	0%	25%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	606	256	394	401
LT Vol	500	256	0	0
Through Vol	1	0	394	302
RT Vol	105	0	0	99
Lane Flow Rate	631	267	410	418
Geometry Grp	2	7	7	5
Degree of Util (X)	1.215	0.584	0.841	0.819
Departure Headway (Hd)	6.929	8.682	8.164	7.731
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	530	419	447	472
Service Time	4.929	6.382	5.864	5.731
HCM Lane V/C Ratio	1.191	0.637	0.917	0.886
HCM Control Delay	136.6	22.9	41.2	37.1
HCM Lane LOS	F	C	E	E
HCM 95th-tile Q	23.9	3.6	8.2	7.8

Timings
11: A Street & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

07/19/2018

	→	↖	←	↙
Lane Group	EBT	WBL	WBT	NBL
Lane Configurations	↻	↻	↻	↻
Traffic Volume (vph)	223	11	196	385
Future Volume (vph)	223	11	196	385
Turn Type	NA	Prot	NA	Prot
Protected Phases	4	3	8	2
Permitted Phases				
Detector Phase	4	3	8	2
Switch Phase				
Minimum Initial (s)	10.0	5.0	10.0	10.0
Minimum Split (s)	22.8	10.8	22.8	21.6
Total Split (s)	57.0	16.0	73.0	47.0
Total Split (%)	47.5%	13.3%	60.8%	39.2%
Yellow Time (s)	4.8	3.6	4.8	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	4.6	5.8	4.6
Lead/Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes		
Recall Mode	None	None	None	Min
Act Effect Green (s)	17.9	5.8	19.2	18.6
Actuated g/C Ratio	0.36	0.12	0.39	0.38
v/c Ratio	0.57	0.06	0.30	0.63
Control Delay	17.1	28.9	11.9	19.2
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	17.1	28.9	11.9	19.2
LOS	B	C	B	B
Approach Delay	17.1		12.8	19.2
Approach LOS	B		B	B

Intersection Summary

Cycle Length: 120	
Actuated Cycle Length: 49.4	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.63	
Intersection Signal Delay: 17.0	Intersection LOS: B
Intersection Capacity Utilization 49.4%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 11: A Street & Nichols Rd.

↙ Ø2	↖ Ø3	→ Ø4
47 s	16 s	57 s
	← Ø8	
	73 s	

HCM 6th Signalized Intersection Summary 11: A Street & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)
07/19/2018

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	223	122	11	196	385	4
Future Volume (veh/h)	223	122	11	196	385	4
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1900	1900
Adj Flow Rate, veh/h	242	133	12	213	418	4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	0	0
Cap, veh/h	340	187	28	810	537	5
Arrive On Green	0.30	0.30	0.02	0.43	0.30	0.30
Sat Flow, veh/h	1135	624	1781	1870	1786	17
Grp Volume(v), veh/h	0	375	12	213	423	0
Grp Sat Flow(s),veh/h/ln	0	1758	1781	1870	1808	0
Q Serve(g_s), s	0.0	7.4	0.3	2.8	8.3	0.0
Cycle Q Clear(g_c), s	0.0	7.4	0.3	2.8	8.3	0.0
Prop In Lane		0.35	1.00		0.99	0.01
Lane Grp Cap(c), veh/h	0	527	28	810	544	0
V/C Ratio(X)	0.00	0.71	0.43	0.26	0.78	0.00
Avail Cap(c_a), veh/h	0	2303	520	3216	1961	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	12.2	19.1	7.1	12.5	0.0
Incr Delay (d2), s/veh	0.0	1.8	3.9	0.2	2.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.2	0.1	0.7	3.1	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	14.0	22.9	7.3	14.9	0.0
LnGrp LOS	A	B	C	A	B	A
Approach Vol, veh/h	375			225	423	
Approach Delay, s/veh	14.0			8.1	14.9	
Approach LOS	B			A	B	
Timer - Assigned Phs	2		3	4	8	
Phs Duration (G+Y+Rc), s	16.4		5.2	17.5	22.7	
Change Period (Y+Rc), s	4.6		4.6	5.8	5.8	
Max Green Setting (Gmax), s	42.4		11.4	51.2	67.2	
Max Q Clear Time (g_c+l1), s	10.3		2.3	9.4	4.8	
Green Ext Time (p_c), s	1.4		0.0	2.3	1.2	
Intersection Summary						
HCM 6th Ctrl Delay			13.1			
HCM 6th LOS			B			
Notes						

Intersection

Int Delay, s/veh 2.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	143	147	0	102	105	0
Future Vol, veh/h	143	147	0	102	105	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	200	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	155	160	0	111	114	0

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	315
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.12
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.218
Pot Cap-1 Maneuver	-	-	1245
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1245
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	11.7
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	651	-	-	1245	-
HCM Lane V/C Ratio	0.175	-	-	-	-
HCM Control Delay (s)	11.7	-	-	0	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.6	-	-	0	-

Intersection												
Int Delay, s/veh	1.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	17	0	2	0	0	3	3	85	1	5	110	32
Future Vol, veh/h	17	0	2	0	0	3	3	85	1	5	110	32
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	18	0	2	0	0	3	3	92	1	5	120	35
Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	248	247	138	248	264	93	155	0	0	93	0	0
Stage 1	148	148	-	99	99	-	-	-	-	-	-	-
Stage 2	100	99	-	149	165	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	706	655	910	706	641	964	1425	-	-	1501	-	-
Stage 1	855	775	-	907	813	-	-	-	-	-	-	-
Stage 2	906	813	-	854	762	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	700	651	910	701	637	964	1425	-	-	1501	-	-
Mov Cap-2 Maneuver	700	651	-	701	637	-	-	-	-	-	-	-
Stage 1	853	772	-	905	811	-	-	-	-	-	-	-
Stage 2	901	811	-	849	759	-	-	-	-	-	-	-
Approach	EB		WB			NB			SB			
HCM Control Delay, s	10.2		8.7			0.3			0.3			
HCM LOS	B		A									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1425	-	-	717	964	1501	-	-				
HCM Lane V/C Ratio	0.002	-	-	0.029	0.003	0.004	-	-				
HCM Control Delay (s)	7.5	0	-	10.2	8.7	7.4	0	-				
HCM Lane LOS	A	A	-	B	A	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0	-	-				

Intersection						
Int Delay, s/veh	2.6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	44	46	89	112	0
Future Vol, veh/h	0	44	46	89	112	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	48	50	97	122	0
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	319	122	122	0	-	0
Stage 1	122	-	-	-	-	-
Stage 2	197	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	674	929	1465	-	-	-
Stage 1	903	-	-	-	-	-
Stage 2	836	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	650	929	1465	-	-	-
Mov Cap-2 Maneuver	650	-	-	-	-	-
Stage 1	870	-	-	-	-	-
Stage 2	836	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	9.1	2.6		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1465	-	929	-	-	
HCM Lane V/C Ratio	0.034	-	0.051	-	-	
HCM Control Delay (s)	7.5	0	9.1	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0.1	-	0.2	-	-	

Intersection						
Int Delay, s/veh	0.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	8	148	131	8	4	4
Future Vol, veh/h	8	148	131	8	4	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	161	142	9	4	4
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	151	0	-	0	326	147
Stage 1	-	-	-	-	147	-
Stage 2	-	-	-	-	179	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1430	-	-	-	668	900
Stage 1	-	-	-	-	880	-
Stage 2	-	-	-	-	852	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1430	-	-	-	663	900
Mov Cap-2 Maneuver	-	-	-	-	663	-
Stage 1	-	-	-	-	874	-
Stage 2	-	-	-	-	852	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.4	0		9.8		
HCM LOS				A		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1430	-	-	-	764	
HCM Lane V/C Ratio	0.006	-	-	-	0.011	
HCM Control Delay (s)	7.5	0	-	-	9.8	
HCM Lane LOS	A	A	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	0	

Intersection						
Int Delay, s/veh	5.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	153	176	46	122	0
Future Vol, veh/h	0	153	176	46	122	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	166	191	50	133	0
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	565	133	133	0	-	0
Stage 1	133	-	-	-	-	-
Stage 2	432	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	486	916	1452	-	-	-
Stage 1	893	-	-	-	-	-
Stage 2	655	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	420	916	1452	-	-	-
Mov Cap-2 Maneuver	420	-	-	-	-	-
Stage 1	772	-	-	-	-	-
Stage 2	655	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	9.8	6.2		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1452	-	916	-	-	
HCM Lane V/C Ratio	0.132	-	0.182	-	-	
HCM Control Delay (s)	7.9	0	9.8	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0.5	-	0.7	-	-	

Intersection						
Int Delay, s/veh	1.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	15	28	193	29	63	213
Future Vol, veh/h	15	28	193	29	63	213
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	16	30	210	32	68	232
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	594	226	0	0	242	0
Stage 1	226	-	-	-	-	-
Stage 2	368	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	468	813	-	-	1324	-
Stage 1	812	-	-	-	-	-
Stage 2	700	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	440	813	-	-	1324	-
Mov Cap-2 Maneuver	440	-	-	-	-	-
Stage 1	764	-	-	-	-	-
Stage 2	700	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	11.2	0	1.8			
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	627	1324	-	
HCM Lane V/C Ratio	-	-	0.075	0.052	-	
HCM Control Delay (s)	-	-	11.2	7.9	0	
HCM Lane LOS	-	-	B	A	A	
HCM 95th %tile Q(veh)	-	-	0.2	0.2	-	

Intersection												
Int Delay, s/veh	1.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	16	0	33	6	0	1	15	205	5	7	210	11
Future Vol, veh/h	16	0	33	6	0	1	15	205	5	7	210	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	3
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	19	0	39	7	0	1	18	244	6	8	250	13
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	560	562	260	575	565	247	266	0	0	250	0	0
Stage 1	276	276	-	283	283	-	-	-	-	-	-	-
Stage 2	284	286	-	292	282	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	439	436	779	429	434	792	1298	-	-	1316	-	-
Stage 1	730	682	-	724	677	-	-	-	-	-	-	-
Stage 2	723	675	-	716	678	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	429	425	777	400	423	792	1294	-	-	1316	-	-
Mov Cap-2 Maneuver	429	425	-	400	423	-	-	-	-	-	-	-
Stage 1	716	675	-	712	666	-	-	-	-	-	-	-
Stage 2	710	664	-	675	671	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	11.5		13.5		0.5		0.2					
HCM LOS	B		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1294	-	-	614	430	1316	-	-				
HCM Lane V/C Ratio	0.014	-	-	0.095	0.019	0.006	-	-				
HCM Control Delay (s)	7.8	0	-	11.5	13.5	7.8	0	-				
HCM Lane LOS	A	A	-	B	B	A	A	-				
HCM 95th %tile O(veh)	0	-	-	0.3	0.1	0	-	-				

Timings
19: Dexter Av. & Central Av. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

06/28/2018

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	394	2173	217	176	1526	121	177	156	130	111	370
Future Volume (vph)	394	2173	217	176	1526	121	177	156	130	111	370
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2	1	6	7
Permitted Phases			4			8					6
Detector Phase	7	4	4	3	8	8	5	2	1	6	7
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0	5.0
Minimum Split (s)	9.6	26.8	26.8	9.6	26.8	26.8	9.6	42.4	9.6	15.8	9.6
Total Split (s)	33.3	47.0	47.0	18.0	31.7	31.7	20.3	44.0	11.0	34.7	33.3
Total Split (%)	27.8%	39.2%	39.2%	15.0%	26.4%	26.4%	16.9%	36.7%	9.2%	28.9%	27.8%
Yellow Time (s)	3.6	4.8	4.8	3.6	4.8	4.8	3.6	4.4	3.6	4.8	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	5.8	4.6	5.8	5.8	4.6	5.4	4.6	5.8	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	None	Max	None
Act Effect Green (s)	28.2	41.2	41.2	13.3	26.3	26.3	14.6	38.6	6.4	30.0	59.5
Actuated g/C Ratio	0.24	0.34	0.34	0.11	0.22	0.22	0.12	0.32	0.05	0.25	0.50
v/c Ratio	0.96	1.27	0.35	0.92	1.11	0.25	0.85	0.61	1.41	0.24	0.45
Control Delay	81.9	160.3	11.5	99.4	103.3	1.7	83.3	33.9	278.8	38.2	13.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	81.9	160.3	11.5	99.4	103.3	1.7	83.3	33.9	278.8	38.2	13.7
LOS	F	F	B	F	F	A	F	C	F	D	B
Approach Delay		137.6			96.2			50.7		74.7	
Approach LOS		F			F			D		E	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 119.9

Natural Cycle: 150

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.41

Intersection Signal Delay: 109.8

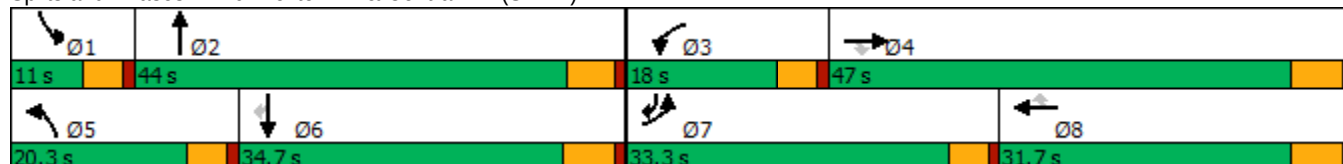
Intersection LOS: F

Intersection Capacity Utilization 106.8%

ICU Level of Service G

Analysis Period (min) 15

Splits and Phases: 19: Dexter Av. & Central Av. (SR-74)



HCM 6th Signalized Intersection Summary
19: Dexter Av. & Central Av. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

06/28/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			 			 	
Traffic Volume (veh/h)	394	2173	217	176	1526	121	177	156	190	130	111	370
Future Volume (veh/h)	394	2173	217	176	1526	121	177	156	190	130	111	370
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	402	2217	179	180	1557	99	181	159	134	133	113	315
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	425	1747	529	198	1384	335	208	298	251	95	481	780
Arrive On Green	0.24	0.34	0.34	0.11	0.22	0.22	0.12	0.32	0.32	0.05	0.26	0.26
Sat Flow, veh/h	1781	5106	1545	1781	6434	1559	1781	930	784	1781	1870	1565
Grp Volume(v), veh/h	402	2217	179	180	1557	99	181	0	293	133	113	315
Grp Sat Flow(s),veh/h/ln	1781	1702	1545	1781	1609	1559	1781	0	1714	1781	1870	1565
Q Serve(g_s), s	26.7	41.2	10.4	12.0	25.9	6.4	12.0	0.0	16.9	6.4	5.8	15.3
Cycle Q Clear(g_c), s	26.7	41.2	10.4	12.0	25.9	6.4	12.0	0.0	16.9	6.4	5.8	15.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.46	1.00		1.00
Lane Grp Cap(c), veh/h	425	1747	529	198	1384	335	208	0	549	95	481	780
V/C Ratio(X)	0.95	1.27	0.34	0.91	1.12	0.30	0.87	0.00	0.53	1.40	0.23	0.40
Avail Cap(c_a), veh/h	425	1747	529	198	1384	335	232	0	549	95	481	780
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.1	39.6	29.5	52.9	47.2	39.6	52.3	0.0	33.5	57.0	35.4	19.2
Incr Delay (d2), s/veh	30.1	125.7	0.4	38.5	66.2	0.5	24.5	0.0	3.7	233.5	1.1	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	14.9	36.6	3.8	7.4	16.3	2.4	6.7	0.0	7.4	9.0	2.7	5.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	75.2	165.3	29.8	91.4	113.4	40.1	76.8	0.0	37.2	290.5	36.5	20.7
LnGrp LOS	E	F	C	F	F	D	E	A	D	F	D	C
Approach Vol, veh/h		2798			1836			474			561	
Approach Delay, s/veh		143.7			107.3			52.3			87.9	
Approach LOS		F			F			D			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.0	44.4	18.0	47.0	18.6	36.8	33.3	31.7				
Change Period (Y+Rc), s	4.6	* 5.8	4.6	5.8	4.6	5.8	4.6	5.8				
Max Green Setting (Gmax), s	6.4	* 39	13.4	41.2	15.7	28.9	28.7	25.9				
Max Q Clear Time (g_c+I1), s	8.4	18.9	14.0	43.2	14.0	17.3	28.7	27.9				
Green Ext Time (p_c), s	0.0	1.6	0.0	0.0	0.0	1.3	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			118.7									
HCM 6th LOS			F									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Timings

S. Nichols Mixed-Use Development (JN 10878)

20: Cambern Av./Cambern Av & Central Av. (SR-74)

06/28/2018



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	287	2306	35	1515	161	52	8	259	11	97
Future Volume (vph)	287	2306	35	1515	161	52	8	259	11	97
Turn Type	Prot	NA	Prot	NA	Perm	Perm	NA	Perm	NA	Perm
Protected Phases	7	4	3	8			2		6	
Permitted Phases					8	2		6		6
Detector Phase	7	4	3	8	8	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	24.8	9.6	25.5	25.5	34.7	34.7	14.7	14.7	14.7
Total Split (s)	19.8	74.0	9.6	63.8	63.8	36.4	36.4	36.4	36.4	36.4
Total Split (%)	16.5%	61.7%	8.0%	53.2%	53.2%	30.3%	30.3%	30.3%	30.3%	30.3%
Yellow Time (s)	3.6	4.8	3.6	5.5	5.5	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.6	5.8	4.6	6.5	6.5	4.7	4.7		4.7	4.7
Lead/Lag	Lead	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	Max	None	None	None	None	Max	Max	Max	Max	Max
Act Effect Green (s)	15.2	71.8	5.0	57.1	57.1	31.7	31.7		31.7	31.7
Actuated g/C Ratio	0.13	0.60	0.04	0.48	0.48	0.26	0.26		0.26	0.26
v/c Ratio	0.69	1.15	0.49	0.94	0.20	0.30	0.11		0.82	0.20
Control Delay	59.0	97.9	78.6	41.3	3.2	40.9	13.0		61.5	5.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay	59.0	97.9	78.6	41.3	3.2	40.9	13.0		61.5	5.7
LOS	E	F	E	D	A	D	B		E	A
Approach Delay		93.6		38.5			27.5		46.8	
Approach LOS		F		D			C		D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 119.8

Natural Cycle: 150

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.15

Intersection Signal Delay: 69.0

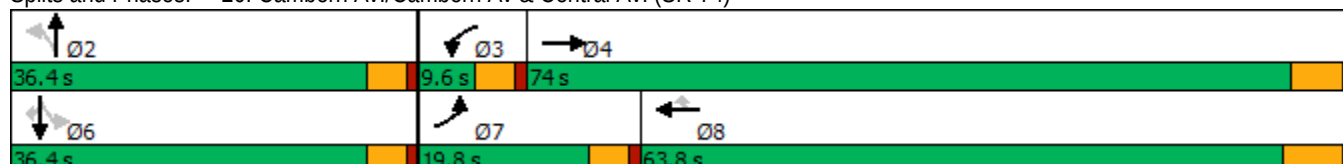
Intersection LOS: E

Intersection Capacity Utilization 103.0%

ICU Level of Service G

Analysis Period (min) 15

Splits and Phases: 20: Cambern Av./Cambern Av & Central Av. (SR-74)



HCM 6th Signalized Intersection Summary S. Nichols Mixed-Use Development (JN 10878)
 20: Cambern Av./Cambern Av & Central Av. (SR-74) 06/28/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	287	2306	30	35	1515	161	52	8	40	259	11	97
Future Volume (veh/h)	287	2306	30	35	1515	161	52	8	40	259	11	97
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	299	2402	31	36	1578	116	54	8	42	270	11	48
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	441	2056	26	52	1685	741	124	69	363	378	13	416
Arrive On Green	0.13	0.57	0.57	0.03	0.47	0.47	0.27	0.27	0.27	0.27	0.27	0.27
Sat Flow, veh/h	3456	3591	46	1781	3554	1562	1344	260	1365	1201	49	1565
Grp Volume(v), veh/h	299	1185	1248	36	1578	116	54	0	50	281	0	48
Grp Sat Flow(s),veh/h/ln	1728	1777	1861	1781	1777	1562	1344	0	1625	1250	0	1565
Q Serve(g_s), s	9.9	68.3	68.3	2.4	50.1	5.0	4.8	0.0	2.8	23.3	0.0	2.8
Cycle Q Clear(g_c), s	9.9	68.3	68.3	2.4	50.1	5.0	30.9	0.0	2.8	26.1	0.0	2.8
Prop In Lane	1.00		0.02	1.00		1.00	1.00		0.84	0.96		1.00
Lane Grp Cap(c), veh/h	441	1017	1065	52	1685	741	124	0	432	391	0	416
V/C Ratio(X)	0.68	1.17	1.17	0.69	0.94	0.16	0.44	0.00	0.12	0.72	0.00	0.12
Avail Cap(c_a), veh/h	441	1017	1065	75	1708	751	124	0	432	391	0	416
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	49.7	25.5	25.5	57.3	29.7	17.8	56.4	0.0	33.2	43.0	0.0	33.2
Incr Delay (d2), s/veh	8.2	85.3	87.3	6.0	10.3	0.1	10.8	0.0	0.5	10.8	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.6	49.3	52.2	1.1	21.5	1.7	2.0	0.0	1.2	9.0	0.0	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.9	110.8	112.8	63.3	40.0	17.9	67.3	0.0	33.7	53.8	0.0	33.7
LnGrp LOS	E	F	F	E	D	B	E	A	C	D	A	C
Approach Vol, veh/h		2732			1730			104			329	
Approach Delay, s/veh		105.9			39.0			51.1			50.9	
Approach LOS		F			D			D			D	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		36.4	8.1	74.8		36.4	19.8	63.0				
Change Period (Y+Rc), s		* 4.7	4.6	* 6.5		* 4.7	4.6	6.5				
Max Green Setting (Gmax), s		* 32	5.0	* 68		* 32	15.2	57.3				
Max Q Clear Time (g_c+I1), s		32.9	4.4	70.3		28.1	11.9	52.1				
Green Ext Time (p_c), s		0.0	0.0	0.0		0.6	0.2	4.5				
Intersection Summary												
HCM 6th Ctrl Delay			77.4									
HCM 6th LOS			E									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Intersection						
Int Delay, s/veh	0.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	221	276	0	221	0	7
Future Vol, veh/h	221	276	0	221	0	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	240	300	0	240	0	8
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	390
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.318
Pot Cap-1 Maneuver	-	-	0	-	0	658
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	658
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		10.5	
HCM LOS					B	
Minor Lane/Major Mvmt	NBLn1		EBT	EBR	WBT	
Capacity (veh/h)	658		-	-	-	
HCM Lane V/C Ratio	0.012		-	-	-	
HCM Control Delay (s)	10.5		-	-	-	
HCM Lane LOS	B		-	-	-	
HCM 95th %tile O(veh)	0		-	-	-	

APPENDIX 9.4:

EAPC (2020) CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

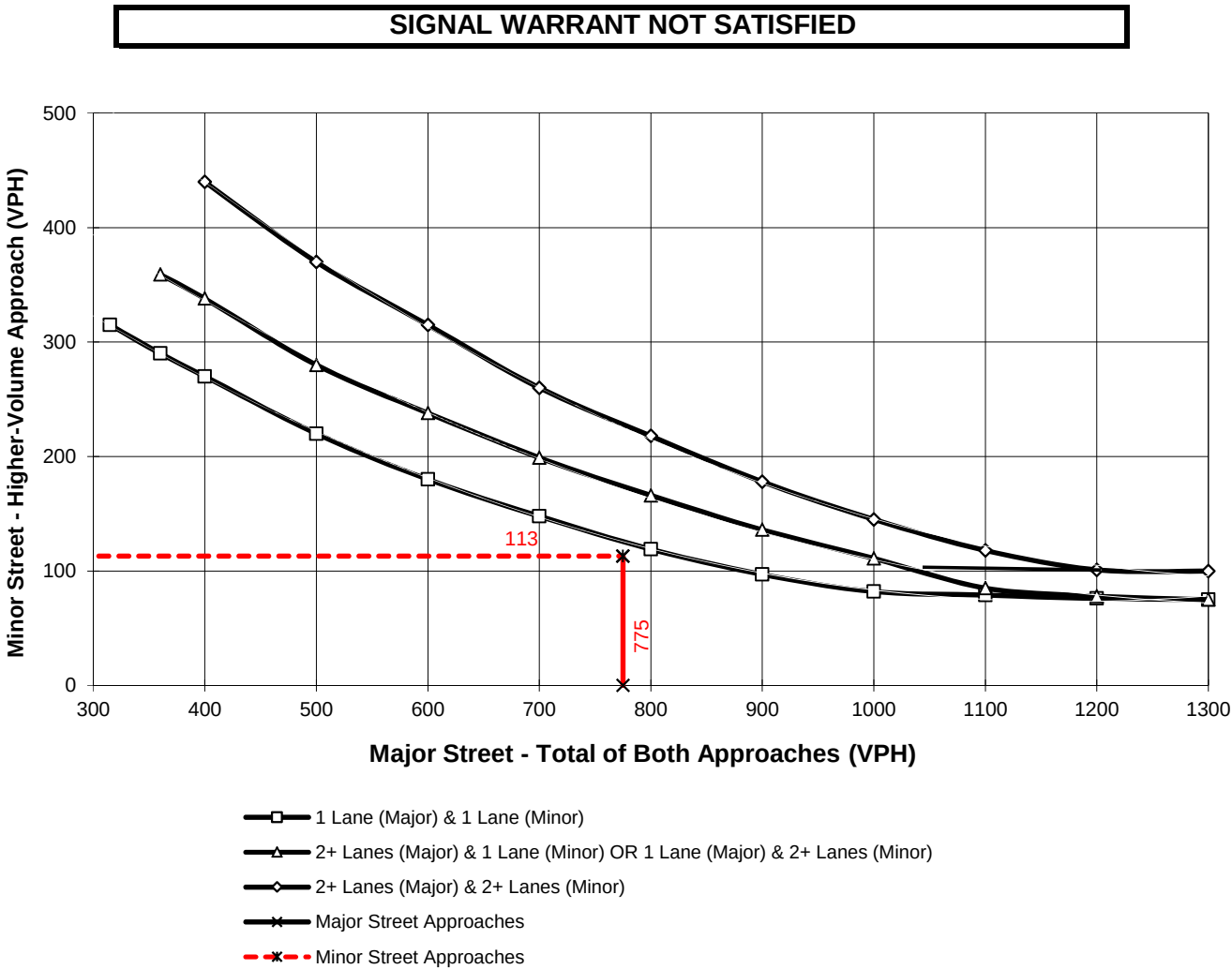
Traffic Conditions = **EAPC (2020) Conditions - Weekday AM Peak Hour**

Major Street Name = **Nichols Rd.**

Total of Both Approaches (VPH) = **775**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Alberhill Ranch Rd.**

High Volume Approach (VPH) = **113**
Number of Approach Lanes Minor Street = **1**



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes
and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-3. Warrant 3, Peak Hour

Traffic Conditions = **EAPC (2020) Conditions - Weekday AM Peak Hour**

Major Street Name = **Gunnerson St.**

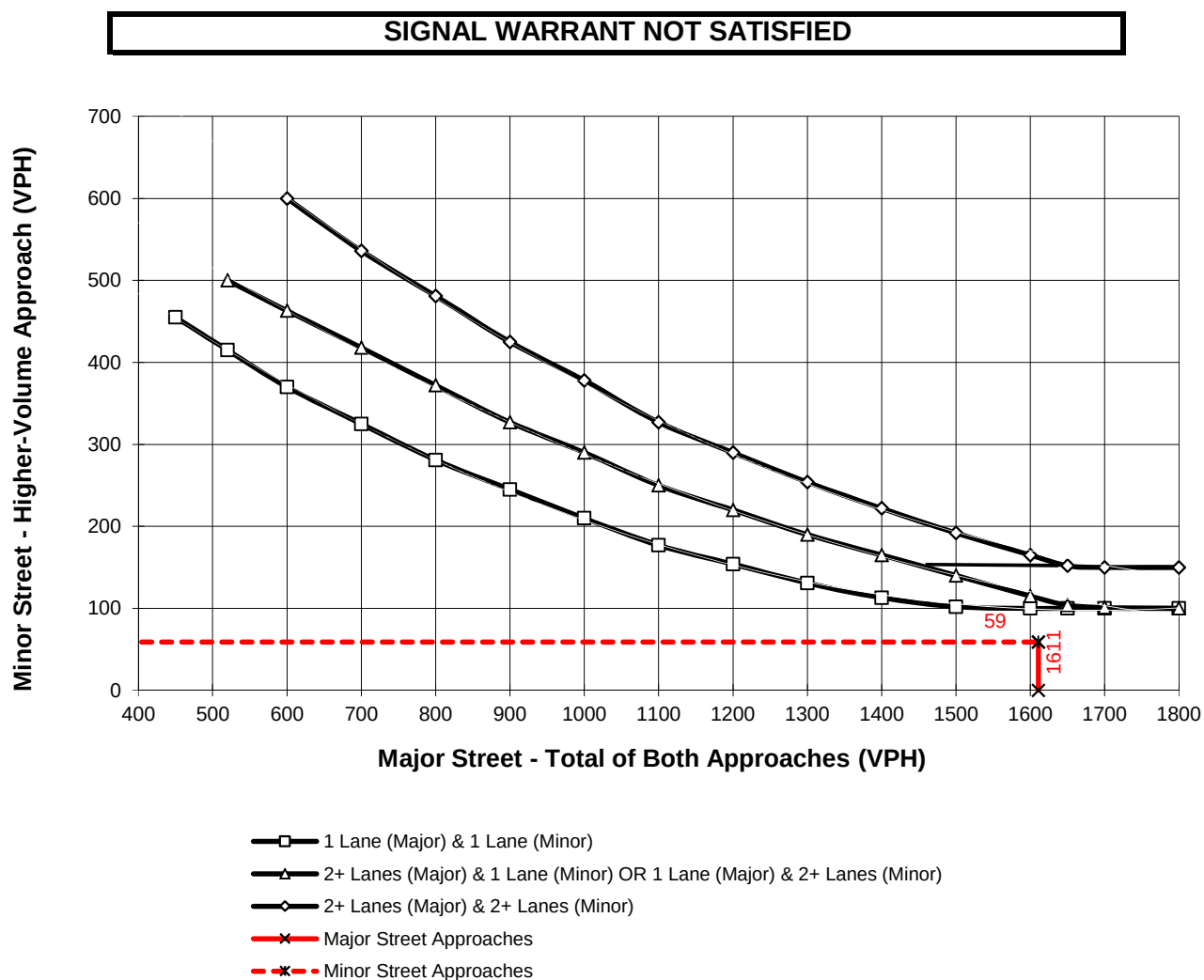
Total of Both Approaches (VPH) = **1611**

Number of Approach Lanes on Major Street = **1**

Minor Street Name = **Strickland Av./Riverside Dr.**

High Volume Approach (VPH) = **59**

Number of Approach Lanes On Minor Street = **1**



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes
and 100 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet (Average Traffic Estimate Form)

DIST	CO	RTE	PM	CALC	TRAFFIC CONDITIONS	EAPC 2020
Jurisdiction: <u>City of Lake Elsinore</u>				CHK <u>CH</u>	DATE <u>05/01/18</u>	
Major Street: <u>Nichols Rd.</u>					DATE <u>05/01/18</u>	
Minor Street: <u>B St.</u>					Critical Approach Speed (Major) <u>50</u> mph	
					Critical Approach Speed (Minor) <u>25</u> mph	
Major Street Approach Lanes = <u>1</u> lane				Minor Street Approach Lanes: <u>1</u> lane		
Major Street Future ADT = <u>4,154</u> vpd				Minor Street Future ADT = <u>1,114</u> vpd		
Speed limit or critical speed on major street traffic > 64 km/h (40 mph);					☒	
					or	RURAL (R)
In built up area of isolated community of < 10,000 population					☐	

(Based on Estimated Average Daily Traffic - See Note)

URBAN		RURAL		Minimum Requirements EADT			
CONDITION A - Minimum Vehicular Volume		XX		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
<u>Satisfied</u>		<u>Not Satisfied</u>					
		XX					
Number of lanes for moving traffic on each approach		Number of lanes for moving traffic on each approach					
<u>Major Street</u>		<u>Minor Street</u>		<u>Urban</u>	<u>Rural</u>	<u>Urban</u>	<u>Rural</u>
<u>1</u> 4,154		<u>1</u> 1,114		8,000	5,600	2,400	1,680
2 +		1		9,600	6,720	2,400	1,680
2 +		2 +		9,600	6,720	3,200	2,240
1		2 +		8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic		XX		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
<u>Satisfied</u>		<u>Not Satisfied</u>					
		XX					
Number of lanes for moving traffic on each approach		Number of lanes for moving traffic on each approach					
<u>Major Street</u>		<u>Minor Street</u>		<u>Urban</u>	<u>Rural</u>	<u>Urban</u>	<u>Rural</u>
<u>1</u> 4,154		<u>1</u> 1,114		12,000	8,400	1,200	850 *
2 +		1		14,400	10,080	1,200	850
2 +		2 +		14,400	10,080	1,600	1,120
1		2 +		12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B		XX		2 CONDITIONS 80%		2 CONDITIONS 80%	
<u>Satisfied</u>		<u>Not Satisfied</u>					
		XX					
No one condition satisfied, but following conditions fulfilled 80% of more							
		<u>A</u>	<u>B</u>				
		66%	49%				

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet (Average Traffic Estimate Form)

DIST	CO	RTE	PM	CALC	TRAFFIC CONDITIONS	EAPC 2020
Jurisdiction: <u>City of Lake Elsinore</u>				CHK <u>CH</u>		DATE <u>05/01/18</u>
Major Street: <u>G St.</u>					Critical Approach Speed (Major)	<u>25</u> mph
Minor Street: <u>B St.</u>					Critical Approach Speed (Minor)	<u>25</u> mph
Major Street Approach Lanes = <u>1</u> lane				Minor Street Approach Lanes: <u>1</u> lane		
Major Street Future ADT = <u>2,000</u> vpd				Minor Street Future ADT = <u>161</u> vpd		
Speed limit or critical speed on major street traffic > 64 km/h (40 mph);						 or
In built up area of isolated community of < 10,000 population						URBAN (U)

(Based on Estimated Average Daily Traffic - See Note)

URBAN XX		RURAL		Minimum Requirements EADT			
CONDITION A - Minimum Vehicular Volume				Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
<u>Satisfied</u>		<u>Not Satisfied</u>					
		XX					
Number of lanes for moving traffic on each approach				<u>Urban</u>	<u>Rural</u>	<u>Urban</u>	<u>Rural</u>
<u>Major Street</u>		<u>Minor Street</u>					
<u>1</u> 2,000		<u>1</u> 161		8,000	5,600	2,400	1,680
2 +		1		9,600	6,720	2,400	1,680
2 +		2 +		9,600	6,720	3,200	2,240
1		2 +		8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic				Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
<u>Satisfied</u>		<u>Not Satisfied</u>					
		XX					
Number of lanes for moving traffic on each approach				<u>Urban</u>	<u>Rural</u>	<u>Urban</u>	<u>Rural</u>
<u>Major Street</u>		<u>Minor Street</u>					
<u>1</u> 2,000		<u>1</u> 161		12,000	8,400	1,200	850
2 +		1		14,400	10,080	1,200	850
2 +		2 +		14,400	10,080	1,600	1,120
1		2 +		12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B				2 CONDITIONS		2 CONDITIONS	
<u>Satisfied</u>		<u>Not Satisfied</u>		80%		80%	
		XX					
No one condition satisfied, but following conditions fulfilled 80% of more							
		<u>A</u>	<u>B</u>				
		7%	13%				

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet (Average Traffic Estimate Form)

DIST	CO	RTE	PM	CALC	TRAFFIC CONDITIONS	EAPC 2020
Jurisdiction: <u>City of Lake Elsinore</u>				CHK <u>CH</u>	DATE <u>05/01/18</u>	
Major Street: <u>El Toro Rd.</u>					DATE <u>05/01/18</u>	
Minor Street: <u>B St.</u>					Critical Approach Speed (Major) <u>25</u> mph	
					Critical Approach Speed (Minor) <u>25</u> mph	
Major Street Approach Lanes = <u>1</u> lane				Minor Street Approach Lanes: <u>1</u> lane		
Major Street Future ADT = <u>2,497</u> vpd				Minor Street Future ADT = <u>1,001</u> vpd		
Speed limit or critical speed on major street traffic > 64 km/h (40 mph);						 or
In built up area of isolated community of < 10,000 population						URBAN (U)

(Based on Estimated Average Daily Traffic - See Note)

URBAN XX		RURAL		Minimum Requirements EADT			
CONDITION A - Minimum Vehicular Volume <u>Satisfied</u>		Not Satisfied XX		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Major Street	Minor Street	Major Street	Minor Street	Urban	Rural	Urban	Rural
1 2,497	1 1,001			8,000	5,600	2,400	1,680
2 +	1			9,600	6,720	2,400	1,680
2 +	2 +			9,600	6,720	3,200	2,240
1	2 +			8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic <u>Satisfied</u>		Not Satisfied XX		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Major Street	Minor Street	Major Street	Minor Street	Urban	Rural	Urban	Rural
1 2,497	1 1,001			12,000	8,400	1,200	850
2 +	1			14,400	10,080	1,200	850
2 +	2 +			14,400	10,080	1,600	1,120
1	2 +			12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B <u>Satisfied</u>		Not Satisfied XX		2 CONDITIONS 80%		2 CONDITIONS 80%	
No one condition satisfied, but following conditions fulfilled 80% of more							
		A B					
		31% 21%					

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-3. Warrant 3, Peak Hour

Traffic Conditions = **EAPC (2020) Conditions - Weekday AM Peak Hour**

Major Street Name = **El Toro Rd.**

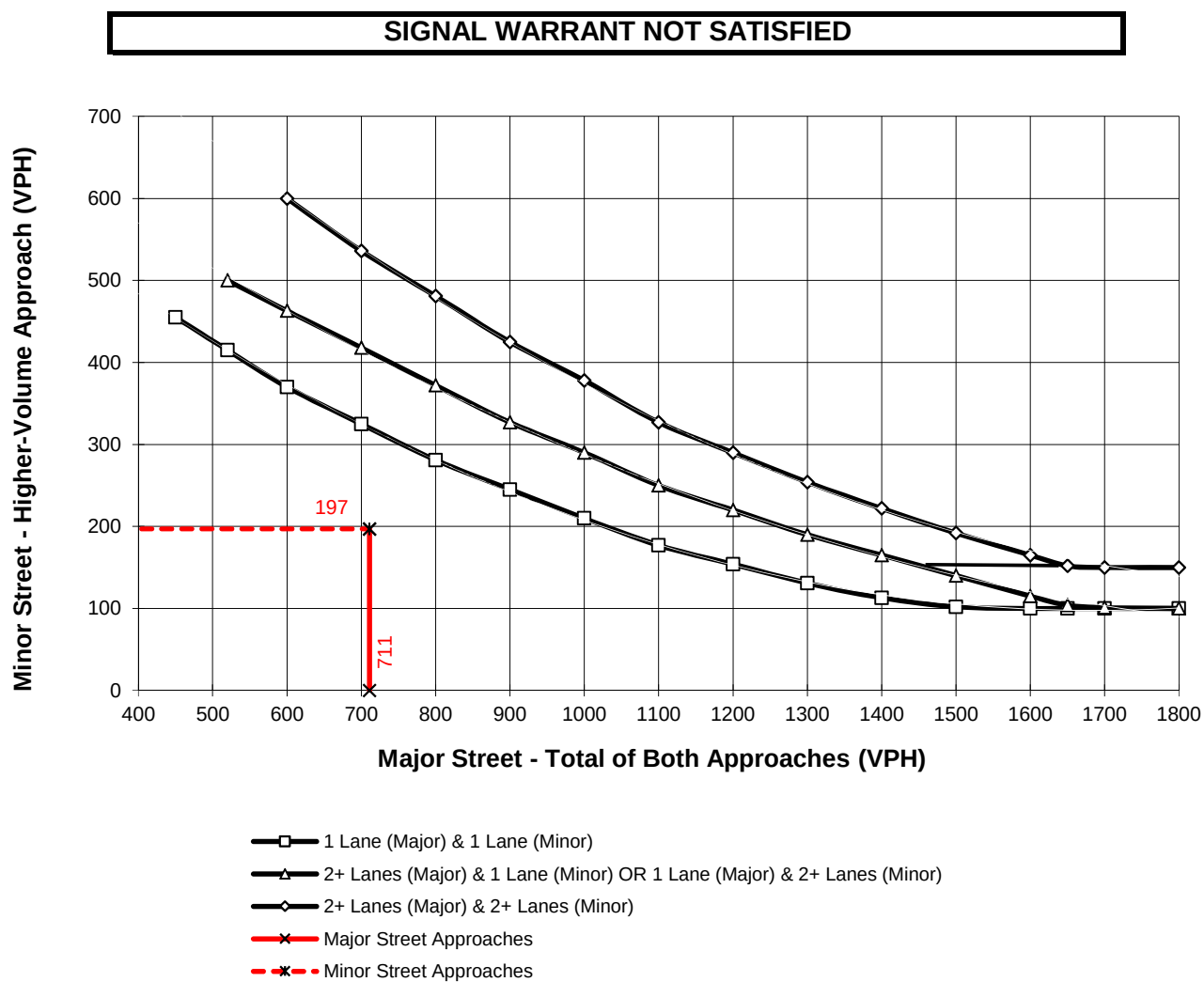
Total of Both Approaches (VPH) = **711**

Number of Approach Lanes on Major Street = **1**

Minor Street Name = **Tereticornis Av.**

High Volume Approach (VPH) = **197**

Number of Approach Lanes On Minor Street = **1**



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes
and 100 vph applies as the lower threshold for a minor-street approach with one lane

APPENDIX 9.5:

EAPC (2021) CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 64 km/h OR ABOVE 40 mph ON MAJOR STREET)

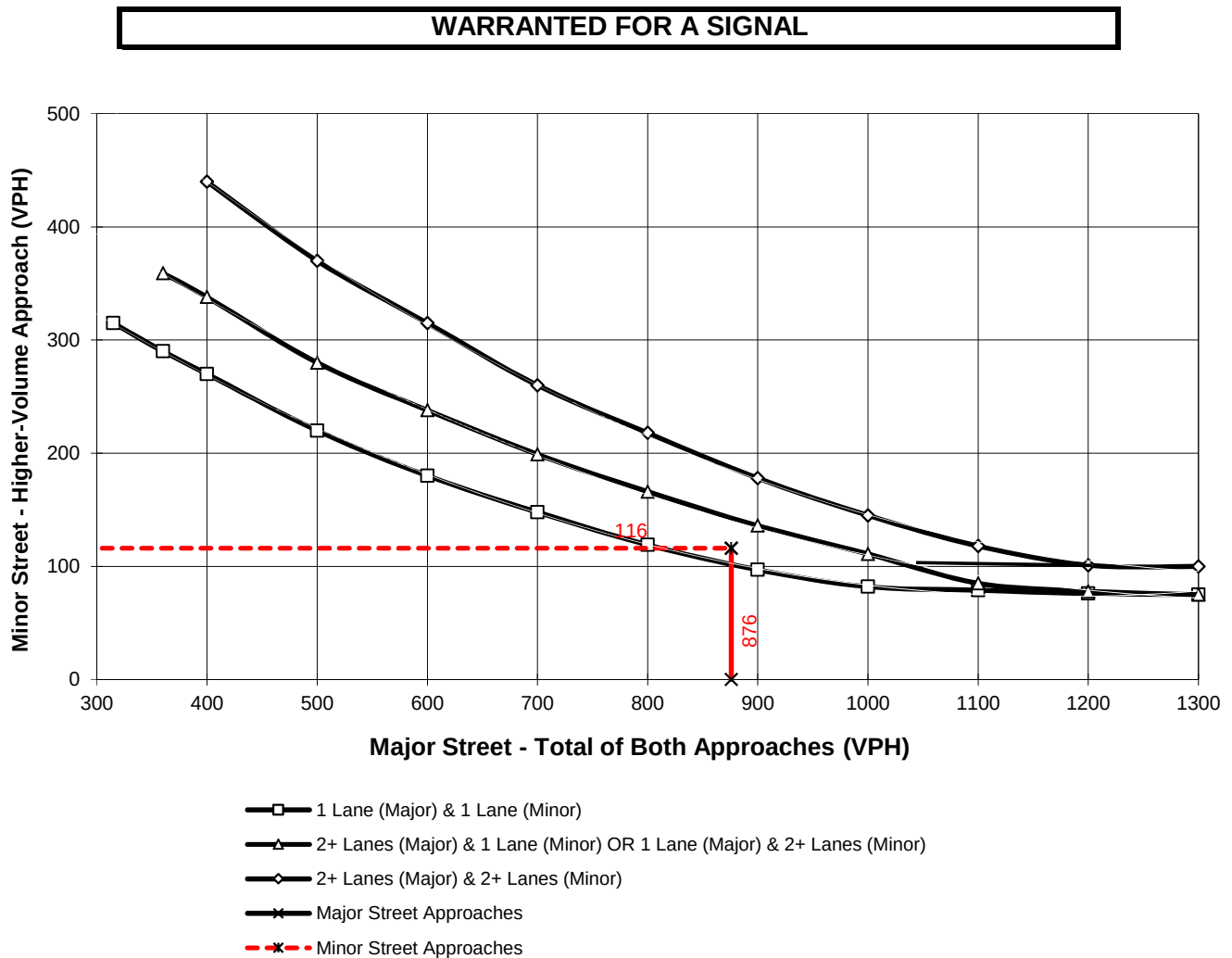
Traffic Conditions = **EAPC (2021) Conditions - Weekday AM Peak Hour**

Major Street Name = **Nichols Rd.**

Total of Both Approaches (VPH) = **876**
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Alberhill Ranch Rd.**

High Volume Approach (VPH) = **116**
Number of Approach Lanes Minor Street = **1**



*Note: 100 vph applies as the lower threshold for a minor-street approach with two or more lanes
and 75 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-3. Warrant 3, Peak Hour

Traffic Conditions = **EAPC (2021) Conditions - Weekday AM Peak Hour**

Major Street Name = **Gunnerson St.**

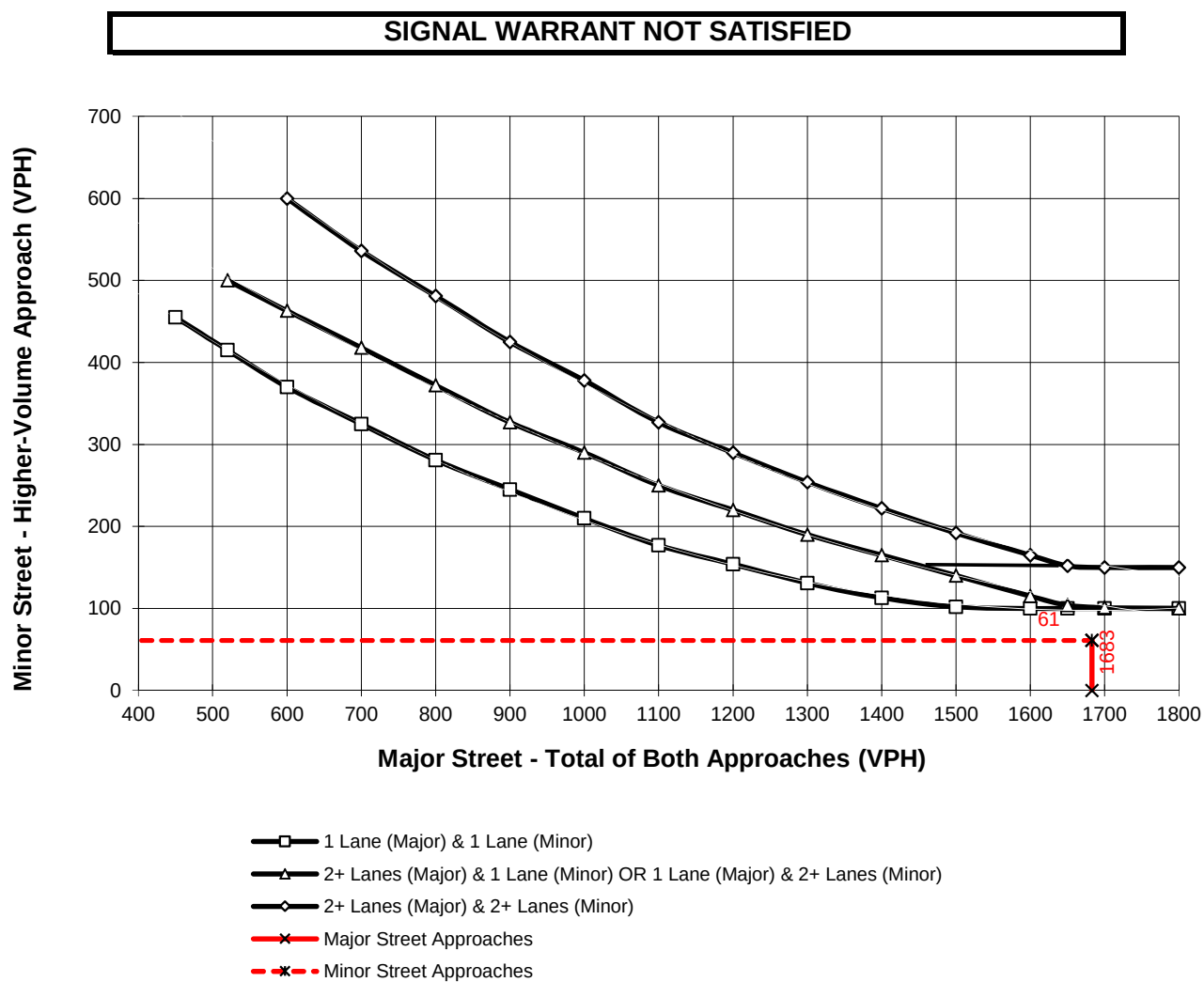
Total of Both Approaches (VPH) = **1683**

Number of Approach Lanes on Major Street = **1**

Minor Street Name = **Strickland Av./Riverside Dr.**

High Volume Approach (VPH) = **61**

Number of Approach Lanes On Minor Street = **1**



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes
and 100 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet (Average Traffic Estimate Form)

DIST	CO	RTE	PM	CALC	TRAFFIC CONDITIONS	EAPC (2021)
Jurisdiction: <u>City of Lake Elsinore</u>				CHK <u>CH</u>	DATE <u>05/01/18</u>	
Major Street: <u>Nichols Rd.</u>					Critical Approach Speed (Major) <u>50</u> mph	
Minor Street: <u>A St.</u>					Critical Approach Speed (Minor) <u>25</u> mph	
Major Street Approach Lanes = <u>1</u> lane				Minor Street Approach Lanes: <u>1</u> lane		
Major Street Future ADT = <u>6,096</u> vpd				Minor Street Future ADT = <u>239</u> vpd		
Speed limit or critical speed on major street traffic > 64 km/h (40 mph);					☒	
					or	RURAL (R)
In built up area of isolated community of < 10,000 population					☐	

(Based on Estimated Average Daily Traffic - See Note)

URBAN		RURAL		Minimum Requirements EADT			
CONDITION A - Minimum Vehicular Volume		XX		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
<u>Satisfied</u>		<u>Not Satisfied</u>					
		XX					
Number of lanes for moving traffic on each approach		Number of lanes for moving traffic on each approach					
<u>Major Street</u>		<u>Minor Street</u>		<u>Urban</u>	<u>Rural</u>	<u>Urban</u>	<u>Rural</u>
<u>1</u> 6,096		<u>1</u> 239		8,000	5,600 *	2,400	1,680
2 +		1		9,600	6,720	2,400	1,680
2 +		2 +		9,600	6,720	3,200	2,240
1		2 +		8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic		XX		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
<u>Satisfied</u>		<u>Not Satisfied</u>					
		XX					
Number of lanes for moving traffic on each approach		Number of lanes for moving traffic on each approach					
<u>Major Street</u>		<u>Minor Street</u>		<u>Urban</u>	<u>Rural</u>	<u>Urban</u>	<u>Rural</u>
<u>1</u> 6,096		<u>1</u> 239		12,000	8,400	1,200	850
2 +		1		14,400	10,080	1,200	850
2 +		2 +		14,400	10,080	1,600	1,120
1		2 +		12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B		XX		2 CONDITIONS 80%		2 CONDITIONS 80%	
<u>Satisfied</u>		<u>Not Satisfied</u>					
		XX					
No one condition satisfied, but following conditions fulfilled 80% of more							
		<u>A</u>	<u>B</u>				
		14%	28%				

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet (Average Traffic Estimate Form)

DIST	CO	RTE	PM	CALC	TRAFFIC CONDITIONS	EAPC (2021)
Jurisdiction: <u>City of Lake Elsinore</u>				CHK <u>CH</u>	DATE <u>05/01/18</u>	
Major Street: <u>Nichols Rd.</u>					Critical Approach Speed (Major) <u>50</u> mph	
Minor Street: <u>B St.</u>					Critical Approach Speed (Minor) <u>25</u> mph	
Major Street Approach Lanes = <u>1</u> lane				Minor Street Approach Lanes: <u>1</u> lane		
Major Street Future ADT = <u>4,540</u> vpd				Minor Street Future ADT = <u>2,263</u> vpd		
Speed limit or critical speed on major street traffic > 64 km/h (40 mph);					☒	
					or	RURAL (R)
In built up area of isolated community of < 10,000 population					☐	

(Based on Estimated Average Daily Traffic - See Note)

<u>URBAN</u>		<u>RURAL</u>		Minimum Requirements EADT			
CONDITION A - Minimum Vehicular Volume		XX		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
<u>Satisfied</u>	<u>Not Satisfied</u>						
XX							
Number of lanes for moving traffic on each approach							
<u>Major Street</u>	<u>Minor Street</u>	<u>Urban</u>	<u>Rural</u>	<u>Urban</u>	<u>Rural</u>		
1 4,540	1 2,263	8,000	5,600	2,400	1,680 *		
2 +	1	9,600	6,720	2,400	1,680		
2 +	2 +	9,600	6,720	3,200	2,240		
1	2 +	8,000	5,600	3,200	2,240		
CONDITION B - Interruption of Continuous Traffic				Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
<u>Satisfied</u>	<u>Not Satisfied</u>						
XX							
Number of lanes for moving traffic on each approach							
<u>Major Street</u>	<u>Minor Street</u>	<u>Urban</u>	<u>Rural</u>	<u>Urban</u>	<u>Rural</u>		
1 4,540	1 2,263	12,000	8,400	1,200	850 *		
2 +	1	14,400	10,080	1,200	850		
2 +	2 +	14,400	10,080	1,600	1,120		
1	2 +	12,000	8,400	1,600	1,120		
Combination of CONDITIONS A + B				2 CONDITIONS 80%		2 CONDITIONS 80%	
<u>Satisfied</u>	<u>Not Satisfied</u>						
XX							
No one condition satisfied, but following conditions fulfilled 80% of more							
<u>A</u>	<u>B</u>						
81%	54%						

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet (Average Traffic Estimate Form)

DIST	CO	RTE	PM	CALC	TRAFFIC CONDITIONS	EAPC (2021)
Jurisdiction: <u>City of Lake Elsinore</u>				CHK	<u>CH</u>	DATE <u>05/01/18</u>
Major Street: <u>B St.</u>					Critical Approach Speed (Major)	<u>50</u> mph
Minor Street: <u>F St.</u>					Critical Approach Speed (Minor)	<u>25</u> mph
Major Street Approach Lanes = <u>1</u> lane				Minor Street Approach Lanes: <u>1</u> lane		
Major Street Future ADT = <u>2,433</u> vpd				Minor Street Future ADT = <u>343</u> vpd		
Speed limit or critical speed on major street traffic > 64 km/h (40 mph);						☒ or ☐
In built up area of isolated community of < 10,000 population						RURAL (R)

(Based on Estimated Average Daily Traffic - See Note)

URBAN		RURAL		Minimum Requirements EADT			
CONDITION A - Minimum Vehicular Volume		XX		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
<u>Satisfied</u>		<u>Not Satisfied</u>	XX				
Number of lanes for moving traffic on each approach		Number of lanes for moving traffic on each approach		Urban	Rural	Urban	Rural
<u>Major Street</u>		<u>Minor Street</u>					
<u>1 2,433</u>		<u>1 343</u>		8,000	5,600	2,400	1,680
<u>2 +</u>		<u>1</u>		9,600	6,720	2,400	1,680
<u>2 +</u>		<u>2 +</u>		9,600	6,720	3,200	2,240
<u>1</u>		<u>2 +</u>		8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic		XX		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
<u>Satisfied</u>		<u>Not Satisfied</u>					
Number of lanes for moving traffic on each approach		Number of lanes for moving traffic on each approach		Urban	Rural	Urban	Rural
<u>Major Street</u>		<u>Minor Street</u>					
<u>1 2,433</u>		<u>1 343</u>		12,000	8,400	1,200	850
<u>2 +</u>		<u>1</u>		14,400	10,080	1,200	850
<u>2 +</u>		<u>2 +</u>		14,400	10,080	1,600	1,120
<u>1</u>		<u>2 +</u>		12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B		XX		2 CONDITIONS 80%		2 CONDITIONS 80%	
<u>Satisfied</u>		<u>Not Satisfied</u>					
No one condition satisfied, but following conditions fulfilled 80% of more							
		<u>A</u>	<u>B</u>				
		20%	29%				

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet (Average Traffic Estimate Form)

DIST	CO	RTE	PM	CALC	TRAFFIC CONDITIONS	EAPC (2021)
Jurisdiction: <u>City of Lake Elsinore</u>				CHK	<u>CH</u>	DATE <u>05/01/18</u>
Major Street: <u>H St.</u>					Critical Approach Speed (Major)	<u>25</u> mph
Minor Street: <u>B St.</u>					Critical Approach Speed (Minor)	<u>25</u> mph
Major Street Approach Lanes = <u>1</u> lane				Minor Street Approach Lanes: <u>1</u> lane		
Major Street Future ADT = <u>2,112</u> vpd				Minor Street Future ADT = <u>0</u> vpd		
Speed limit or critical speed on major street traffic > 64 km/h (40 mph);						 or
In built up area of isolated community of < 10,000 population						URBAN (U)

(Based on Estimated Average Daily Traffic - See Note)

<u>URBAN</u> XX		<u>RURAL</u>		Minimum Requirements EADT			
CONDITION A - Minimum Vehicular Volume							
<u>Satisfied</u>	<u>Not Satisfied</u> XX			Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
<u>Major Street</u>	<u>Minor Street</u>	<u>Urban</u>	<u>Rural</u>	<u>Urban</u>	<u>Rural</u>	<u>Urban</u>	<u>Rural</u>
1 2,112	1 0	8,000	5,600	2,400	1,680		
2 +	1	9,600	6,720	2,400	1,680		
2 +	2 +	9,600	6,720	3,200	2,240		
1	2 +	8,000	5,600	3,200	2,240		
CONDITION B - Interruption of Continuous Traffic							
<u>Satisfied</u>	<u>Not Satisfied</u> XX			Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
<u>Major Street</u>	<u>Minor Street</u>	<u>Urban</u>	<u>Rural</u>	<u>Urban</u>	<u>Rural</u>	<u>Urban</u>	<u>Rural</u>
1 2,112	1 0	12,000	8,400	1,200	850		
2 +	1	14,400	10,080	1,200	850		
2 +	2 +	14,400	10,080	1,600	1,120		
1	2 +	12,000	8,400	1,600	1,120		
Combination of CONDITIONS A + B							
<u>Satisfied</u>	<u>Not Satisfied</u> XX			2 CONDITIONS 80%		2 CONDITIONS 80%	
No one condition satisfied, but following conditions fulfilled 80% of more							
	<u>A</u> 26%	<u>B</u> 18%					

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet (Average Traffic Estimate Form)

DIST	CO	RTE	PM	CALC	TRAFFIC CONDITIONS	EAPC (2021)
Jurisdiction: <u>City of Lake Elsinore</u>				CHK	<u>CH</u>	DATE <u>05/01/18</u>
Major Street: <u>G St.</u>					Critical Approach Speed (Major)	<u>25</u> mph
Minor Street: <u>B St.</u>					Critical Approach Speed (Minor)	<u>25</u> mph
Major Street Approach Lanes = <u>1</u> lane				Minor Street Approach Lanes: <u>1</u> lane		
Major Street Future ADT = <u>2,115</u> vpd				Minor Street Future ADT = <u>159</u> vpd		
Speed limit or critical speed on major street traffic > 64 km/h (40 mph);						 or
In built up area of isolated community of < 10,000 population						URBAN (U)

(Based on Estimated Average Daily Traffic - See Note)

<u>URBAN</u> XX		<u>RURAL</u>		Minimum Requirements EADT			
CONDITION A - Minimum Vehicular Volume							
<u>Satisfied</u>	<u>Not Satisfied</u> XX			Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
<u>Major Street</u>	<u>Minor Street</u>	<u>Urban</u>	<u>Rural</u>	<u>Urban</u>	<u>Rural</u>	<u>Urban</u>	<u>Rural</u>
1 2,115	1 159	8,000	5,600	2,400	1,680		
2 +	1	9,600	6,720	2,400	1,680		
2 +	2 +	9,600	6,720	3,200	2,240		
1	2 +	8,000	5,600	3,200	2,240		
CONDITION B - Interruption of Continuous Traffic							
<u>Satisfied</u>	<u>Not Satisfied</u> XX			Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
<u>Major Street</u>	<u>Minor Street</u>	<u>Urban</u>	<u>Rural</u>	<u>Urban</u>	<u>Rural</u>	<u>Urban</u>	<u>Rural</u>
1 2,115	1 159	12,000	8,400	1,200	850		
2 +	1	14,400	10,080	1,200	850		
2 +	2 +	14,400	10,080	1,600	1,120		
1	2 +	12,000	8,400	1,600	1,120		
Combination of CONDITIONS A + B							
<u>Satisfied</u>	<u>Not Satisfied</u> XX			2 CONDITIONS 80%		2 CONDITIONS 80%	
No one condition satisfied, but following conditions fulfilled 80% of more							
	<u>A</u> 7%	<u>B</u> 13%					

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet (Average Traffic Estimate Form)

DIST	CO	RTE	PM	CALC	TRAFFIC CONDITIONS	EAPC (2021)
Jurisdiction: <u>City of Lake Elsinore</u>				CHK	<u>CH</u>	DATE <u>05/01/18</u>
Major Street: <u>El Toro Rd.</u>						DATE <u>05/01/18</u>
Minor Street: <u>B St.</u>					Critical Approach Speed (Major)	<u>25</u> mph
					Critical Approach Speed (Minor)	<u>25</u> mph
Major Street Approach Lanes = <u>1</u> lane				Minor Street Approach Lanes: <u>1</u> lane		
Major Street Future ADT = <u>2,642</u> vpd				Minor Street Future ADT = <u>1,116</u> vpd		
Speed limit or critical speed on major street traffic > 64 km/h (40 mph);						 or
In built up area of isolated community of < 10,000 population						URBAN (U)

(Based on Estimated Average Daily Traffic - See Note)

<u>URBAN</u> XX		<u>RURAL</u>		Minimum Requirements EADT			
CONDITION A - Minimum Vehicular Volume							
<u>Satisfied</u>	<u>Not Satisfied</u> XX			Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Number of lanes for moving traffic on each approach		<u>Major Street</u>	<u>Minor Street</u>	<u>Urban</u>	<u>Rural</u>	<u>Urban</u>	<u>Rural</u>
1	2,642	1	1,116	8,000	5,600	2,400	1,680
2 +		1		9,600	6,720	2,400	1,680
2 +		2 +		9,600	6,720	3,200	2,240
1		2 +		8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic							
<u>Satisfied</u>	<u>Not Satisfied</u> XX			Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
Number of lanes for moving traffic on each approach		<u>Major Street</u>	<u>Minor Street</u>	<u>Urban</u>	<u>Rural</u>	<u>Urban</u>	<u>Rural</u>
1	2,642	1	1,116	12,000	8,400	1,200	850
2 +		1		14,400	10,080	1,200	850
2 +		2 +		14,400	10,080	1,600	1,120
1		2 +		12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B							
<u>Satisfied</u>	<u>Not Satisfied</u> XX			2 CONDITIONS 80%		2 CONDITIONS 80%	
No one condition satisfied, but following conditions fulfilled 80% of more		<u>A</u> 33%	<u>B</u> 22%				

Figure 4C-3. Warrant 3, Peak Hour

Traffic Conditions = **EAPC (2021) Conditions - Weekday AM Peak Hour**

Major Street Name = **El Toro Rd.**

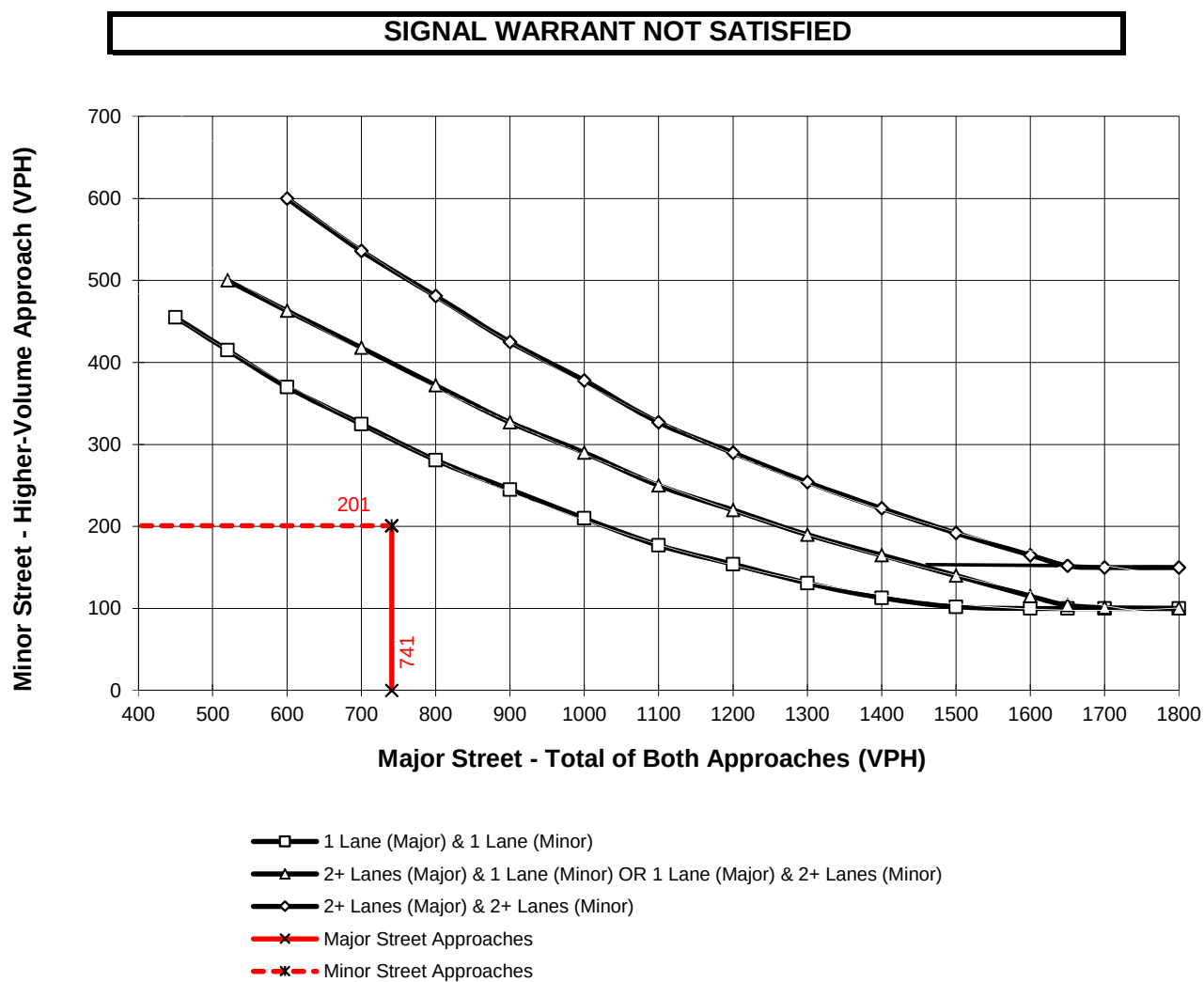
Total of Both Approaches (VPH) = **741**

Number of Approach Lanes on Major Street = **1**

Minor Street Name = **Tereticornis Av.**

High Volume Approach (VPH) = **201**

Number of Approach Lanes On Minor Street = **1**



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes
and 100 vph applies as the lower threshold for a minor-street approach with one lane

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APPENDIX 9.6:

EAPC (2024) CONDITIONS TRAFFIC SIGNAL WARRANT ANALYSIS WORKSHEETS

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Figure 4C-3. Warrant 3, Peak Hour

Traffic Conditions = **EAPC (2024) Conditions - Weekday AM Peak Hour**

Major Street Name = **Gunnerson St.**

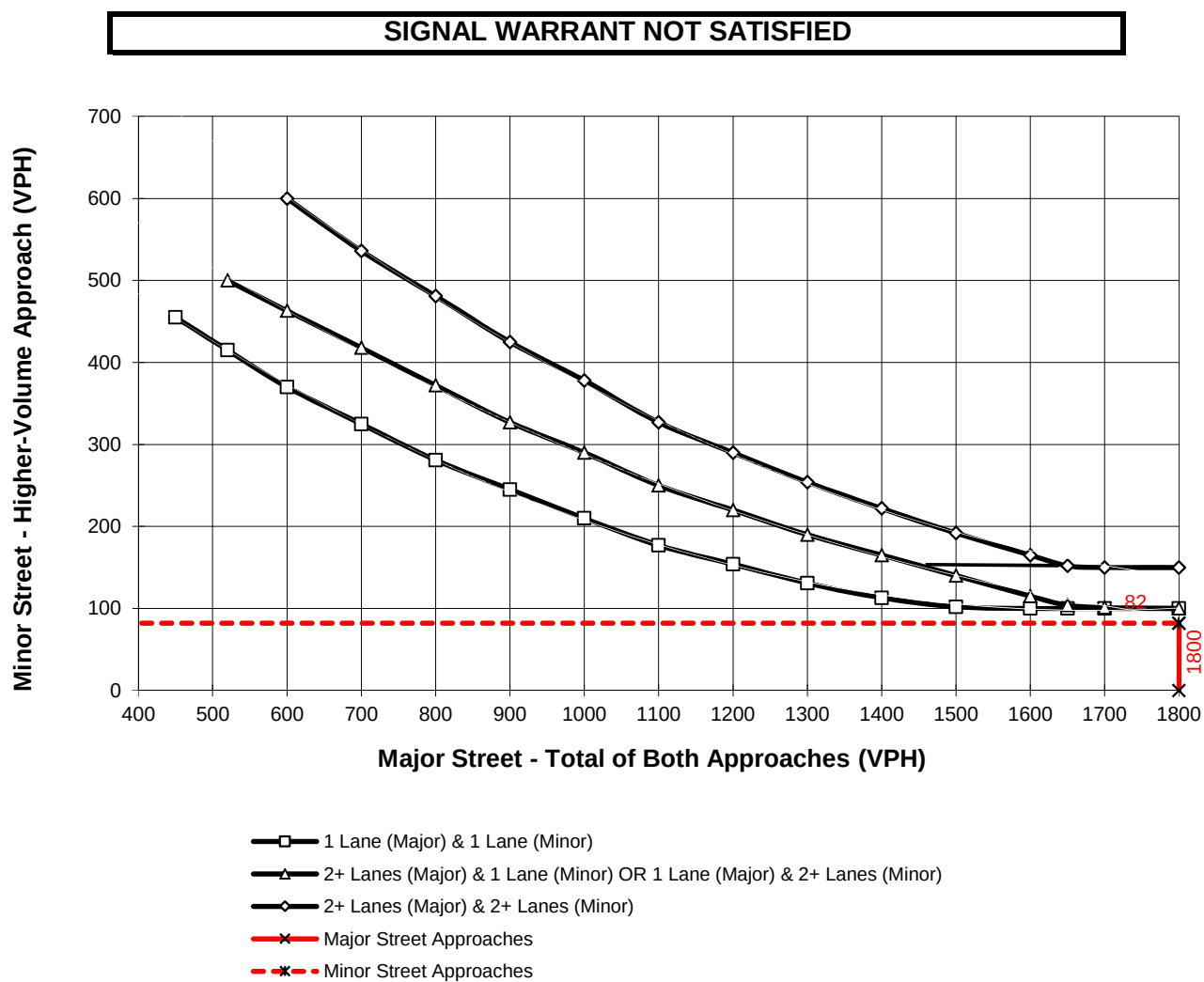
Total of Both Approaches (VPH) = **1937**

Number of Approach Lanes on Major Street = **1**

Minor Street Name = **Strickland Av./Riverside Dr.**

High Volume Approach (VPH) = **82**

Number of Approach Lanes On Minor Street = **1**



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes
and 100 vph applies as the lower threshold for a minor-street approach with one lane

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet (Average Traffic Estimate Form)

DIST	CO	RTE	PM	CALC	TRAFFIC CONDITIONS	EAPC (2024)
Jurisdiction: <u>City of Lake Elsinore</u>				CHK <u>CH</u>	DATE <u>05/01/18</u>	
Major Street: <u>Nichols Rd.</u>					DATE <u>05/01/18</u>	
Minor Street: <u>B St.</u>					Critical Approach Speed (Major) <u>50</u> mph	
					Critical Approach Speed (Minor) <u>25</u> mph	
Major Street Approach Lanes = <u>1</u> lane				Minor Street Approach Lanes: <u>1</u> lane		
Major Street Future ADT = <u>5,040</u> vpd				Minor Street Future ADT = <u>2,325</u> vpd		
Speed limit or critical speed on major street traffic > 64 km/h (40 mph);					☒	
					or	RURAL (R)
In built up area of isolated community of < 10,000 population					☐	

(Based on Estimated Average Daily Traffic - See Note)

URBAN		RURAL		Minimum Requirements EADT			
CONDITION A - Minimum Vehicular Volume		XX		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
<u>Satisfied</u>		<u>Not Satisfied</u>	XX				
Number of lanes for moving traffic on each approach				<u>Urban</u>	<u>Rural</u>	<u>Urban</u>	<u>Rural</u>
<u>Major Street</u>		<u>Minor Street</u>					
<u>1</u> 5,040		<u>1</u> 2,325		8,000	5,600	2,400	1,680 *
<u>2 +</u>		<u>1</u>		9,600	6,720	2,400	1,680
<u>2 +</u>		<u>2 +</u>		9,600	6,720	3,200	2,240
<u>1</u>		<u>2 +</u>		8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic		XX		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
<u>Satisfied</u>		<u>Not Satisfied</u>	XX				
Number of lanes for moving traffic on each approach				<u>Urban</u>	<u>Rural</u>	<u>Urban</u>	<u>Rural</u>
<u>Major Street</u>		<u>Minor Street</u>					
<u>1</u> 5,040		<u>1</u> 2,325		12,000	8,400	1,200	850 *
<u>2 +</u>		<u>1</u>		14,400	10,080	1,200	850
<u>2 +</u>		<u>2 +</u>		14,400	10,080	1,600	1,120
<u>1</u>		<u>2 +</u>		12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B		XX		2 CONDITIONS 80%		2 CONDITIONS 80%	
<u>Satisfied</u>		<u>Not Satisfied</u>	XX				
No one condition satisfied, but following conditions fulfilled 80% of more							
		<u>A</u>	<u>B</u>				
		90%	60%				

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet (Average Traffic Estimate Form)

DIST	CO	RTE	PM	CALC	TRAFFIC CONDITIONS	EAPC (2024)
Jurisdiction: <u>City of Lake Elsinore</u>				CHK	<u>CH</u>	DATE <u>05/01/18</u>
Major Street: <u>B St.</u>					Critical Approach Speed (Major)	<u>50</u> mph
Minor Street: <u>F St.</u>					Critical Approach Speed (Minor)	<u>25</u> mph
Major Street Approach Lanes = <u>1</u> lane				Minor Street Approach Lanes: <u>1</u> lane		
Major Street Future ADT = <u>2,548</u> vpd				Minor Street Future ADT = <u>343</u> vpd		
Speed limit or critical speed on major street traffic > 64 km/h (40 mph);						☒
						or
In built up area of isolated community of < 10,000 population						☐

RURAL (R)

(Based on Estimated Average Daily Traffic - See Note)

<u>URBAN</u>		<u>RURAL</u>		Minimum Requirements			
CONDITION A - Minimum Vehicular Volume		XX		EADT			
<u>Satisfied</u>		<u>Not Satisfied</u>		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
		XX					
Number of lanes for moving traffic on each approach				<u>Urban</u>	<u>Rural</u>	<u>Urban</u>	<u>Rural</u>
<u>Major Street</u>		<u>Minor Street</u>					
1 2,548		1 343		8,000	5,600	2,400	1,680
2 +		1		9,600	6,720	2,400	1,680
2 +		2 +		9,600	6,720	3,200	2,240
1		2 +		8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic				Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
<u>Satisfied</u>		<u>Not Satisfied</u>					
		XX					
Number of lanes for moving traffic on each approach				<u>Urban</u>	<u>Rural</u>	<u>Urban</u>	<u>Rural</u>
<u>Major Street</u>		<u>Minor Street</u>					
1 2,548		1 343		12,000	8,400	1,200	850
2 +		1		14,400	10,080	1,200	850
2 +		2 +		14,400	10,080	1,600	1,120
1		2 +		12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B				2 CONDITIONS		2 CONDITIONS	
<u>Satisfied</u>		<u>Not Satisfied</u>		80%		80%	
		XX					
No one condition satisfied, but following conditions fulfilled 80% of more							
		<u>A</u>	<u>B</u>				
		20%	30%				

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet (Average Traffic Estimate Form)

DIST	CO	RTE	PM	CALC	TRAFFIC CONDITIONS	EAPC (2024)
Jurisdiction: <u>City of Lake Elsinore</u>				CHK	<u>CH</u>	DATE <u>05/01/18</u>
Major Street: <u>H St.</u>					Critical Approach Speed (Major)	<u>25</u> mph
Minor Street: <u>B St.</u>					Critical Approach Speed (Minor)	<u>25</u> mph
Major Street Approach Lanes = <u>1</u> lane				Minor Street Approach Lanes: <u>1</u> lane		
Major Street Future ADT = <u>2,692</u> vpd				Minor Street Future ADT = <u>463</u> vpd		
Speed limit or critical speed on major street traffic > 64 km/h (40 mph);						 or
In built up area of isolated community of < 10,000 population						URBAN (U)

(Based on Estimated Average Daily Traffic - See Note)

<u>URBAN</u> XX		<u>RURAL</u>		Minimum Requirements EADT			
CONDITION A - Minimum Vehicular Volume				Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
<u>Satisfied</u>	<u>Not Satisfied</u> XX			<u>Urban</u>	<u>Rural</u>	<u>Urban</u>	<u>Rural</u>
Number of lanes for moving traffic on each approach							
<u>Major Street</u>	<u>Minor Street</u>						
1 2,692	1 463			8,000	5,600	2,400	1,680
2 +	1			9,600	6,720	2,400	1,680
2 +	2 +			9,600	6,720	3,200	2,240
1	2 +			8,000	5,600	3,200	2,240
CONDITION B - Interruption of Continuous Traffic				Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
<u>Satisfied</u>	<u>Not Satisfied</u> XX			<u>Urban</u>	<u>Rural</u>	<u>Urban</u>	<u>Rural</u>
Number of lanes for moving traffic on each approach							
<u>Major Street</u>	<u>Minor Street</u>						
1 2,692	1 463			12,000	8,400	1,200	850
2 +	1			14,400	10,080	1,200	850
2 +	2 +			14,400	10,080	1,600	1,120
1	2 +			12,000	8,400	1,600	1,120
Combination of CONDITIONS A + B				2 CONDITIONS 80%		2 CONDITIONS 80%	
<u>Satisfied</u>	<u>Not Satisfied</u> XX						
No one condition satisfied, but following conditions fulfilled 80% of more							
	<u>A</u> 19%	<u>B</u> 22%					

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet (Average Traffic Estimate Form)

DIST	CO	RTE	PM	CALC	TRAFFIC CONDITIONS	EAPC (2024)
Jurisdiction: <u>City of Lake Elsinore</u>				CHK	<u>CH</u>	DATE <u>05/01/18</u>
Major Street: <u>G St.</u>					Critical Approach Speed (Major)	<u>25</u> mph
Minor Street: <u>B St.</u>					Critical Approach Speed (Minor)	<u>25</u> mph
Major Street Approach Lanes = <u>1</u> lane				Minor Street Approach Lanes: <u>1</u> lane		
Major Street Future ADT = <u>3,156</u> vpd				Minor Street Future ADT = <u>159</u> vpd		
Speed limit or critical speed on major street traffic > 64 km/h (40 mph);						 or
In built up area of isolated community of < 10,000 population						URBAN (U)

(Based on Estimated Average Daily Traffic - See Note)

<u>URBAN</u> XX		<u>RURAL</u>		Minimum Requirements EADT			
CONDITION A - Minimum Vehicular Volume							
<u>Satisfied</u>	<u>Not Satisfied</u> XX			Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
<u>Major Street</u>	<u>Minor Street</u>	<u>Urban</u>	<u>Rural</u>	<u>Urban</u>	<u>Rural</u>	<u>Urban</u>	<u>Rural</u>
1 3,156	1 159	8,000	5,600	2,400	1,680		
2 +	1	9,600	6,720	2,400	1,680		
2 +	2 +	9,600	6,720	3,200	2,240		
1	2 +	8,000	5,600	3,200	2,240		
CONDITION B - Interruption of Continuous Traffic							
<u>Satisfied</u>	<u>Not Satisfied</u> XX			Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
<u>Major Street</u>	<u>Minor Street</u>	<u>Urban</u>	<u>Rural</u>	<u>Urban</u>	<u>Rural</u>	<u>Urban</u>	<u>Rural</u>
1 3,156	1 159	12,000	8,400	1,200	850		
2 +	1	14,400	10,080	1,200	850		
2 +	2 +	14,400	10,080	1,600	1,120		
1	2 +	12,000	8,400	1,600	1,120		
Combination of CONDITIONS A + B							
<u>Satisfied</u>	<u>Not Satisfied</u> XX			2 CONDITIONS 80%		2 CONDITIONS 80%	
No one condition satisfied, but following conditions fulfilled 80% of more							
	<u>A</u> 7%	<u>B</u> 13%					

Figure 4C-103 (CA). Traffic Signal Warrants Worksheet (Average Traffic Estimate Form)

<u>DIST</u>	<u>CO</u>	<u>RTE</u>	<u>PM</u>	<u>CALC</u>	<u>CH</u>	<u>DATE</u>	<u>EAPC (2024)</u>
Jurisdiction: <u>City of Lake Elsinore</u>				CHK	<u>CH</u>	DATE	<u>05/01/18</u>
Major Street: <u>El Toro Rd.</u>						Critical Approach Speed (Major)	<u>25</u> mph
Minor Street: <u>B St.</u>						Critical Approach Speed (Minor)	<u>25</u> mph
Major Street Approach Lanes = <u>1</u> lane				Minor Street Approach Lanes: <u>1</u> lane			
Major Street Future ADT = <u>3,260</u> vpd				Minor Street Future ADT = <u>2,161</u> vpd			
Speed limit or critical speed on major street traffic > 64 km/h (40 mph);							URBAN (U)
In built up area of isolated community of < 10,000 population							

(Based on Estimated Average Daily Traffic - See Note)

<u>URBAN</u> XX		<u>RURAL</u>		Minimum Requirements EADT			
<u>CONDITION A - Minimum Vehicular Volume</u> <u>Satisfied</u>		<u>Not Satisfied</u> XX		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
<u>Major Street</u>		<u>Minor Street</u>		<u>Urban</u>	<u>Rural</u>	<u>Urban</u>	<u>Rural</u>
<u>1</u> 3,260		<u>1</u> 2,161		8,000	5,600	2,400	1,680
<u>2 +</u>		<u>1</u>		9,600	6,720	2,400	1,680
<u>2 +</u>		<u>2 +</u>		9,600	6,720	3,200	2,240
<u>1</u>		<u>2 +</u>		8,000	5,600	3,200	2,240
<u>CONDITION B - Interruption of Continuous Traffic</u> <u>Satisfied</u>		<u>Not Satisfied</u> XX		Vehicles Per Day on Major Street (Total of Both Approaches)		Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)	
<u>Major Street</u>		<u>Minor Street</u>		<u>Urban</u>	<u>Rural</u>	<u>Urban</u>	<u>Rural</u>
<u>1</u> 3,260		<u>1</u> 2,161		12,000	8,400	1,200 *	850
<u>2 +</u>		<u>1</u>		14,400	10,080	1,200	850
<u>2 +</u>		<u>2 +</u>		14,400	10,080	1,600	1,120
<u>1</u>		<u>2 +</u>		12,000	8,400	1,600	1,120
<u>Combination of CONDITIONS A + B</u> <u>Satisfied</u>		<u>Not Satisfied</u> XX		2 CONDITIONS 80%		2 CONDITIONS 80%	
No one condition satisfied, but following conditions fulfilled 80% of more		A 41%				B 27%	

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Figure 4C-3. Warrant 3, Peak Hour

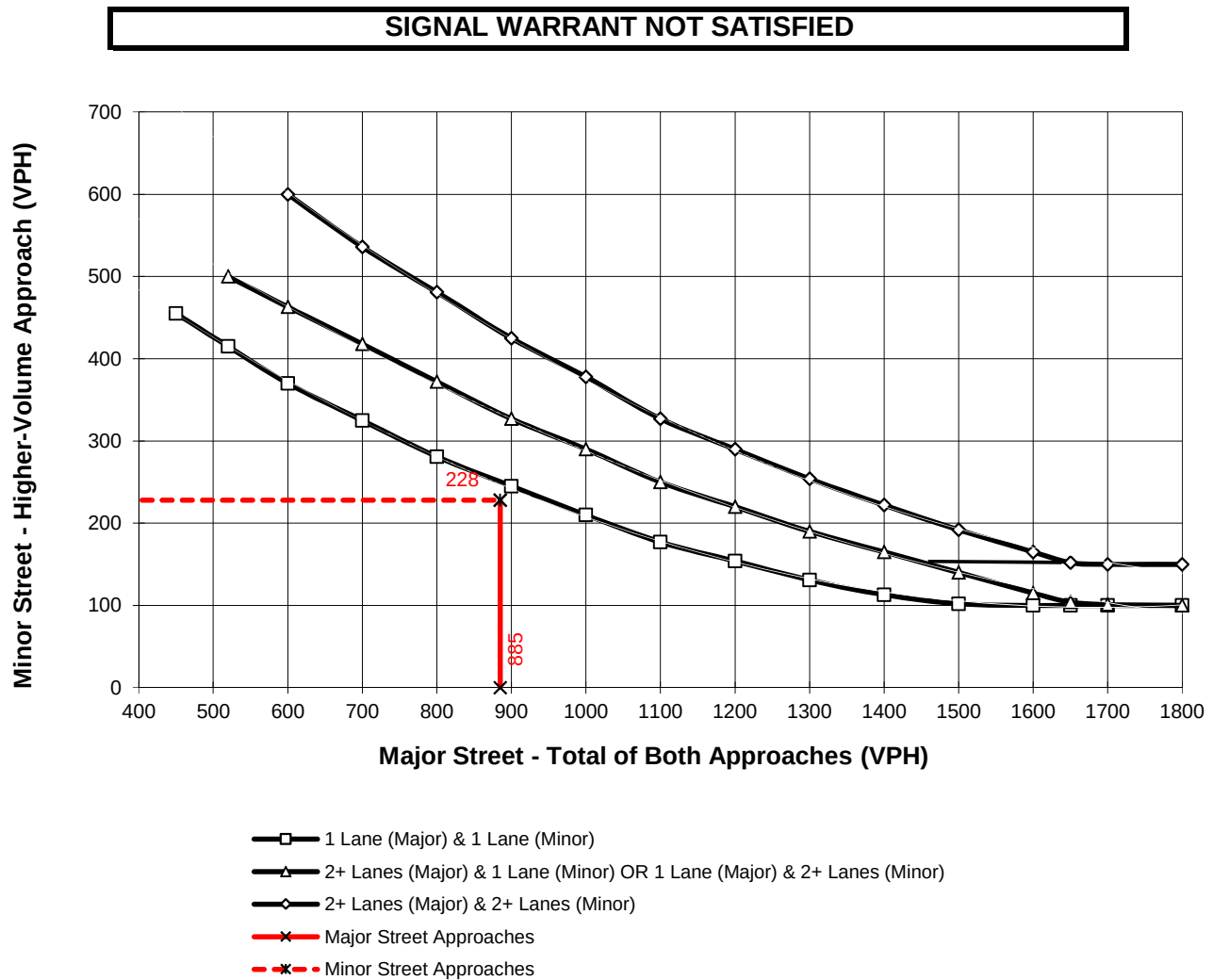
Traffic Conditions = **EAPC (2024) Conditions - Weekday AM Peak Hour**

Major Street Name = **El Toro Rd.**

Total of Both Approaches (VPH) = **885**
Number of Approach Lanes on Major Street = **1**

Minor Street Name = **Tereticornis Av.**

High Volume Approach (VPH) = **228**
Number of Approach Lanes On Minor Street = **1**



*Note: 150 vph applies as the lower threshold for a minor-street approach with two or more lanes
and 100 vph applies as the lower threshold for a minor-street approach with one lane

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APPENDIX 9.7:

EAPC (2020) CONDITIONS OFF-RAMP QUEUEING ANALYSIS WORKSHEETS

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Intersection

Intersection Delay, s/veh 21.4

Intersection LOS C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗	↖	↑						↕	
Traffic Vol, veh/h	0	275	335	65	257	0	0	0	0	173	6	82
Future Vol, veh/h	0	275	335	65	257	0	0	0	0	173	6	82
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles, %	0	3	3	25	3	0	0	0	0	8	67	13
Mvmt Flow	0	367	447	87	343	0	0	0	0	231	8	109
Number of Lanes	0	1	1	1	1	0	0	0	0	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	2
HCM Control Delay	22.1	20.3	20.9
HCM LOS	C	C	C

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	100%	0%	66%
Vol Thru, %	100%	0%	0%	100%	2%
Vol Right, %	0%	100%	0%	0%	31%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	275	335	65	257	261
LT Vol	0	0	65	0	173
Through Vol	275	0	0	257	6
RT Vol	0	335	0	0	82
Lane Flow Rate	367	447	87	343	348
Geometry Grp	7	7	7	7	2
Degree of Util (X)	0.667	0.724	0.188	0.659	0.641
Departure Headway (Hd)	6.549	5.833	7.824	6.928	6.635
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	550	616	456	517	543
Service Time	4.33	3.614	5.613	4.717	4.699
HCM Lane V/C Ratio	0.667	0.726	0.191	0.663	0.641
HCM Control Delay	21.6	22.6	12.4	22.3	20.9
HCM Lane LOS	C	C	B	C	C
HCM 95th-tile Q	4.9	6.1	0.7	4.8	4.5

Intersection												
Int Delay, s/veh	155.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	112	335	0	0	147	99	173	3	115	0	0	0
Future Vol, veh/h	112	335	0	0	147	99	173	3	115	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	230	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	62	62	62	62	62	62	62	62	62	62	62	62
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	181	540	0	0	237	160	279	5	185	0	0	0
Major/Minor	Major1		Major2			Minor1						
Conflicting Flow All	397	0	-	-	-	0	1219	1299	540			
Stage 1	-	-	-	-	-	-	902	902	-			
Stage 2	-	-	-	-	-	-	317	397	-			
Critical Hdwy	4.15	-	-	-	-	-	6.44	6.5	6.26			
Critical Hdwy Stg 1	-	-	-	-	-	-	5.44	5.5	-			
Critical Hdwy Stg 2	-	-	-	-	-	-	5.44	5.5	-			
Follow-up Hdwy	2.245	-	-	-	-	-	3.536	4	3.354			
Pot Cap-1 Maneuver	1145	-	0	0	-	-	~ 197	163	534			
Stage 1	-	-	0	0	-	-	393	359	-			
Stage 2	-	-	0	0	-	-	734	607	-			
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	1145	-	-	-	-	-	~ 166	0	534			
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 166	0	-			
Stage 1	-	-	-	-	-	-	331	0	-			
Stage 2	-	-	-	-	-	-	734	0	-			
Approach	EB		WB			NB						
HCM Control Delay, s	2.2		0			\$ 522						
HCM LOS	F											
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR							
Capacity (veh/h)	229	1145	-	-	-							
HCM Lane V/C Ratio	2.05	0.158	-	-	-							
HCM Control Delay (s)	\$ 522	8.7	-	-	-							
HCM Lane LOS	F	A	-	-	-							
HCM 95th %tile Q(veh)	35.1	0.6	-	-	-							
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s			+: Computation Not Defined				*: All major volume in platoon			

Intersection	
Intersection Delay, s/veh	51.1
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	112	335	0	0	147	99	173	3	115	0	0	0
Future Vol, veh/h	112	335	0	0	147	99	173	3	115	0	0	0
Peak Hour Factor	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	181	540	0	0	237	160	279	5	185	0	0	0
Number of Lanes	1	1	0	0	1	0	0	1	0	0	0	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	71	27.8	40.2
HCM LOS	F	D	E

Lane	NBLn1	EBLn1	EBLn2	WBLn1
Vol Left, %	59%	100%	0%	0%
Vol Thru, %	1%	0%	100%	60%
Vol Right, %	40%	0%	0%	40%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	291	112	335	246
LT Vol	173	112	0	0
Through Vol	3	0	335	147
RT Vol	115	0	0	99
Lane Flow Rate	469	181	540	397
Geometry Grp	2	7	7	5
Degree of Util (X)	0.872	0.387	1.08	0.748
Departure Headway (Hd)	6.818	7.708	7.195	6.948
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	535	470	508	524
Service Time	4.818	5.408	4.895	4.948
HCM Lane V/C Ratio	0.877	0.385	1.063	0.758
HCM Control Delay	40.2	15.2	89.7	27.8
HCM Lane LOS	E	C	F	D
HCM 95th-tile Q	9.6	1.8	17	6.4

Intersection

Intersection Delay, s/veh 20.4

Intersection LOS C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗	↖	↑						↕	
Traffic Vol, veh/h	0	288	332	30	428	0	0	0	0	88	2	182
Future Vol, veh/h	0	288	332	30	428	0	0	0	0	88	2	182
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	0	3	3	25	3	0	0	0	0	8	67	13
Mvmt Flow	0	306	353	32	455	0	0	0	0	94	2	194
Number of Lanes	0	1	1	1	1	0	0	0	0	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	2
HCM Control Delay	15.5	29.9	15.8
HCM LOS	C	D	C

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	100%	0%	32%
Vol Thru, %	100%	0%	0%	100%	1%
Vol Right, %	0%	100%	0%	0%	67%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	288	332	30	428	272
LT Vol	0	0	30	0	88
Through Vol	288	0	0	428	2
RT Vol	0	332	0	0	182
Lane Flow Rate	306	353	32	455	289
Geometry Grp	7	7	7	7	2
Degree of Util (X)	0.534	0.546	0.065	0.81	0.507
Departure Headway (Hd)	6.275	5.561	7.298	6.408	6.308
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	573	643	489	560	570
Service Time	4.046	3.332	5.072	4.181	4.378
HCM Lane V/C Ratio	0.534	0.549	0.065	0.813	0.507
HCM Control Delay	16.1	14.9	10.6	31.2	15.8
HCM Lane LOS	C	B	B	D	C
HCM 95th-tile Q	3.1	3.3	0.2	8	2.9

Intersection												
Int Delay, s/veh	45.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	178	197	0	0	125	45	334	1	39	0	0	0
Future Vol, veh/h	178	197	0	0	125	45	334	1	39	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	230	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	185	205	0	0	130	47	348	1	41	0	0	0
Major/Minor	Major1		Major2		Minor1							
Conflicting Flow All	177	0	-	-	-	0	729	752	205			
Stage 1	-	-	-	-	-	-	575	575	-			
Stage 2	-	-	-	-	-	-	154	177	-			
Critical Hdwy	4.15	-	-	-	-	-	6.44	6.5	6.26			
Critical Hdwy Stg 1	-	-	-	-	-	-	5.44	5.5	-			
Critical Hdwy Stg 2	-	-	-	-	-	-	5.44	5.5	-			
Follow-up Hdwy	2.245	-	-	-	-	-	3.536	4	3.354			
Pot Cap-1 Maneuver	1381	-	0	0	-	-	387	342	826			
Stage 1	-	-	0	0	-	-	559	506	-			
Stage 2	-	-	0	0	-	-	869	756	-			
Platoon blocked, %	-				-	-						
Mov Cap-1 Maneuver	1381	-	-	-	-	-	~ 335	0	826			
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 335	0	-			
Stage 1	-	-	-	-	-	-	484	0	-			
Stage 2	-	-	-	-	-	-	869	0	-			
Approach	EB		WB		NB							
HCM Control Delay, s	3.8		0		108.9							
HCM LOS					F							
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR							
Capacity (veh/h)	357	1381	-	-	-							
HCM Lane V/C Ratio	1.091	0.134	-	-	-							
HCM Control Delay (s)	108.9	8	-	-	-							
HCM Lane LOS	F	A	-	-	-							
HCM 95th %tile Q(veh)	14.3	0.5	-	-	-							
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s			+: Computation Not Defined				*: All major volume in platoon			

Intersection	
Intersection Delay, s/veh	13.9
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	178	197	0	0	125	45	334	1	39	0	0	0
Future Vol, veh/h	178	197	0	0	125	45	334	1	39	0	0	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	185	205	0	0	130	47	348	1	41	0	0	0
Number of Lanes	1	1	0	0	1	0	0	1	0	0	0	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	12.2	11.2	16.9
HCM LOS	B	B	C

Lane	NBLn1	EBLn1	EBLn2	WBLn1
Vol Left, %	89%	100%	0%	0%
Vol Thru, %	0%	0%	100%	74%
Vol Right, %	10%	0%	0%	26%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	374	178	197	170
LT Vol	334	178	0	0
Through Vol	1	0	197	125
RT Vol	39	0	0	45
Lane Flow Rate	390	185	205	177
Geometry Grp	2	7	7	5
Degree of Util (X)	0.605	0.337	0.344	0.286
Departure Headway (Hd)	5.593	6.54	6.032	5.809
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	647	551	597	618
Service Time	3.625	4.274	3.766	3.848
HCM Lane V/C Ratio	0.603	0.336	0.343	0.286
HCM Control Delay	16.9	12.6	11.9	11.2
HCM Lane LOS	C	B	B	B
HCM 95th-tile Q	4.1	1.5	1.5	1.2

APPENDIX 9.8:

EAPC (2021) CONDITIONS OFF-RAMP QUEUEING ANALYSIS WORKSHEETS

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Intersection

Intersection Delay, s/veh30.6

Intersection LOS D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗	↖	↑						↕	
Traffic Vol, veh/h	0	304	369	89	295	0	0	0	0	184	6	92
Future Vol, veh/h	0	304	369	89	295	0	0	0	0	184	6	92
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles, %	0	3	3	25	3	0	0	0	0	8	67	13
Mvmt Flow	0	405	492	119	393	0	0	0	0	245	8	123
Number of Lanes	0	1	1	1	1	0	0	0	0	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	2
HCM Control Delay	33.5	29	25.7
HCM LOS	D	D	D

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	100%	0%	65%
Vol Thru, %	100%	0%	0%	100%	2%
Vol Right, %	0%	100%	0%	0%	33%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	304	369	89	295	282
LT Vol	0	0	89	0	184
Through Vol	304	0	0	295	6
RT Vol	0	369	0	0	92
Lane Flow Rate	405	492	119	393	376
Geometry Grp	7	7	7	7	2
Degree of Util (X)	0.787	0.857	0.271	0.801	0.718
Departure Headway (Hd)	6.991	6.272	8.228	7.329	6.871
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	519	581	438	496	523
Service Time	4.702	3.983	5.944	5.045	4.956
HCM Lane V/C Ratio	0.78	0.847	0.272	0.792	0.719
HCM Control Delay	30.9	35.6	14	33.5	25.7
HCM Lane LOS	D	E	B	D	D
HCM 95th-tile Q	7.2	9.4	1.1	7.5	5.8

Intersection												
Int Delay, s/veh	265.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	131	356	0	0	192	123	190	3	125	0	0	0
Future Vol, veh/h	131	356	0	0	192	123	190	3	125	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	230	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	62	62	62	62	62	62	62	62	62	62	62	62
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	211	574	0	0	310	198	306	5	202	0	0	0
Major/Minor	Major1		Major2		Minor1							
Conflicting Flow All	508	0	-	-	-	0	1405	1504	574			
Stage 1	-	-	-	-	-	-	996	996	-			
Stage 2	-	-	-	-	-	-	409	508	-			
Critical Hdwy	4.15	-	-	-	-	-	6.44	6.5	6.26			
Critical Hdwy Stg 1	-	-	-	-	-	-	5.44	5.5	-			
Critical Hdwy Stg 2	-	-	-	-	-	-	5.44	5.5	-			
Follow-up Hdwy	2.245	-	-	-	-	-	3.536	4	3.354			
Pot Cap-1 Maneuver	1042	-	0	0	-	-	~ 152	123	511			
Stage 1	-	-	0	0	-	-	354	325	-			
Stage 2	-	-	0	0	-	-	666	542	-			
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	1042	-	-	-	-	-	~ 121	0	511			
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 121	0	-			
Stage 1	-	-	-	-	-	-	~ 282	0	-			
Stage 2	-	-	-	-	-	-	666	0	-			
Approach	EB		WB		NB							
HCM Control Delay, s	2.5		0		\$ 932.4							
HCM LOS	F											
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR							
Capacity (veh/h)	174	1042	-	-	-							
HCM Lane V/C Ratio	2.948	0.203	-	-	-							
HCM Control Delay (s)	\$ 932.4	9.3	-	-	-							
HCM Lane LOS	F	A	-	-	-							
HCM 95th %tile Q(veh)	46.5	0.8	-	-	-							
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s			+: Computation Not Defined				*: All major volume in platoon			

Intersection	
Intersection Delay, s/veh	85.4
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	131	356	0	0	192	123	190	3	125	0	0	0
Future Vol, veh/h	131	356	0	0	192	123	190	3	125	0	0	0
Peak Hour Factor	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	211	574	0	0	310	198	306	5	202	0	0	0
Number of Lanes	1	1	0	0	1	0	0	1	0	0	0	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	114.1	64	62.5
HCM LOS	F	F	F

Lane	NBLn1	EBLn1	EBLn2	WBLn1
Vol Left, %	60%	100%	0%	0%
Vol Thru, %	1%	0%	100%	61%
Vol Right, %	39%	0%	0%	39%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	318	131	356	315
LT Vol	190	131	0	0
Through Vol	3	0	356	192
RT Vol	125	0	0	123
Lane Flow Rate	513	211	574	508
Geometry Grp	2	7	7	5
Degree of Util (X)	0.981	0.486	1.239	0.985
Departure Headway (Hd)	7.216	8.284	7.768	7.316
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	508	437	471	498
Service Time	5.216	5.984	5.468	5.316
HCM Lane V/C Ratio	1.01	0.483	1.219	1.02
HCM Control Delay	62.5	18.6	149.2	64
HCM Lane LOS	F	C	F	F
HCM 95th-tile Q	13	2.6	23.1	13

Intersection

Intersection Delay, s/veh 34.7

Intersection LOS D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗	↖	↑						↕	
Traffic Vol, veh/h	0	330	364	46	485	0	0	0	0	115	2	207
Future Vol, veh/h	0	330	364	46	485	0	0	0	0	115	2	207
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	0	3	3	25	3	0	0	0	0	8	67	13
Mvmt Flow	0	351	387	49	516	0	0	0	0	122	2	220
Number of Lanes	0	1	1	1	1	0	0	0	0	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	2
HCM Control Delay	21.3	60.4	21.5
HCM LOS	C	F	C

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	100%	0%	35%
Vol Thru, %	100%	0%	0%	100%	1%
Vol Right, %	0%	100%	0%	0%	64%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	330	364	46	485	324
LT Vol	0	0	46	0	115
Through Vol	330	0	0	485	2
RT Vol	0	364	0	0	207
Lane Flow Rate	351	387	49	516	345
Geometry Grp	7	7	7	7	2
Degree of Util (X)	0.67	0.662	0.107	0.997	0.65
Departure Headway (Hd)	6.872	6.154	7.848	6.953	6.785
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	527	585	457	521	534
Service Time	4.621	3.902	5.592	4.696	4.785
HCM Lane V/C Ratio	0.666	0.662	0.107	0.99	0.646
HCM Control Delay	22.5	20.2	11.5	65	21.5
HCM Lane LOS	C	C	B	F	C
HCM 95th-tile Q	4.9	4.9	0.4	13.8	4.6

Intersection												
Int Delay, s/veh	115.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	198	246	0	0	155	60	376	1	64	0	0	0
Future Vol, veh/h	198	246	0	0	155	60	376	1	64	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	230	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	206	256	0	0	161	63	392	1	67	0	0	0
Major/Minor	Major1		Major2				Minor1					
Conflicting Flow All	224	0	-	-	-	0	861	892	256			
Stage 1	-	-	-	-	-	-	668	668	-			
Stage 2	-	-	-	-	-	-	193	224	-			
Critical Hdwy	4.15	-	-	-	-	-	6.44	6.5	6.26			
Critical Hdwy Stg 1	-	-	-	-	-	-	5.44	5.5	-			
Critical Hdwy Stg 2	-	-	-	-	-	-	5.44	5.5	-			
Follow-up Hdwy	2.245	-	-	-	-	-	3.536	4	3.354			
Pot Cap-1 Maneuver	1327	-	0	0	-	-	~ 323	283	773			
Stage 1	-	-	0	0	-	-	506	459	-			
Stage 2	-	-	0	0	-	-	835	722	-			
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	1327	-	-	-	-	-	~ 273	0	773			
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 273	0	-			
Stage 1	-	-	-	-	-	-	428	0	-			
Stage 2	-	-	-	-	-	-	835	0	-			
Approach	EB		WB				NB					
HCM Control Delay, s	3.7		0				284.4					
HCM LOS	F											
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR							
Capacity (veh/h)	301	1327	-	-	-							
HCM Lane V/C Ratio	1.526	0.155	-	-	-							
HCM Control Delay (s)	284.4	8.2	-	-	-							
HCM Lane LOS	F	A	-	-	-							
HCM 95th %tile Q(veh)	26.3	0.6	-	-	-							
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s			+: Computation Not Defined				*: All major volume in platoon			

Intersection	
Intersection Delay, s/veh	18.3
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	198	246	0	0	155	60	376	1	64	0	0	0
Future Vol, veh/h	198	246	0	0	155	60	376	1	64	0	0	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	206	256	0	0	161	63	392	1	67	0	0	0
Number of Lanes	1	1	0	0	1	0	0	1	0	0	0	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	14.5	13.2	24.6
HCM LOS	B	B	C

Lane	NBLn1	EBLn1	EBLn2	WBLn1
Vol Left, %	85%	100%	0%	0%
Vol Thru, %	0%	0%	100%	72%
Vol Right, %	15%	0%	0%	28%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	441	198	246	215
LT Vol	376	198	0	0
Through Vol	1	0	246	155
RT Vol	64	0	0	60
Lane Flow Rate	459	206	256	224
Geometry Grp	2	7	7	5
Degree of Util (X)	0.751	0.398	0.458	0.387
Departure Headway (Hd)	5.885	6.943	6.434	6.225
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	616	518	559	576
Service Time	3.934	4.706	4.196	4.292
HCM Lane V/C Ratio	0.745	0.398	0.458	0.389
HCM Control Delay	24.6	14.3	14.6	13.2
HCM Lane LOS	C	B	B	B
HCM 95th-tile Q	6.7	1.9	2.4	1.8

APPENDIX 9.9:

EAPC (2024) CONDITIONS OFF-RAMP QUEUEING ANALYSIS WORKSHEETS

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Intersection

Intersection Delay, s/veh 162.6

Intersection LOS F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗	↖	↑						↕	
Traffic Vol, veh/h	0	529	472	131	455	0	0	0	0	257	7	121
Future Vol, veh/h	0	529	472	131	455	0	0	0	0	257	7	121
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles, %	0	3	3	25	3	0	0	0	0	8	67	13
Mvmt Flow	0	705	629	175	607	0	0	0	0	343	9	161
Number of Lanes	0	1	1	1	1	0	0	0	0	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	2
HCM Control Delay	207.6	146.8	69.7
HCM LOS	F	F	F

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	100%	0%	67%
Vol Thru, %	100%	0%	0%	100%	2%
Vol Right, %	0%	100%	0%	0%	31%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	529	472	131	455	385
LT Vol	0	0	131	0	257
Through Vol	529	0	0	455	7
RT Vol	0	472	0	0	121
Lane Flow Rate	705	629	175	607	513
Geometry Grp	7	7	7	7	2
Degree of Util (X)	1.514	1.229	0.423	1.323	1.008
Departure Headway (Hd)	8.198	7.469	8.963	8.058	7.303
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	451	491	403	455	503
Service Time	5.898	5.169	6.663	5.758	5.303
HCM Lane V/C Ratio	1.563	1.281	0.434	1.334	1.02
HCM Control Delay	264.2	144.1	18.1	183.8	69.7
HCM Lane LOS	F	F	C	F	F
HCM 95th-tile Q	35.3	23.3	2.1	26.4	13.9

Intersection												
Int Delay, s/veh	1724.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	189	597	0	0	345	164	241	3	201	0	0	0
Future Vol, veh/h	189	597	0	0	345	164	241	3	201	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	230	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	62	62	62	62	62	62	62	62	62	62	62	62
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	305	963	0	0	556	265	389	5	324	0	0	0
Major/Minor	Major1		Major2			Minor1						
Conflicting Flow All	821	0	-	-	-	0	2262	2394	963			
Stage 1	-	-	-	-	-	-	1573	1573	-			
Stage 2	-	-	-	-	-	-	689	821	-			
Critical Hdwy	4.15	-	-	-	-	-	6.44	6.5	6.26			
Critical Hdwy Stg 1	-	-	-	-	-	-	5.44	5.5	-			
Critical Hdwy Stg 2	-	-	-	-	-	-	5.44	5.5	-			
Follow-up Hdwy	2.245	-	-	-	-	-	3.536	4	3.354			
Pot Cap-1 Maneuver	795	-	0	0	-	-	~ 44	34	~ 305			
Stage 1	-	-	0	0	-	-	~ 186	172	-			
Stage 2	-	-	0	0	-	-	495	391	-			
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	795	-	-	-	-	-	~ 27	0	~ 305			
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 27	0	-			
Stage 1	-	-	-	-	-	-	~ 115	0	-			
Stage 2	-	-	-	-	-	-	495	0	-			
Approach	EB		WB			NB						
HCM Control Delay, s	3		0			\$ 6737.2						
HCM LOS	F											
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR							
Capacity (veh/h)	46	795	-	-	-							
HCM Lane V/C Ratio	15.603	0.383	-	-	-							
HCM Control Delay (s)	\$ 6737.2	12.3	-	-	-							
HCM Lane LOS	F	B	-	-	-							
HCM 95th %tile Q(veh)	87.1	1.8	-	-	-							
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s			+: Computation Not Defined				*: All major volume in platoon			

Intersection	
Intersection Delay, s/veh	320.5
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	189	597	0	0	345	164	241	3	201	0	0	0
Future Vol, veh/h	189	597	0	0	345	164	241	3	201	0	0	0
Peak Hour Factor	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	305	963	0	0	556	265	389	5	324	0	0	0
Number of Lanes	1	1	0	0	1	0	0	1	0	0	0	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	392.1	309.9	206.1
HCM LOS	F	F	F

Lane	NBLn1	EBLn1	EBLn2	WBLn1
Vol Left, %	54%	100%	0%	0%
Vol Thru, %	1%	0%	100%	68%
Vol Right, %	45%	0%	0%	32%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	445	189	597	509
LT Vol	241	189	0	0
Through Vol	3	0	597	345
RT Vol	201	0	0	164
Lane Flow Rate	718	305	963	821
Geometry Grp	2	7	7	5
Degree of Util (X)	1.376	0.693	2.055	1.616
Departure Headway (Hd)	8.118	10.336	9.81	8.632
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	452	354	385	427
Service Time	6.118	8.036	7.51	6.632
HCM Lane V/C Ratio	1.588	0.862	2.501	1.923
HCM Control Delay	206.1	33.4	505.7	309.9
HCM Lane LOS	F	D	F	F
HCM 95th-tile Q	28.8	4.9	53.7	38.7

Intersection

Intersection Delay, s/veh 40.6

Intersection LOS F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗	↖	↑						↕	
Traffic Vol, veh/h	0	494	461	88	714	0	0	0	0	155	2	282
Future Vol, veh/h	0	494	461	88	714	0	0	0	0	155	2	282
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	0	3	3	25	3	0	0	0	0	8	67	13
Mvmt Flow	0	526	490	94	760	0	0	0	0	165	2	300
Number of Lanes	0	1	1	1	1	0	0	0	0	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	2
HCM Control Delay	73.5	273.2	44.3
HCM LOS	F	F	E

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	100%	0%	35%
Vol Thru, %	100%	0%	0%	100%	0%
Vol Right, %	0%	100%	0%	0%	64%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	494	461	88	714	439
LT Vol	0	0	88	0	155
Through Vol	494	0	0	714	2
RT Vol	0	461	0	0	282
Lane Flow Rate	526	490	94	760	467
Geometry Grp	7	7	7	7	2
Degree of Util (X)	1.084	0.916	0.221	1.612	0.878
Departure Headway (Hd)	8.173	7.444	8.725	7.821	7.563
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	447	490	414	471	481
Service Time	5.873	5.144	6.425	5.521	5.563
HCM Lane V/C Ratio	1.177	1	0.227	1.614	0.971
HCM Control Delay	95.7	49.8	13.9	305.2	44.3
HCM Lane LOS	F	E	B	F	E
HCM 95th-tile Q	15.9	10.6	0.8	41.9	9.4

Intersection												
Int Delay, s/veh	537.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	256	394	0	0	302	99	500	1	105	0	0	0
Future Vol, veh/h	256	394	0	0	302	99	500	1	105	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	230	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	267	410	0	0	315	103	521	1	109	0	0	0
Major/Minor	Major1			Major2			Minor1					
Conflicting Flow All	418	0	-	-	-	0	1311	1362	410			
Stage 1	-	-	-	-	-	-	944	944	-			
Stage 2	-	-	-	-	-	-	367	418	-			
Critical Hdwy	4.15	-	-	-	-	-	6.44	6.5	6.26			
Critical Hdwy Stg 1	-	-	-	-	-	-	5.44	5.5	-			
Critical Hdwy Stg 2	-	-	-	-	-	-	5.44	5.5	-			
Follow-up Hdwy	2.245	-	-	-	-	-	3.536	4	3.354			
Pot Cap-1 Maneuver	1125	-	0	0	-	-	~ 173	149	633			
Stage 1	-	-	0	0	-	-	~ 375	344	-			
Stage 2	-	-	0	0	-	-	696	594	-			
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	1125	-	-	-	-	-	~ 132	0	633			
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 132	0	-			
Stage 1	-	-	-	-	-	-	~ 286	0	-			
Stage 2	-	-	-	-	-	-	696	0	-			
Approach	EB			WB			NB					
HCM Control Delay, s	3.6			0			\$ 1465.5					
HCM LOS							F					
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBT	WBR							
Capacity (veh/h)	153	1125	-	-	-							
HCM Lane V/C Ratio	4.126	0.237	-	-	-							
HCM Control Delay (s)	\$ 1465.5	9.2	-	-	-							
HCM Lane LOS	F	A	-	-	-							
HCM 95th %tile Q(veh)	63.5	0.9	-	-	-							
Notes												
~: Volume exceeds capacity	\$: Delay exceeds 300s			+: Computation Not Defined			*: All major volume in platoon					

Intersection	
Intersection Delay, s/veh	72.3
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	256	394	0	0	302	99	500	1	105	0	0	0
Future Vol, veh/h	256	394	0	0	302	99	500	1	105	0	0	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles, %	5	5	0	0	11	7	4	0	6	0	0	0
Mvmt Flow	267	410	0	0	315	103	521	1	109	0	0	0
Number of Lanes	1	1	0	0	1	0	0	1	0	0	0	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	34	37.1	136.6
HCM LOS	D	E	F

Lane	NBLn1	EBLn1	EBLn2	WBLn1
Vol Left, %	83%	100%	0%	0%
Vol Thru, %	0%	0%	100%	75%
Vol Right, %	17%	0%	0%	25%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	606	256	394	401
LT Vol	500	256	0	0
Through Vol	1	0	394	302
RT Vol	105	0	0	99
Lane Flow Rate	631	267	410	418
Geometry Grp	2	7	7	5
Degree of Util (X)	1.215	0.584	0.841	0.819
Departure Headway (Hd)	6.929	8.682	8.164	7.731
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	530	419	447	472
Service Time	4.929	6.382	5.864	5.731
HCM Lane V/C Ratio	1.191	0.637	0.917	0.886
HCM Control Delay	136.6	22.9	41.2	37.1
HCM Lane LOS	F	C	E	E
HCM 95th-tile Q	23.9	3.6	8.2	7.8

APPENDIX 9.10:

EAPC (2020) CONDITIONS BASIC FREEWAY SEGMENT ANALYSIS WORKSHEETS

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HCS7 Basic Freeway Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAPC 2020
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - N of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	4902	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1846
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.77
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	65.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	28.3
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAPC 2020
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - S of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	5047	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1901
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.79
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	64.3
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	29.6
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAPC 2020
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - N of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	4288	Heavy Vehicle Adjustment Factor (f_{HV})	0.980
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1585
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.66
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	68.3
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	23.2
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAPC 2020
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - S of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	4365	Heavy Vehicle Adjustment Factor (f_{HV})	0.980
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1614
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.67
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	68.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	23.7
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAPC 2020
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - N of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	5622	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	2117
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.88
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	60.3
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	35.1
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAPC 2020
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - S of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	5714	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	2152
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.90
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	59.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	36.2
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAPC 2020
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - N of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	3330	Heavy Vehicle Adjustment Factor (f_{HV})	0.980
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1231
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.51
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	70.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	17.6
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	B
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAPC 2020
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - S of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	3480	Heavy Vehicle Adjustment Factor (f_{HV})	0.990
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1274
Total Trucks, %	1.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.53
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	69.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	18.2
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

APPENDIX 9.11:

EAPC (2021) CONDITIONS BASIC FREEWAY SEGMENT ANALYSIS WORKSHEETS

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HCS7 Basic Freeway Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAPC 2021
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - N of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	5016	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1889
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.79
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	64.5
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	29.3
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAPC 2021
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - S of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	5198	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1958
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.82
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	63.3
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	30.9
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAPC 2021
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - N of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	4413	Heavy Vehicle Adjustment Factor (f_{HV})	0.980
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1632
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.68
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	67.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	24.1
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAPC 2021
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - S of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	4474	Heavy Vehicle Adjustment Factor (f_{HV})	0.980
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1654
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.69
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	67.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	24.5
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAPC 2021
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - N of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	5780	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	2177
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.91
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	59.0
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	36.9
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAPC 2021
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - S of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	5869	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	2210
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.92
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	58.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	38.0
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAPC 2021
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - N of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	3427	Heavy Vehicle Adjustment Factor (f_{HV})	0.980
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1267
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.53
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	69.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	18.1
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAPC 2021
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - S of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	3609	Heavy Vehicle Adjustment Factor (f_{HV})	0.990
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1321
Total Trucks, %	1.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.55
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	69.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	18.9
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

APPENDIX 9.12:

EAPC (2024) CONDITIONS BASIC FREEWAY SEGMENT ANALYSIS WORKSHEETS

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HCS7 Basic Freeway Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAPC 2024
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - N of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	5409	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	2037
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.85
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	61.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	32.9
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAPC 2024
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - S of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	5634	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	2122
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.88
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	60.2
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	35.2
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAPC 2024
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - N of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	4766	Heavy Vehicle Adjustment Factor (f_{HV})	0.980
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1762
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.73
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	66.3
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	26.6
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAPC 2024
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - S of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	4853	Heavy Vehicle Adjustment Factor (f_{HV})	0.980
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1794
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.75
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	65.9
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	27.2
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	D
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAPC 2024
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - N of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	6230	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	2346
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.98
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	54.8
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	42.8
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAPC 2024
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - S of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	6342	Heavy Vehicle Adjustment Factor (f_{HV})	0.962
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	2389
Total Trucks, %	4.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	1.00
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	53.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	44.6
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	E
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAPC 2024
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - N of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	3718	Heavy Vehicle Adjustment Factor (f_{HV})	0.980
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1375
Total Trucks, %	2.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.57
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	69.6
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	19.8
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

HCS7 Basic Freeway Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAPC 2024
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - S of Nichols		

Geometric Data

Number of Lanes (N), ln	3	Terrain Type	Level
Segment Length (L), ft	-	Percent Grade, %	-
Measured or Base Free-Flow Speed	Base	Grade Length, mi	-
Base Free-Flow Speed (BFFS), mi/h	70.0	Total Ramp Density (TRD), ramps/mi	0.00
Lane Width, ft	12	Free-Flow Speed (FFS), mi/h	70.0
Right-Side Lateral Clearance, ft	10		

Adjustment Factors

Driver Population	All Familiar	Final Speed Adjustment Factor (SAF)	1.000
Weather Type	Non-Severe Weather	Final Capacity Adjustment Factor (CAF)	1.000
Incident Type	No Incident	Demand Adjustment Factor (DAF)	1.000

Demand and Capacity

Demand Volume (V), veh/h	3968	Heavy Vehicle Adjustment Factor (f_{HV})	0.990
Peak Hour Factor (PHF)	0.92	Flow Rate (v_p), pc/h/ln	1452
Total Trucks, %	1.00	Capacity (c), pc/h/ln	2400
Single-Unit Trucks (SUT), %	-	Adjusted Capacity (c_{adj}), pc/h/ln	2400
Tractor-Trailers (TT), %	-	Volume-to-Capacity Ratio (v/c)	0.61
Passenger Car Equivalent (E_T)	2.000		

Speed and Density

Lane Width Adjustment (f_{LW})	0.0	Average Speed (S), mi/h	69.3
Right-Side Lateral Clearance Adj. (f_{RLC})	0.0	Density (D), pc/mi/ln	21.0
Total Ramp Density Adjustment	0.0	Level of Service (LOS)	C
Adjusted Free-Flow Speed (FFS_{adj}), mi/h	70.0		

APPENDIX 9.13:

EAPC (2020) CONDITIONS FREEWAY MERGE/DIVERGE ANALYSIS WORKSHEETS

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HCS7 Freeway Diverge Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAPC 2020
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - Off-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Deceleration Length (L _D), ft	1500	230
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V _i), veh/h	4902	261
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	4.00	10.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.962	0.909
Flow Rate (v _i), pc/h	5539	312
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.77	0.15

Speed and Density

Upstream Equilibrium Distance (L _{EQ}), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	32.2
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (D _s)	0.326
Downstream Equilibrium Distance (L _{EQ}), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	2054
Distance to Downstream Ramp (L _{DOWN}), ft	-	Off-Ramp Influence Area Speed (S _R), mi/h	60.9
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FD})	0.607	Outer Lanes Freeway Speed (S _O), mi/h	72.7
Flow in Lanes 1 and 2 (v ₁₂), pc/h	3485	Ramp Junction Speed (S), mi/h	64.8
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	-	Average Density (D), pc/mi/ln	28.5
Level of Service (LOS)	D	7.13-1	

HCS7 Freeway Merge Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAPC 2020
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - On-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Acceleration Length (LA), ft	1500	690
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V _i), veh/h	4641	406
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	4.00	7.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.962	0.935
Flow Rate (v _i), pc/h	5244	472
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.79	0.22

Speed and Density

Upstream Equilibrium Distance (L _{EQ}), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	29.1
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (M _s)	0.402
Downstream Equilibrium Distance (L _{EQ}), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	2113
Distance to Downstream Ramp (L _{DOWN}), ft	-	On-Ramp Influence Area Speed (S _R), mi/h	58.7
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FM})	0.597	Outer Lanes Freeway Speed (S _O), mi/h	64.2
Flow in Lanes 1 and 2 (v ₁₂), pc/h	3131	Ramp Junction Speed (S), mi/h	60.6
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	3603	Average Density (D), pc/mi/ln	31.4
Level of Service (LOS)	D	7.13-2	

HCS7 Freeway Merge Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAPC 2020
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - On-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Acceleration Length (LA), ft	1500	760
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi), veh/h	4074	214
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	5.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.980	0.952
Flow Rate (vi), pc/h	4519	244
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.66	0.12

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	23.7
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (M _s)	0.327
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	1812
Distance to Downstream Ramp (L _{DOWN}), ft	-	On-Ramp Influence Area Speed (S _R), mi/h	60.8
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FM})	0.599	Outer Lanes Freeway Speed (S _O), mi/h	65.3
Flow in Lanes 1 and 2 (v ₁₂), pc/h	2707	Ramp Junction Speed (S), mi/h	62.4
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	2951	Average Density (D), pc/mi/ln	25.4
Level of Service (LOS)	C	7.13-3	

HCS7 Freeway Diverge Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAPC 2020
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - Off-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Deceleration Length (L _D), ft	1500	260
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V _i), veh/h	4365	291
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	5.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.980	0.952
Flow Rate (v _i), pc/h	4841	332
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.67	0.16

Speed and Density

Upstream Equilibrium Distance (L _{EQ}), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	29.0
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (D _s)	0.328
Downstream Equilibrium Distance (L _{EQ}), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	1695
Distance to Downstream Ramp (L _{DOWN}), ft	-	Off-Ramp Influence Area Speed (S _R), mi/h	60.8
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FD})	0.624	Outer Lanes Freeway Speed (S _O), mi/h	74.1
Flow in Lanes 1 and 2 (v ₁₂), pc/h	3146	Ramp Junction Speed (S), mi/h	64.9
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	-	Average Density (D), pc/mi/ln	24.9
Level of Service (LOS)	D	7.13-4	

HCS7 Freeway Diverge Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAPC 2020
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - Off-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Deceleration Length (L _D), ft	1500	230
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V _i), veh/h	5622	272
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	4.00	4.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.962	0.962
Flow Rate (v _i), pc/h	6352	307
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.88	0.15

Speed and Density

Upstream Equilibrium Distance (L _{EQ}), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	35.3
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (D _s)	0.326
Downstream Equilibrium Distance (L _{EQ}), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	2497
Distance to Downstream Ramp (L _{DOWN}), ft	-	Off-Ramp Influence Area Speed (S _R), mi/h	60.9
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FD})	0.587	Outer Lanes Freeway Speed (S _O), mi/h	71.0
Flow in Lanes 1 and 2 (v ₁₂), pc/h	3855	Ramp Junction Speed (S), mi/h	64.5
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	-	Average Density (D), pc/mi/ln	32.8
Level of Service (LOS)	E	7.13-5	

HCS7 Freeway Merge Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAPC 2020
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - On-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Acceleration Length (LA), ft	1500	690
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi), veh/h	5350	364
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	4.00	4.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.962	0.962
Flow Rate (vi), pc/h	6045	411
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.90	0.20

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	32.4
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (M _s)	0.476
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	2436
Distance to Downstream Ramp (L _{DOWN}), ft	-	On-Ramp Influence Area Speed (S _R), mi/h	56.7
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FM})	0.597	Outer Lanes Freeway Speed (S _O), mi/h	62.7
Flow in Lanes 1 and 2 (v ₁₂), pc/h	3609	Ramp Junction Speed (S), mi/h	58.8
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	4020	Average Density (D), pc/mi/ln	36.6
Level of Service (LOS)	D	7.13-6	

HCS7 Freeway Merge Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAPC 2020
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - On-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Acceleration Length (LA), ft	1500	760
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi), veh/h	3106	224
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	13.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.980	0.885
Flow Rate (vi), pc/h	3445	275
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.52	0.13

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	18.9
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (M _s)	0.293
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	1381
Distance to Downstream Ramp (L _{DOWN}), ft	-	On-Ramp Influence Area Speed (S _R), mi/h	61.8
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FM})	0.599	Outer Lanes Freeway Speed (S _O), mi/h	66.8
Flow in Lanes 1 and 2 (v ₁₂), pc/h	2064	Ramp Junction Speed (S), mi/h	63.6
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	2339	Average Density (D), pc/mi/ln	19.5
Level of Service (LOS)	B	7.13-7	

HCS7 Freeway Diverge Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAPC 2020
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - Off-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Deceleration Length (L _D), ft	1500	260
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V _i), veh/h	3480	374
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	1.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.990	0.990
Flow Rate (v _i), pc/h	3821	411
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.53	0.20

Speed and Density

Upstream Equilibrium Distance (L _{EQ}), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	24.4
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (D _s)	0.335
Downstream Equilibrium Distance (L _{EQ}), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	1207
Distance to Downstream Ramp (L _{DOWN}), ft	-	Off-Ramp Influence Area Speed (S _R), mi/h	60.6
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FD})	0.646	Outer Lanes Freeway Speed (S _O), mi/h	76.0
Flow in Lanes 1 and 2 (v ₁₂), pc/h	2614	Ramp Junction Speed (S), mi/h	64.7
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	-	Average Density (D), pc/mi/ln	19.7
Level of Service (LOS)	C	7.13-8	

APPENDIX 9.14:

EAPC (2021) CONDITIONS FREEWAY MERGE/DIVERGE ANALYSIS WORKSHEETS

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HCS7 Freeway Diverge Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAPC 2021
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - Off-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Deceleration Length (L _D), ft	1500	230
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V _i), veh/h	5016	282
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	4.00	9.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.962	0.917
Flow Rate (v _i), pc/h	5668	334
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.79	0.16

Speed and Density

Upstream Equilibrium Distance (L _{EQ}), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	32.7
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (D _s)	0.328
Downstream Equilibrium Distance (L _{EQ}), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	2118
Distance to Downstream Ramp (L _{DOWN}), ft	-	Off-Ramp Influence Area Speed (S _R), mi/h	60.8
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FD})	0.603	Outer Lanes Freeway Speed (S _O), mi/h	72.4
Flow in Lanes 1 and 2 (v ₁₂), pc/h	3550	Ramp Junction Speed (S), mi/h	64.7
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	-	Average Density (D), pc/mi/ln	29.2
Level of Service (LOS)	D	7.14-1	

HCS7 Freeway Merge Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAPC 2021
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - On-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Acceleration Length (LA), ft	1500	690
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi), veh/h	4734	464
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	4.00	6.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (fHV)	0.962	0.943
Flow Rate (vi), pc/h	5349	535
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.82	0.25

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (DR), pc/mi/ln	30.1
Distance to Upstream Ramp (LUP), ft	-	Speed Index (Ms)	0.421
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (VOA), pc/h/ln	2156
Distance to Downstream Ramp (LDOWN), ft	-	On-Ramp Influence Area Speed (SR), mi/h	58.2
Prop. Freeway Vehicles in Lane 1 and 2 (PFM)	0.597	Outer Lanes Freeway Speed (So), mi/h	64.0
Flow in Lanes 1 and 2 (v12), pc/h	3193	Ramp Junction Speed (S), mi/h	60.2
Flow Entering Ramp-Infl. Area (VR12), pc/h	3728	Average Density (D), pc/mi/ln	32.6
Level of Service (LOS)	D	7.14-2	

HCS7 Freeway Merge Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAPC 2021
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - On-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Acceleration Length (LA), ft	1500	760
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V _i), veh/h	4155	258
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	4.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.980	0.962
Flow Rate (v _i), pc/h	4608	292
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.68	0.14

Speed and Density

Upstream Equilibrium Distance (L _{EQ}), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	24.5
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (M _s)	0.335
Downstream Equilibrium Distance (L _{EQ}), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	1848
Distance to Downstream Ramp (L _{DOWN}), ft	-	On-Ramp Influence Area Speed (S _R), mi/h	60.6
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FM})	0.599	Outer Lanes Freeway Speed (S _O), mi/h	65.1
Flow in Lanes 1 and 2 (v ₁₂), pc/h	2760	Ramp Junction Speed (S), mi/h	62.2
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	3052	Average Density (D), pc/mi/ln	26.3
Level of Service (LOS)	C	7.14-3	

HCS7 Freeway Diverge Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAPC 2021
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - Off-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Deceleration Length (L _D), ft	1500	260
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V _i), veh/h	4474	319
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	4.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.980	0.962
Flow Rate (v _i), pc/h	4962	360
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.69	0.17

Speed and Density

Upstream Equilibrium Distance (L _{EQ}), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	29.5
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (D _s)	0.330
Downstream Equilibrium Distance (L _{EQ}), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	1753
Distance to Downstream Ramp (L _{DOWN}), ft	-	Off-Ramp Influence Area Speed (S _R), mi/h	60.8
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FD})	0.619	Outer Lanes Freeway Speed (S _O), mi/h	73.9
Flow in Lanes 1 and 2 (v ₁₂), pc/h	3209	Ramp Junction Speed (S), mi/h	64.9
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	-	Average Density (D), pc/mi/ln	25.5
Level of Service (LOS)	D	7.14-4	

HCS7 Freeway Diverge Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAPC 2021
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - Off-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Deceleration Length (L _D), ft	1500	230
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V _i), veh/h	5780	324
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	4.00	3.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.962	0.971
Flow Rate (v _i), pc/h	6531	363
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.91	0.17

Speed and Density

Upstream Equilibrium Distance (L _{EQ}), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	36.1
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (D _s)	0.331
Downstream Equilibrium Distance (L _{EQ}), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	2591
Distance to Downstream Ramp (L _{DOWN}), ft	-	Off-Ramp Influence Area Speed (S _R), mi/h	60.7
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FD})	0.580	Outer Lanes Freeway Speed (S _O), mi/h	70.6
Flow in Lanes 1 and 2 (v ₁₂), pc/h	3940	Ramp Junction Speed (S), mi/h	64.3
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	-	Average Density (D), pc/mi/ln	33.9
Level of Service (LOS)	E	7.14-5	

HCS7 Freeway Merge Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAPC 2021
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - On-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Acceleration Length (LA), ft	1500	690
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi), veh/h	5457	412
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	4.00	4.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.962	0.962
Flow Rate (vi), pc/h	6166	466
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.92	0.22

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	33.4
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (M _s)	0.506
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	2485
Distance to Downstream Ramp (L _{DOWN}), ft	-	On-Ramp Influence Area Speed (S _R), mi/h	55.8
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FM})	0.597	Outer Lanes Freeway Speed (S _O), mi/h	62.4
Flow in Lanes 1 and 2 (v ₁₂), pc/h	3681	Ramp Junction Speed (S), mi/h	58.1
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	4147	Average Density (D), pc/mi/ln	38.0
Level of Service (LOS)	D	7.14-6	

HCS7 Freeway Merge Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAPC 2021
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - On-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Acceleration Length (LA), ft	1500	760
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi), veh/h	3168	259
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	11.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.980	0.901
Flow Rate (vi), pc/h	3514	312
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.53	0.15

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	19.5
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (M _s)	0.296
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	1409
Distance to Downstream Ramp (L _{DOWN}), ft	-	On-Ramp Influence Area Speed (S _R), mi/h	61.7
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FM})	0.599	Outer Lanes Freeway Speed (S _O), mi/h	66.7
Flow in Lanes 1 and 2 (v ₁₂), pc/h	2105	Ramp Junction Speed (S), mi/h	63.5
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	2417	Average Density (D), pc/mi/ln	20.1
Level of Service (LOS)	B	7.14-7	

HCS7 Freeway Diverge Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAPC 2021
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - Off-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Deceleration Length (L _D), ft	1500	260
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V _i), veh/h	3609	441
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	1.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.990	0.990
Flow Rate (v _i), pc/h	3962	484
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.55	0.23

Speed and Density

Upstream Equilibrium Distance (L _{EQ}), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	25.2
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (D _s)	0.342
Downstream Equilibrium Distance (L _{EQ}), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	1256
Distance to Downstream Ramp (L _{DOWN}), ft	-	Off-Ramp Influence Area Speed (S _R), mi/h	60.4
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FD})	0.639	Outer Lanes Freeway Speed (S _O), mi/h	75.8
Flow in Lanes 1 and 2 (v ₁₂), pc/h	2706	Ramp Junction Speed (S), mi/h	64.6
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	-	Average Density (D), pc/mi/ln	20.4
Level of Service (LOS)	C	7.14-8	

APPENDIX 9.15:

EAPC (2024) CONDITIONS FREEWAY MERGE/DIVERGE ANALYSIS WORKSHEETS

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HCS7 Freeway Diverge Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAPC 2024
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - Off-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Deceleration Length (L _D), ft	1500	230
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V _i), veh/h	5409	385
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	4.00	7.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.962	0.935
Flow Rate (v _i), pc/h	6112	448
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.85	0.21

Speed and Density

Upstream Equilibrium Distance (L _{EQ}), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	34.6
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (D _s)	0.338
Downstream Equilibrium Distance (L _{EQ}), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	2339
Distance to Downstream Ramp (L _{DOWN}), ft	-	Off-Ramp Influence Area Speed (S _R), mi/h	60.5
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FD})	0.587	Outer Lanes Freeway Speed (S _O), mi/h	71.6
Flow in Lanes 1 and 2 (v ₁₂), pc/h	3773	Ramp Junction Speed (S), mi/h	64.3
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	-	Average Density (D), pc/mi/ln	31.7
Level of Service (LOS)	D	7.15-1	

HCS7 Freeway Merge Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAPC 2024
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - On-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Acceleration Length (LA), ft	1500	690
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V_i), veh/h	5024	610
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	4.00	5.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f_{HV})	0.962	0.952
Flow Rate (v_i), pc/h	5677	696
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.89	0.33

Speed and Density

Upstream Equilibrium Distance (L_{EQ}), ft	-	Density in Ramp Influence Area (D_R), pc/mi/ln	32.8
Distance to Upstream Ramp (L_{UP}), ft	-	Speed Index (M_s)	0.491
Downstream Equilibrium Distance (L_{EQ}), ft	-	Flow Outer Lanes (v_{OA}), pc/h/ln	2288
Distance to Downstream Ramp (L_{DOWN}), ft	-	On-Ramp Influence Area Speed (S_R), mi/h	56.3
Prop. Freeway Vehicles in Lane 1 and 2 (P_{FM})	0.597	Outer Lanes Freeway Speed (S_o), mi/h	63.6
Flow in Lanes 1 and 2 (v_{12}), pc/h	3389	Ramp Junction Speed (S), mi/h	58.7
Flow Entering Ramp-Infl. Area (v_{R12}), pc/h	4085	Average Density (D), pc/mi/ln	36.2
Level of Service (LOS)	D	7.15-2	

HCS7 Freeway Merge Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAPC 2024
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - On-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Acceleration Length (LA), ft	1500	760
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi), veh/h	4409	357
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	3.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.980	0.971
Flow Rate (vi), pc/h	4890	400
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.73	0.19

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	26.6
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (M _s)	0.361
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	1961
Distance to Downstream Ramp (L _{DOWN}), ft	-	On-Ramp Influence Area Speed (S _R), mi/h	59.9
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FM})	0.599	Outer Lanes Freeway Speed (S _O), mi/h	64.7
Flow in Lanes 1 and 2 (v ₁₂), pc/h	2929	Ramp Junction Speed (S), mi/h	61.6
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	3329	Average Density (D), pc/mi/ln	28.6
Level of Service (LOS)	C	7.15-3	

HCS7 Freeway Diverge Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAPC 2024
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	AM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - Off-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Deceleration Length (L _D), ft	1500	260
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V _i), veh/h	4854	445
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	2.00	3.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.980	0.971
Flow Rate (v _i), pc/h	5384	498
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.75	0.24

Speed and Density

Upstream Equilibrium Distance (L _{EQ}), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	31.5
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (D _s)	0.343
Downstream Equilibrium Distance (L _{EQ}), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	1945
Distance to Downstream Ramp (L _{DOWN}), ft	-	Off-Ramp Influence Area Speed (S _R), mi/h	60.4
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FD})	0.602	Outer Lanes Freeway Speed (S _O), mi/h	73.1
Flow in Lanes 1 and 2 (v ₁₂), pc/h	3439	Ramp Junction Speed (S), mi/h	64.4
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	-	Average Density (D), pc/mi/ln	27.9
Level of Service (LOS)	D	7.15-4	

HCS7 Freeway Diverge Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAPC 2024
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - Off-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Deceleration Length (L _D), ft	1500	230
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V _i), veh/h	6230	439
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	4.00	2.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.962	0.980
Flow Rate (v _i), pc/h	7039	487
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.98	0.23

Speed and Density

Upstream Equilibrium Distance (L _{EQ}), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	39.5
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (D _s)	0.342
Downstream Equilibrium Distance (L _{EQ}), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	2700
Distance to Downstream Ramp (L _{DOWN}), ft	-	Off-Ramp Influence Area Speed (S _R), mi/h	60.4
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FD})	0.562	Outer Lanes Freeway Speed (S _O), mi/h	70.2
Flow in Lanes 1 and 2 (v ₁₂), pc/h	4339	Ramp Junction Speed (S), mi/h	63.8
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	-	Average Density (D), pc/mi/ln	36.8
Level of Service (LOS)	E	7.15-5	

HCS7 Freeway Merge Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAPC 2024
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 SB - On-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Acceleration Length (LA), ft	1500	690
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi), veh/h	5791	551
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	4.00	3.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.962	0.971
Flow Rate (vi), pc/h	6543	617
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.99	0.29

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	36.2
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (M _s)	0.618
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	2637
Distance to Downstream Ramp (L _{DOWN}), ft	-	On-Ramp Influence Area Speed (S _R), mi/h	52.7
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FM})	0.597	Outer Lanes Freeway Speed (S _O), mi/h	61.4
Flow in Lanes 1 and 2 (v ₁₂), pc/h	3906	Ramp Junction Speed (S), mi/h	55.6
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	4523	Average Density (D), pc/mi/ln	42.9
Level of Service (LOS)	E	7.15-6	

HCS7 Freeway Merge Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAPC 2024
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - On-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Acceleration Length (LA), ft	1500	760
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (Vi), veh/h	3362	356
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	1.00	8.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.990	0.926
Flow Rate (vi), pc/h	3691	418
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.57	0.20

Speed and Density

Upstream Equilibrium Distance (LEQ), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	21.1
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (M _s)	0.307
Downstream Equilibrium Distance (LEQ), ft	-	Flow Outer Lanes (v _{OA}), pc/h/ln	1480
Distance to Downstream Ramp (L _{DOWN}), ft	-	On-Ramp Influence Area Speed (S _R), mi/h	61.4
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FM})	0.599	Outer Lanes Freeway Speed (S _O), mi/h	66.5
Flow in Lanes 1 and 2 (v ₁₂), pc/h	2211	Ramp Junction Speed (S), mi/h	63.1
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	2629	Average Density (D), pc/mi/ln	21.7
Level of Service (LOS)	C	7.15-7	

HCS7 Freeway Diverge Report

Project Information

Analyst	CP	Date	5/8/2018
Agency	Urban Crossroads, Inc.	Analysis Year	EAPC 2024
Jurisdiction	Urban Crossroads, Inc.	Time Period Analyzed	PM Peak Hour
Project Description	Nichols Ranch (JN:10878) - I-15 NB - Off-Ramp at Nichols		

Geometric Data

	Freeway	Ramp
Number of Lanes (N)	3	1
Free-Flow Speed (FFS), mi/h	70.0	45.0
Segment Length (L) / Deceleration Length (L _D), ft	1500	260
Terrain Type	Level	Level
Percent Grade, %	-	-
Segment Type / Ramp Side	Freeway	Right

Adjustment Factors

Driver Population	All Familiar	All Familiar
Weather Type	Non-Severe Weather	Non-Severe Weather
Incident Type	No Incident	-
Final Speed Adjustment Factor (SAF)	1.000	1.000
Final Capacity Adjustment Factor (CAF)	1.000	1.000
Demand Adjustment Factor (DAF)	1.000	1.000

Demand and Capacity

Demand Volume (V _i), veh/h	3968	696
Peak Hour Factor (PHF)	0.92	0.92
Total Trucks, %	1.00	1.00
Single-Unit Trucks (SUT), %	-	-
Tractor-Trailers (TT), %	-	-
Heavy Vehicle Adjustment Factor (f _{HV})	0.990	0.990
Flow Rate (v _i), pc/h	4357	764
Capacity (c), pc/h	7200	2100
Volume-to-Capacity Ratio (v/c)	0.61	0.36

Speed and Density

Upstream Equilibrium Distance (L _{EQ}), ft	-	Density in Ramp Influence Area (D _R), pc/mi/ln	27.5
Distance to Upstream Ramp (L _{UP}), ft	-	Speed Index (D _s)	0.367
Downstream Equilibrium Distance (L _{EQ}), ft	-	Flow Outer Lanes (V _{OA}), pc/h/ln	1380
Distance to Downstream Ramp (L _{DOWN}), ft	-	Off-Ramp Influence Area Speed (S _R), mi/h	59.7
Prop. Freeway Vehicles in Lane 1 and 2 (P _{FD})	0.616	Outer Lanes Freeway Speed (S _O), mi/h	75.3
Flow in Lanes 1 and 2 (v ₁₂), pc/h	2977	Ramp Junction Speed (S), mi/h	63.9
Flow Entering Ramp-Infl. Area (v _{R12}), pc/h	-	Average Density (D), pc/mi/ln	22.7
Level of Service (LOS)	C	7.15-8	

APPENDIX 9.16:

**EAPC (2020) CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS
WITH IMPROVEMENTS**

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Timings

S. Nichols Mixed-Use Development (JN 10878)

1: Lake St. & Nichols Rd.

06/28/2018

									
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	86	89	193	48	38	719	383	19	289
Future Volume (vph)	86	89	193	48	38	719	383	19	289
Turn Type	Prot	NA	Prot	NA	Prot	NA	Perm	Prot	NA
Protected Phases	7	4	3	8	5	2		1	6
Permitted Phases							2		
Detector Phase	7	4	3	8	5	2	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	9.5	14.6	9.5	16.2	9.6	16.2	16.2	9.6	16.2
Total Split (s)	16.1	21.0	34.0	38.9	13.0	53.8	53.8	11.2	52.0
Total Split (%)	13.4%	17.5%	28.3%	32.4%	10.8%	44.8%	44.8%	9.3%	43.3%
Yellow Time (s)	3.5	3.6	3.5	5.2	3.6	5.2	5.2	3.6	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.6	4.5	6.2	4.6	6.2	6.2	4.6	6.2
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	None	Max
Act Effect Green (s)	9.7	12.6	17.1	21.0	6.7	50.3	50.3	5.7	47.4
Actuated g/C Ratio	0.10	0.13	0.17	0.21	0.07	0.51	0.51	0.06	0.48
v/c Ratio	0.53	0.57	0.68	0.24	0.34	0.43	0.43	0.20	0.21
Control Delay	57.3	48.6	51.6	25.6	56.2	18.7	6.7	54.2	18.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.3	48.6	51.6	25.6	56.2	18.7	6.7	54.2	18.1
LOS	E	D	D	C	E	B	A	D	B
Approach Delay		52.1		43.4		15.9			20.1
Approach LOS		D		D		B			C

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 99.5

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.68

Intersection Signal Delay: 24.4

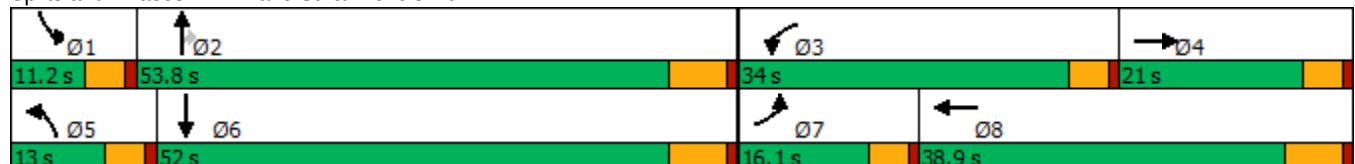
Intersection LOS: C

Intersection Capacity Utilization 59.7%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 1: Lake St. & Nichols Rd.



HCM 6th Signalized Intersection Summary

1: Lake St. & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

06/28/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	86	89	36	193	48	40	38	719	383	19	289	40
Future Volume (veh/h)	86	89	36	193	48	40	38	719	383	19	289	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	92	96	39	208	52	31	41	773	0	20	311	43
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	118	134	54	248	197	117	62	1794		39	1543	211
Arrive On Green	0.07	0.11	0.11	0.14	0.18	0.18	0.03	0.50	0.00	0.02	0.49	0.49
Sat Flow, veh/h	1781	1264	514	1781	1098	655	1781	3554	1585	1781	3140	430
Grp Volume(v), veh/h	92	0	135	208	0	83	41	773	0	20	175	179
Grp Sat Flow(s),veh/h/ln	1781	0	1778	1781	0	1753	1781	1777	1585	1781	1777	1793
Q Serve(g_s), s	4.8	0.0	6.9	10.7	0.0	3.8	2.1	13.0	0.0	1.0	5.2	5.3
Cycle Q Clear(g_c), s	4.8	0.0	6.9	10.7	0.0	3.8	2.1	13.0	0.0	1.0	5.2	5.3
Prop In Lane	1.00		0.29	1.00		0.37	1.00		1.00	1.00		0.24
Lane Grp Cap(c), veh/h	118	0	189	248	0	314	62	1794		39	873	881
V/C Ratio(X)	0.78	0.00	0.72	0.84	0.00	0.26	0.66	0.43		0.52	0.20	0.20
Avail Cap(c_a), veh/h	219	0	309	557	0	608	159	1794		125	873	881
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.3	0.0	40.8	39.5	0.0	33.3	44.9	14.8	0.0	45.6	13.5	13.5
Incr Delay (d2), s/veh	10.5	0.0	5.0	7.3	0.0	0.4	4.4	0.8	0.0	4.0	0.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	0.0	3.3	4.9	0.0	1.6	1.0	4.7	0.0	0.5	2.0	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.8	0.0	45.8	46.9	0.0	33.8	49.3	15.5	0.0	49.6	14.0	14.1
LnGrp LOS	D	A	D	D	A	C	D	B		D	B	B
Approach Vol, veh/h		227			291			814	A		374	
Approach Delay, s/veh		49.0			43.1			17.2			15.9	
Approach LOS		D			D			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.6	53.8	17.6	16.2	7.9	52.5	10.8	23.1				
Change Period (Y+Rc), s	4.6	6.2	4.5	* 6.2	4.6	6.2	4.5	6.2				
Max Green Setting (Gmax), s	6.6	47.6	29.5	* 16	8.4	45.8	11.6	32.7				
Max Q Clear Time (g_c+I1), s	3.0	15.0	12.7	8.9	4.1	7.3	6.8	5.8				
Green Ext Time (p_c), s	0.0	7.7	0.5	0.4	0.0	2.8	0.1	0.3				
Intersection Summary												
HCM 6th Ctrl Delay			25.6									
HCM 6th LOS			C									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.												

Timings

S. Nichols Mixed-Use Development (JN 10878)

5: Strickland Av./Gunnerson St. & Riverside Dr. (SR-74)

06/28/2018



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	→	↰	→	↰	→	↰	↰	→	↰
Traffic Volume (vph)	1	892	3	673	1	2	13	50	3	6
Future Volume (vph)	1	892	3	673	1	2	13	50	3	6
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		8		2			6	
Permitted Phases	4		8		2		2	6		6
Detector Phase	4	4	8	8	2	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	93.0	93.0	93.0	93.0	27.0	27.0	27.0	27.0	27.0	27.0
Total Split (%)	77.5%	77.5%	77.5%	77.5%	22.5%	22.5%	22.5%	22.5%	22.5%	22.5%
Yellow Time (s)	4.4	4.4	4.4	4.4	3.6	3.6	3.6	4.4	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	5.4	5.4	5.4	5.4		4.6	4.6		5.4	5.4
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	None	None	None	None	Min	Min	Min	Min	Min	Min
Act Effect Green (s)	34.1	34.1	34.1	34.1		12.4	12.4		11.6	11.6
Actuated g/C Ratio	0.60	0.60	0.60	0.60		0.22	0.22		0.20	0.20
v/c Ratio	0.00	0.83	0.02	0.66		0.01	0.04		0.20	0.02
Control Delay	4.0	16.5	4.7	10.5		23.7	8.4		25.5	2.3
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	4.0	16.5	4.7	10.5		23.7	8.4		25.5	2.3
LOS	A	B	A	B		C	A		C	A
Approach Delay		16.5		10.5		11.3			23.2	
Approach LOS		B		B		B			C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 57.1

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 14.2

Intersection LOS: B

Intersection Capacity Utilization 76.7%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 5: Strickland Av./Gunnerson St. & Riverside Dr. (SR-74)



													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (veh/h)	1	892	4	3	673	38	1	2	13	50	3	6	
Future Volume (veh/h)	1	892	4	3	673	38	1	2	13	50	3	6	
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach	No			No			No			No			
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	
Adj Flow Rate, veh/h	1	920	4	3	694	39	1	2	0	52	3	0	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2	
Cap, veh/h	383	1115	5	264	1051	59	163	267		393	19		
Arrive On Green	0.60	0.60	0.60	0.60	0.60	0.60	0.19	0.19	0.00	0.19	0.19	0.00	
Sat Flow, veh/h	724	1861	8	605	1754	99	367	1384	1585	1340	99	1585	
Grp Volume(v), veh/h	1	0	924	3	0	733	3	0	0	55	0	0	
Grp Sat Flow(s),veh/h/ln	724	0	1869	605	0	1853	1752	0	1585	1439	0	1585	
Q Serve(g_s), s	0.0	0.0	20.3	0.2	0.0	13.6	0.0	0.0	0.0	1.5	0.0	0.0	
Cycle Q Clear(g_c), s	13.7	0.0	20.3	20.5	0.0	13.6	0.1	0.0	0.0	1.6	0.0	0.0	
Prop In Lane	1.00		0.00	1.00		0.05	0.33		1.00	0.95		1.00	
Lane Grp Cap(c), veh/h	383	0	1120	264	0	1111	430	0		412	0		
V/C Ratio(X)	0.00	0.00	0.82	0.01	0.00	0.66	0.01	0.00		0.13	0.00		
Avail Cap(c_a), veh/h	1170	0	3153	922	0	3125	833	0		732	0		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00	
Uniform Delay (d), s/veh	11.4	0.0	8.2	16.4	0.0	6.9	17.0	0.0	0.0	17.6	0.0	0.0	
Incr Delay (d2), s/veh	0.0	0.0	1.6	0.0	0.0	0.7	0.0	0.0	0.0	0.1	0.0	0.0	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	0.0	0.0	5.0	0.0	0.0	3.2	0.0	0.0	0.0	0.5	0.0	0.0	
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	11.4	0.0	9.8	16.4	0.0	7.6	17.0	0.0	0.0	17.7	0.0	0.0	
LnGrp LOS	B	A	A	B	A	A	B	A		B	A		
Approach Vol, veh/h	925			736				3		A		55	A
Approach Delay, s/veh	9.8			7.6				17.0				17.7	
Approach LOS	A			A				B				B	
Timer - Assigned Phs	2			4			6		8				
Phs Duration (G+Y+Rc), s	15.4			36.5			15.4		36.5				
Change Period (Y+Rc), s	* 5.4			5.4			5.4		5.4				
Max Green Setting (Gmax), s	* 22			87.6			21.6		87.6				
Max Q Clear Time (g_c+I1), s	2.1			22.3			3.6		22.5				
Green Ext Time (p_c), s	0.0			8.8			0.2		5.9				

Intersection Summary

HCM 6th Ctrl Delay	9.1
HCM 6th LOS	A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection

Intersection Delay, s/veh 31.7

Intersection LOS D

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	511	51	101	237	48	97
Future Vol, veh/h	511	51	101	237	48	97
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	587	59	116	272	55	111
Number of Lanes	1	0	1	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	2	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	2
HCM Control Delay	48.7	12.3	10.9
HCM LOS	E	B	B

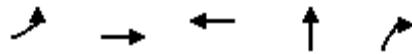
Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2
Vol Left, %	100%	0%	0%	100%	0%
Vol Thru, %	0%	0%	91%	0%	100%
Vol Right, %	0%	100%	9%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	48	97	562	101	237
LT Vol	48	0	0	101	0
Through Vol	0	0	511	0	237
RT Vol	0	97	51	0	0
Lane Flow Rate	55	111	646	116	272
Geometry Grp	7	7	4	7	7
Degree of Util (X)	0.117	0.198	0.961	0.204	0.44
Departure Headway (Hd)	7.619	6.394	5.358	6.316	5.809
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	471	561	678	569	621
Service Time	5.364	4.138	3.385	4.048	3.541
HCM Lane V/C Ratio	0.117	0.198	0.953	0.204	0.438
HCM Control Delay	11.4	10.7	48.7	10.7	13
HCM Lane LOS	B	B	E	B	B
HCM 95th-tile Q	0.4	0.7	14	0.8	2.2

Timings

S. Nichols Mixed-Use Development (JN 10878)

10: I-15 NB Ramps & Nichols Rd.

06/28/2018



Lane Group	EBL	EBT	WBT	NBT	NBR
Lane Configurations					
Traffic Volume (vph)	112	335	147	3	115
Future Volume (vph)	112	335	147	3	115
Turn Type	Prot	NA	NA	NA	Perm
Protected Phases	7	4	8	2	
Permitted Phases					2
Detector Phase	7	4	8	2	2
Switch Phase					
Minimum Initial (s)	5.0	10.0	10.0	10.0	10.0
Minimum Split (s)	10.8	22.5	23.8	23.8	23.8
Total Split (s)	22.7	69.9	47.2	50.1	50.1
Total Split (%)	18.9%	58.3%	39.3%	41.8%	41.8%
Yellow Time (s)	4.8	3.5	4.8	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	4.5	5.8	5.8	5.8
Lead/Lag	Lead		Lag		
Lead-Lag Optimize?	Yes		Yes		
Recall Mode	None	None	None	Min	Min
Act Effect Green (s)	13.7	43.5	22.3	17.6	17.6
Actuated g/C Ratio	0.19	0.60	0.31	0.24	0.24
v/c Ratio	0.56	0.49	0.75	0.67	0.37
Control Delay	37.1	10.4	31.3	34.7	6.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	37.1	10.4	31.3	34.7	6.6
LOS	D	B	C	C	A
Approach Delay		17.1	31.3	23.6	
Approach LOS		B	C	C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 72

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.75

Intersection Signal Delay: 22.6

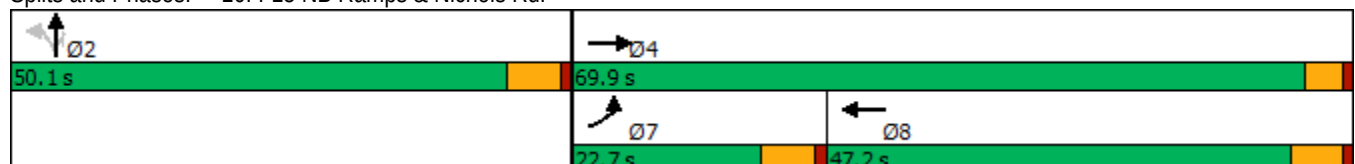
Intersection LOS: C

Intersection Capacity Utilization 49.3%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 10: I-15 NB Ramps & Nichols Rd.



HCM 6th Signalized Intersection Summary
10: I-15 NB Ramps & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

06/28/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	112	335	0	0	147	99	173	3	115	0	0	0
Future Volume (veh/h)	112	335	0	0	147	99	173	3	115	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1826	1826	0	0	1737	1737	1811	1900	1811			
Adj Flow Rate, veh/h	181	540	0	0	237	160	279	5	185			
Peak Hour Factor	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62			
Percent Heavy Veh, %	5	5	0	0	11	11	6	0	6			
Cap, veh/h	234	1022	0	0	300	203	376	7	317			
Arrive On Green	0.13	0.56	0.00	0.00	0.31	0.31	0.21	0.21	0.21			
Sat Flow, veh/h	1739	1826	0	0	967	653	1779	32	1501			
Grp Volume(v), veh/h	181	540	0	0	0	397	284	0	185			
Grp Sat Flow(s),veh/h/ln	1739	1826	0	0	0	1619	1811	0	1501			
Q Serve(g_s), s	5.1	9.4	0.0	0.0	0.0	11.3	7.4	0.0	5.6			
Cycle Q Clear(g_c), s	5.1	9.4	0.0	0.0	0.0	11.3	7.4	0.0	5.6			
Prop In Lane	1.00		0.00	0.00		0.40	0.98		1.00			
Lane Grp Cap(c), veh/h	234	1022	0	0	0	503	382	0	317			
V/C Ratio(X)	0.77	0.53	0.00	0.00	0.00	0.79	0.74	0.00	0.58			
Avail Cap(c_a), veh/h	580	2356	0	0	0	1323	1583	0	1312			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	0.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	21.2	7.0	0.0	0.0	0.0	15.9	18.7	0.0	18.0			
Incr Delay (d2), s/veh	5.4	0.4	0.0	0.0	0.0	2.8	1.1	0.0	0.6			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	2.1	2.2	0.0	0.0	0.0	3.6	2.7	0.0	1.6			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.5	7.4	0.0	0.0	0.0	18.7	19.8	0.0	18.6			
LnGrp LOS	C	A	A	A	A	B	B	A	B			
Approach Vol, veh/h	721					397		469				
Approach Delay, s/veh	12.2					18.7		19.3				
Approach LOS	B					B		B				
Timer - Assigned Phs	2		4			7		8				
Phs Duration (G+Y+Rc), s	16.5		34.2			12.6		21.6				
Change Period (Y+Rc), s	5.8		* 5.8			5.8		5.8				
Max Green Setting (Gmax), s	44.3		* 65			16.9		41.4				
Max Q Clear Time (g_c+l1), s	9.4		11.4			7.1		13.3				
Green Ext Time (p_c), s	1.3		3.5			0.3		2.4				
Intersection Summary												
HCM 6th Ctrl Delay	15.9											
HCM 6th LOS	B											
Notes												

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection

Intersection Delay, s/veh	50.1
Intersection LOS	F

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	173	24	192	68	19	433
Future Vol, veh/h	173	24	192	68	19	433
Peak Hour Factor	0.66	0.66	0.66	0.66	0.66	0.66
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	262	36	291	103	29	656
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	18.2	19	81.8
HCM LOS	C	C	F

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	88%	4%
Vol Thru, %	74%	0%	96%
Vol Right, %	26%	12%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	260	197	452
LT Vol	0	173	19
Through Vol	192	0	433
RT Vol	68	24	0
Lane Flow Rate	394	298	685
Geometry Grp	1	1	1
Degree of Util (X)	0.637	0.554	1.078
Departure Headway (Hd)	6.019	6.92	5.669
Convergence, Y/N	Yes	Yes	Yes
Cap	603	525	637
Service Time	4.019	4.92	3.717
HCM Lane V/C Ratio	0.653	0.568	1.075
HCM Control Delay	19	18.2	81.8
HCM Lane LOS	C	C	F
HCM 95th-tile Q	4.5	3.3	19.3

Intersection	
Intersection Delay, s/veh	15
Intersection LOS	B

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	173	24	192	68	19	433
Future Vol, veh/h	173	24	192	68	19	433
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	188	26	209	74	21	471
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	12.2	11.5	18.3
HCM LOS	B	B	C

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	88%	4%
Vol Thru, %	74%	0%	96%
Vol Right, %	26%	12%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	260	197	452
LT Vol	0	173	19
Through Vol	192	0	433
RT Vol	68	24	0
Lane Flow Rate	283	214	491
Geometry Grp	1	1	1
Degree of Util (X)	0.401	0.353	0.687
Departure Headway (Hd)	5.112	5.933	5.033
Convergence, Y/N	Yes	Yes	Yes
Cap	704	606	722
Service Time	3.147	3.975	3.033
HCM Lane V/C Ratio	0.402	0.353	0.68
HCM Control Delay	11.5	12.2	18.3
HCM Lane LOS	B	B	C
HCM 95th-tile Q	1.9	1.6	5.5

Intersection

Intersection Delay, s/veh 73.2

Intersection LOS F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	↕
Traffic Vol, veh/h	134	0	274	6	0	16	173	110	6	8	361	237
Future Vol, veh/h	134	0	274	6	0	16	173	110	6	8	361	237
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	194	0	397	9	0	23	251	159	9	12	523	343
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	1
Conflicting Approach Left SB		NB	EB	WB
Conflicting Lanes Left	2	1	1	1
Conflicting Approach Right NB		SB	WB	EB
Conflicting Lanes Right	1	2	1	1
HCM Control Delay	93.7	13.2	43.6	75.7
HCM LOS	F	B	E	F

Lane	NBLn1	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	60%	33%	27%	2%	0%
Vol Thru, %	38%	0%	0%	98%	0%
Vol Right, %	2%	67%	73%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	289	408	22	369	237
LT Vol	173	134	6	8	0
Through Vol	110	0	0	361	0
RT Vol	6	274	16	0	237
Lane Flow Rate	419	591	32	535	343
Geometry Grp	5	2	2	7	7
Degree of Util (X)	0.864	1.096	0.078	1.128	0.656
Departure Headway (Hd)	7.904	6.897	9.435	8.028	7.293
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	461	532	382	455	498
Service Time	5.904	4.897	7.435	5.728	4.993
HCM Lane V/C Ratio	0.909	1.111	0.084	1.176	0.689
HCM Control Delay	43.6	93.7	13.2	109.6	22.8
HCM Lane LOS	E	F	B	F	C
HCM 95th-tile Q	8.9	18.1	0.3	17.8	4.7

Intersection	
Intersection Delay, s/veh	22.2
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	↕
Traffic Vol, veh/h	134	0	274	6	0	16	173	110	6	8	361	237
Future Vol, veh/h	134	0	274	6	0	16	173	110	6	8	361	237
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	146	0	298	7	0	17	188	120	7	9	392	258
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	1	1
HCM Control Delay	25.9	10.9	18.9	21.7
HCM LOS	D	B	C	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	60%	33%	27%	2%	0%
Vol Thru, %	38%	0%	0%	98%	0%
Vol Right, %	2%	67%	73%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	289	408	22	369	237
LT Vol	173	134	6	8	0
Through Vol	110	0	0	361	0
RT Vol	6	274	16	0	237
Lane Flow Rate	314	443	24	401	258
Geometry Grp	5	2	2	7	7
Degree of Util (X)	0.586	0.758	0.049	0.75	0.43
Departure Headway (Hd)	6.714	6.156	7.428	6.733	6.007
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	537	590	481	537	598
Service Time	4.761	4.156	5.496	4.479	3.752
HCM Lane V/C Ratio	0.585	0.751	0.05	0.747	0.431
HCM Control Delay	18.9	25.9	10.9	27.1	13.2
HCM Lane LOS	C	D	B	D	B
HCM 95th-tile Q	3.7	6.8	0.2	6.5	2.2

Timings
19: Dexter Av. & Central Av. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

06/29/2018

	→	↘	←	↙	↗	↖
Lane Group	EBT	EBR	WBT	WBR	NBR	SBR
Lane Configurations	↑↑↑	↗	↑↑↑	↗	↗	↗
Traffic Volume (vph)	974	139	1516	202	91	390
Future Volume (vph)	974	139	1516	202	91	390
Turn Type	NA	Perm	NA	Perm	Perm	Perm
Protected Phases	4		8			
Permitted Phases		4		8	2	6
Detector Phase	4	4	8	8	2	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	26.8	26.8	26.8	26.8	42.4	15.8
Total Split (s)	70.0	70.0	70.0	70.0	50.0	50.0
Total Split (%)	58.3%	58.3%	58.3%	58.3%	41.7%	41.7%
Yellow Time (s)	4.8	4.8	4.8	4.8	4.4	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.8	5.8	5.8	5.4	5.8
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	None	None	Max	Max
Act Effct Green (s)	40.4	40.4	40.4	40.4	44.9	44.5
Actuated g/C Ratio	0.42	0.42	0.42	0.42	0.46	0.46
v/c Ratio	0.50	0.20	0.62	0.28	0.13	0.58
Control Delay	21.2	3.2	22.8	3.1	7.1	23.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.2	3.2	22.8	3.1	7.1	23.6
LOS	C	A	C	A	A	C
Approach Delay	18.9		20.5			
Approach LOS	B		C			
Intersection Summary						
Cycle Length: 120						
Actuated Cycle Length: 96.6						
Natural Cycle: 70						
Control Type: Actuated-Uncoordinated						
Maximum v/c Ratio: 0.62						
Intersection Signal Delay: 20.0				Intersection LOS: B		
Intersection Capacity Utilization 62.1%				ICU Level of Service B		
Analysis Period (min) 15						

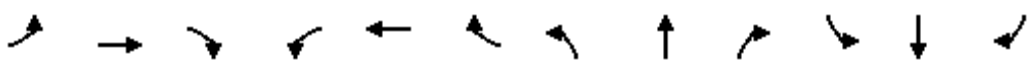
Splits and Phases: 19: Dexter Av. & Central Av. (SR-74)

↑ Ø2	→ Ø4
50 s	70 s
↓ Ø6	← Ø8
50 s	70 s

HCM 6th Signalized Intersection Summary
19: Dexter Av. & Central Av. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

06/29/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↗		↑↑↑	↗		↑	↗		↑	↗
Traffic Volume (veh/h)	0	974	139	0	1516	202	0	0	91	0	0	390
Future Volume (veh/h)	0	974	139	0	1516	202	0	0	91	0	0	390
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870	0	1870	1870	0	1870	1870
Adj Flow Rate, veh/h	0	1070	110	0	1666	180	0	0	59	0	0	373
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	2	2	0	2	2	0	2	2	0	2	2
Cap, veh/h	0	2105	653	0	2652	645	0	872	739	0	872	739
Arrive On Green	0.00	0.41	0.41	0.00	0.41	0.41	0.00	0.00	0.47	0.00	0.00	0.47
Sat Flow, veh/h	0	5274	1585	0	6696	1565	0	1870	1584	0	1870	1585
Grp Volume(v), veh/h	0	1070	110	0	1666	180	0	0	59	0	0	373
Grp Sat Flow(s),veh/h/ln	0	1702	1585	0	1609	1565	0	1870	1584	0	1870	1585
Q Serve(g_s), s	0.0	14.9	4.2	0.0	19.6	7.3	0.0	0.0	2.0	0.0	0.0	15.7
Cycle Q Clear(g_c), s	0.0	14.9	4.2	0.0	19.6	7.3	0.0	0.0	2.0	0.0	0.0	15.7
Prop In Lane	0.00		1.00	0.00		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	0	2105	653	0	2652	645	0	872	739	0	872	739
V/C Ratio(X)	0.00	0.51	0.17	0.00	0.63	0.28	0.00	0.00	0.08	0.00	0.00	0.50
Avail Cap(c_a), veh/h	0	3428	1064	0	4320	1051	0	872	739	0	872	739
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	20.9	17.7	0.0	22.3	18.7	0.0	0.0	14.1	0.0	0.0	17.8
Incr Delay (d2), s/veh	0.0	0.2	0.1	0.0	0.2	0.2	0.0	0.0	0.2	0.0	0.0	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	5.5	1.4	0.0	6.8	2.5	0.0	0.0	0.7	0.0	0.0	5.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	21.1	17.9	0.0	22.5	18.9	0.0	0.0	14.3	0.0	0.0	20.2
LnGrp LOS	A	C	B	A	C	B	A	A	B	A	A	C
Approach Vol, veh/h	1180			1846			59			373		
Approach Delay, s/veh	20.8			22.2			14.3			20.2		
Approach LOS	C			C			B			C		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	50.4			45.2			50.4			45.2		
Change Period (Y+Rc), s	* 5.8			5.8			5.8			5.8		
Max Green Setting (Gmax), s	* 45			64.2			44.2			64.2		
Max Q Clear Time (g_c+I1), s	4.0			16.9			17.7			21.6		
Green Ext Time (p_c), s	0.2			9.2			1.3			17.8		

Intersection Summary

HCM 6th Ctrl Delay	21.4
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Timings
19: Dexter Av. & Central Av. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

10/22/2018

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	239	974	139	126	1516	202	112	263	75	149	390
Future Volume (vph)	239	974	139	126	1516	202	112	263	75	149	390
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2	1	6	7
Permitted Phases			4			8					6
Detector Phase	7	4	4	3	8	8	5	2	1	6	7
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0	5.0
Minimum Split (s)	9.5	26.8	26.8	9.5	26.8	26.8	9.5	42.4	9.5	15.8	9.5
Total Split (s)	18.0	40.0	40.0	19.0	41.0	41.0	20.3	47.0	14.0	40.7	18.0
Total Split (%)	15.0%	33.3%	33.3%	15.8%	34.2%	34.2%	16.9%	39.2%	11.7%	33.9%	15.0%
Yellow Time (s)	3.5	4.8	4.8	3.5	4.8	4.8	3.5	4.4	3.5	4.8	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	5.8	5.8	4.5	5.8	5.8	4.5	5.4	4.5	5.8	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	None	Max	None
Act Effect Green (s)	12.6	34.9	34.9	12.9	35.2	35.2	12.9	43.0	8.8	36.2	54.6
Actuated g/C Ratio	0.11	0.30	0.30	0.11	0.30	0.30	0.11	0.37	0.07	0.31	0.46
v/c Ratio	0.71	0.71	0.27	0.72	0.87	0.36	0.64	0.59	0.62	0.29	0.54
Control Delay	62.5	40.4	6.3	71.3	45.2	6.6	65.4	34.3	73.7	33.4	19.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.5	40.4	6.3	71.3	45.2	6.6	65.4	34.3	73.7	33.4	19.7
LOS	E	D	A	E	D	A	E	C	E	C	B
Approach Delay		40.8			42.8			41.8		29.6	
Approach LOS		D			D			D		C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 117.5

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 40.2

Intersection LOS: D

Intersection Capacity Utilization 80.6%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 19: Dexter Av. & Central Av. (SR-74)

			
14 s	47 s	19 s	40 s
			
20.3 s	40.7 s	18 s	41 s

HCM 6th Signalized Intersection Summary
19: Dexter Av. & Central Av. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

10/22/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	239	974	139	126	1516	202	112	263	91	75	149	390
Future Volume (veh/h)	239	974	139	126	1516	202	112	263	91	75	149	390
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	263	1070	110	138	1666	180	123	289	59	82	164	373
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	326	1536	477	166	1930	469	151	551	113	104	635	688
Arrive On Green	0.09	0.30	0.30	0.09	0.30	0.30	0.08	0.37	0.37	0.06	0.34	0.34
Sat Flow, veh/h	3456	5106	1585	1781	6434	1565	1781	1507	308	1781	1870	1585
Grp Volume(v), veh/h	263	1070	110	138	1666	180	123	0	348	82	164	373
Grp Sat Flow(s),veh/h/ln	1728	1702	1585	1781	1609	1565	1781	0	1815	1781	1870	1585
Q Serve(g_s), s	8.5	21.1	5.9	8.7	27.8	10.3	7.7	0.0	17.1	5.2	7.2	19.8
Cycle Q Clear(g_c), s	8.5	21.1	5.9	8.7	27.8	10.3	7.7	0.0	17.1	5.2	7.2	19.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.17	1.00		1.00
Lane Grp Cap(c), veh/h	326	1536	477	166	1930	469	151	0	664	104	635	688
V/C Ratio(X)	0.81	0.70	0.23	0.83	0.86	0.38	0.81	0.00	0.52	0.79	0.26	0.54
Avail Cap(c_a), veh/h	410	1536	477	227	1992	485	248	0	664	149	635	688
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.5	35.1	29.9	50.6	37.6	31.5	51.1	0.0	28.3	52.8	27.2	23.8
Incr Delay (d2), s/veh	9.1	1.4	0.2	16.6	4.1	0.5	10.0	0.0	2.9	16.1	1.0	3.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.0	8.5	2.2	4.5	11.0	3.8	3.8	0.0	7.7	2.7	3.3	7.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.5	36.5	30.1	67.2	41.7	32.0	61.2	0.0	31.2	68.9	28.2	26.9
LnGrp LOS	E	D	C	E	D	C	E	A	C	E	C	C
Approach Vol, veh/h	1443			1984			471			619		
Approach Delay, s/veh	40.2			42.6			39.0			32.8		
Approach LOS	D			D			D			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.2	47.4	15.1	40.0	14.1	44.4	15.2	39.9				
Change Period (Y+Rc), s	4.5	* 5.8	4.5	5.8	4.5	5.8	4.5	5.8				
Max Green Setting (Gmax), s	9.5	* 42	14.5	34.2	15.8	34.9	13.5	35.2				
Max Q Clear Time (g_c+I1), s	7.2	19.1	10.7	23.1	9.7	21.8	10.5	29.8				
Green Ext Time (p_c), s	0.0	1.9	0.1	5.3	0.1	1.8	0.3	4.3				

Intersection Summary

HCM 6th Ctrl Delay	40.1
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Timings
1: Lake St. & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

06/28/2018

										
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	70	89	263	109	53	388	188	32	899	92
Future Volume (vph)	70	89	263	109	53	388	188	32	899	92
Turn Type	Prot	NA	Prot	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	3	8	5	2		1	6	
Permitted Phases							2			6
Detector Phase	7	4	3	8	5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.5	14.6	9.5	16.2	9.6	16.2	16.2	9.6	16.2	16.2
Total Split (s)	16.1	21.0	34.0	38.9	13.0	53.8	53.8	11.2	52.0	52.0
Total Split (%)	13.4%	17.5%	28.3%	32.4%	10.8%	44.8%	44.8%	9.3%	43.3%	43.3%
Yellow Time (s)	3.5	3.6	3.5	5.2	3.6	5.2	5.2	3.6	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.6	4.5	6.2	4.6	6.2	6.2	4.6	6.2	6.2
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	None	Max	Max
Act Effect Green (s)	9.4	13.4	21.8	26.8	7.2	50.2	50.2	6.0	47.0	47.0
Actuated g/C Ratio	0.09	0.12	0.20	0.25	0.07	0.47	0.47	0.06	0.44	0.44
v/c Ratio	0.48	0.65	0.79	0.30	0.48	0.25	0.24	0.34	0.62	0.14
Control Delay	60.3	53.8	57.3	34.6	65.6	20.1	3.9	62.4	27.8	22.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.3	53.8	57.3	34.6	65.6	20.1	3.9	62.4	27.8	22.5
LOS	E	D	E	C	E	C	A	E	C	C
Approach Delay		55.9		49.8		19.1			28.4	
Approach LOS		E		D		B			C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 107.2

Natural Cycle: 70

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.79

Intersection Signal Delay: 32.1

Intersection LOS: C

Intersection Capacity Utilization 68.5%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 1: Lake St. & Nichols Rd.

			
Ø1	Ø2	Ø3	Ø4
11.2 s	53.8 s	34 s	21 s
			
Ø5	Ø6	Ø7	Ø8
13 s	52 s	16.1 s	38.9 s

HCM 6th Signalized Intersection Summary
1: Lake St. & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

06/28/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	89	55	263	109	20	53	388	188	32	899	92
Future Volume (veh/h)	70	89	55	263	109	20	53	388	188	32	899	92
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	75	96	59	283	117	10	57	417	0	34	967	99
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	97	119	73	321	400	34	73	1664		54	1625	725
Arrive On Green	0.05	0.11	0.11	0.18	0.24	0.24	0.04	0.47	0.00	0.03	0.46	0.46
Sat Flow, veh/h	1781	1084	666	1781	1699	145	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	75	0	155	283	0	127	57	417	0	34	967	99
Grp Sat Flow(s),veh/h/ln	1781	0	1750	1781	0	1844	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	4.2	0.0	8.8	15.7	0.0	5.7	3.2	7.2	0.0	1.9	20.6	3.7
Cycle Q Clear(g_c), s	4.2	0.0	8.8	15.7	0.0	5.7	3.2	7.2	0.0	1.9	20.6	3.7
Prop In Lane	1.00		0.38	1.00		0.08	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	97	0	192	321	0	435	73	1664		54	1625	725
V/C Ratio(X)	0.77	0.00	0.81	0.88	0.00	0.29	0.78	0.25		0.63	0.60	0.14
Avail Cap(c_a), veh/h	203	0	282	517	0	593	147	1664		116	1625	725
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.5	0.0	44.2	40.6	0.0	31.9	48.3	16.3	0.0	48.7	20.6	16.0
Incr Delay (d2), s/veh	12.3	0.0	10.3	10.1	0.0	0.4	6.4	0.4	0.0	4.4	1.6	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	0.0	4.4	7.4	0.0	2.5	1.5	2.7	0.0	0.9	8.0	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.7	0.0	54.5	50.7	0.0	32.3	54.7	16.7	0.0	53.1	22.2	16.4
LnGrp LOS	E	A	D	D	A	C	D	B		D	C	B
Approach Vol, veh/h		230			410			474	A		1100	
Approach Delay, s/veh		56.2			45.0			21.2			22.6	
Approach LOS		E			D			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.7	53.8	22.8	17.4	8.8	52.7	10.0	30.2				
Change Period (Y+Rc), s	4.6	6.2	4.5	* 6.2	4.6	6.2	4.5	6.2				
Max Green Setting (Gmax), s	6.6	47.6	29.5	* 16	8.4	45.8	11.6	32.7				
Max Q Clear Time (g_c+I1), s	3.9	9.2	17.7	10.8	5.2	22.6	6.2	7.7				
Green Ext Time (p_c), s	0.0	3.8	0.6	0.4	0.0	9.5	0.1	0.5				
Intersection Summary												
HCM 6th Ctrl Delay			30.0									
HCM 6th LOS			C									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.												

Timings

S. Nichols Mixed-Use Development (JN 10878)

5: Strickland Av./Gunnerson St. & Riverside Dr. (SR-74)

06/28/2018



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱	↰	↱		↱	↱		↱	↱
Traffic Volume (vph)	3	905	9	932	1	0	8	31	1	3
Future Volume (vph)	3	905	9	932	1	0	8	31	1	3
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		8		2			6	
Permitted Phases	4		8		2		2	6		6
Detector Phase	4	4	8	8	2	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	93.0	93.0	93.0	93.0	27.0	27.0	27.0	27.0	27.0	27.0
Total Split (%)	77.5%	77.5%	77.5%	77.5%	22.5%	22.5%	22.5%	22.5%	22.5%	22.5%
Yellow Time (s)	4.4	4.4	4.4	4.4	3.6	3.6	3.6	4.4	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	5.4	5.4	5.4	5.4		4.6	4.6		5.4	5.4
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	None	None	None	None	Min	Min	Min	Min	Min	Min
Act Effect Green (s)	47.8	47.8	47.8	47.8		12.7	12.7		11.8	11.8
Actuated g/C Ratio	0.67	0.67	0.67	0.67		0.18	0.18		0.17	0.17
v/c Ratio	0.02	0.75	0.04	0.88		0.00	0.03		0.14	0.01
Control Delay	3.7	11.5	3.8	18.3		35.0	4.8		35.1	0.0
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	3.7	11.5	3.8	18.3		35.0	4.8		35.1	0.0
LOS	A	B	A	B		C	A		D	A
Approach Delay		11.5		18.2		8.1			32.1	
Approach LOS		B		B		A			C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 71.4

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 15.4

Intersection LOS: B

Intersection Capacity Utilization 86.0%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 5: Strickland Av./Gunnerson St. & Riverside Dr. (SR-74)



												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	905	5	9	932	122	1	0	8	31	1	3
Future Volume (veh/h)	3	905	5	9	932	122	1	0	8	31	1	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	3	933	5	9	961	126	1	0	0	32	1	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	226	1273	7	328	1109	145	331	0		316	8	
Arrive On Green	0.68	0.68	0.68	0.68	0.68	0.68	0.15	0.00	0.00	0.15	0.15	0.00
Sat Flow, veh/h	519	1859	10	597	1620	212	1464	0	1585	1376	55	1585
Grp Volume(v), veh/h	3	0	938	9	0	1087	1	0	0	33	0	0
Grp Sat Flow(s),veh/h/ln	519	0	1869	597	0	1832	1464	0	1585	1431	0	1585
Q Serve(g_s), s	0.3	0.0	21.0	0.6	0.0	30.3	0.0	0.0	0.0	1.2	0.0	0.0
Cycle Q Clear(g_c), s	30.6	0.0	21.0	21.6	0.0	30.3	0.0	0.0	0.0	1.3	0.0	0.0
Prop In Lane	1.00		0.01	1.00		0.12	1.00		1.00	0.97		1.00
Lane Grp Cap(c), veh/h	226	0	1279	328	0	1255	331	0		324	0	
V/C Ratio(X)	0.01	0.00	0.73	0.03	0.00	0.87	0.00	0.00		0.10	0.00	
Avail Cap(c_a), veh/h	559	0	2481	712	0	2433	597	0		575	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	19.9	0.0	6.6	13.4	0.0	8.1	23.8	0.0	0.0	24.3	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.8	0.0	0.0	1.9	0.0	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	4.9	0.1	0.0	7.3	0.0	0.0	0.0	0.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.0	0.0	7.4	13.5	0.0	10.0	23.8	0.0	0.0	24.4	0.0	0.0
LnGrp LOS	B	A	A	B	A	B	C	A		C	A	
Approach Vol, veh/h	941			1096			1			A	33	A
Approach Delay, s/veh	7.5			10.0			23.8			24.4		
Approach LOS	A			B			C			C		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	15.4			50.6			15.4			50.6		
Change Period (Y+Rc), s	* 5.4			5.4			5.4			5.4		
Max Green Setting (Gmax), s	* 22			87.6			21.6			87.6		
Max Q Clear Time (g_c+I1), s	2.0			32.6			3.3			32.3		
Green Ext Time (p_c), s	0.0			9.0			0.1			12.8		

Intersection Summary

HCM 6th Ctrl Delay	9.1
HCM 6th LOS	A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection

Intersection Delay, s/veh 23.4

Intersection LOS C

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	281	75	235	376	105	269
Future Vol, veh/h	281	75	235	376	105	269
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	323	86	270	432	121	309
Number of Lanes	1	0	1	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	2	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	2
HCM Control Delay	26.1	25.8	16.8
HCM LOS	D	D	C

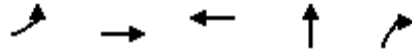
Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2
Vol Left, %	100%	0%	0%	100%	0%
Vol Thru, %	0%	0%	79%	0%	100%
Vol Right, %	0%	100%	21%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	105	269	356	235	376
LT Vol	105	0	0	235	0
Through Vol	0	0	281	0	376
RT Vol	0	269	75	0	0
Lane Flow Rate	121	309	409	270	432
Geometry Grp	7	7	4	7	7
Degree of Util (X)	0.264	0.572	0.741	0.536	0.796
Departure Headway (Hd)	7.887	6.659	6.517	7.142	6.631
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	454	538	552	502	545
Service Time	5.664	4.435	4.588	4.923	4.412
HCM Lane V/C Ratio	0.267	0.574	0.741	0.538	0.793
HCM Control Delay	13.5	18.1	26.1	18	30.7
HCM Lane LOS	B	C	D	C	D
HCM 95th-tile Q	1	3.6	6.3	3.1	7.5

Timings

S. Nichols Mixed-Use Development (JN 10878)

10: I-15 NB Ramps & Nichols Rd.

06/28/2018

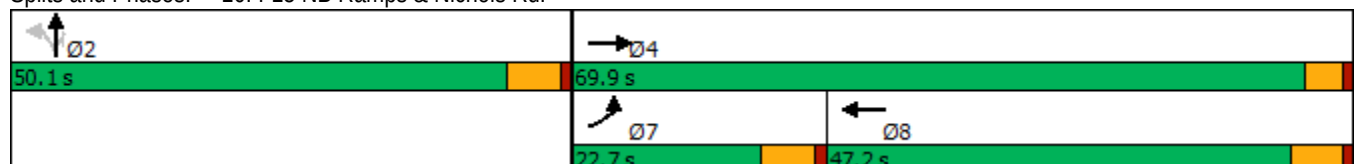


Lane Group	EBL	EBT	WBT	NBT	NBR
Lane Configurations					
Traffic Volume (vph)	178	197	125	1	39
Future Volume (vph)	178	197	125	1	39
Turn Type	Prot	NA	NA	NA	Perm
Protected Phases	7	4	8	2	
Permitted Phases					2
Detector Phase	7	4	8	2	2
Switch Phase					
Minimum Initial (s)	5.0	10.0	10.0	10.0	10.0
Minimum Split (s)	10.8	22.5	23.8	23.8	23.8
Total Split (s)	22.7	69.9	47.2	50.1	50.1
Total Split (%)	18.9%	58.3%	39.3%	41.8%	41.8%
Yellow Time (s)	4.8	3.5	4.8	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	4.5	5.8	5.8	5.8
Lead/Lag	Lead		Lag		
Lead-Lag Optimize?	Yes		Yes		
Recall Mode	None	None	None	Min	Min
Act Effect Green (s)	17.4	44.3	19.6	31.5	31.5
Actuated g/C Ratio	0.20	0.51	0.23	0.36	0.36
v/c Ratio	0.83	0.34	0.71	0.85	0.11
Control Delay	58.5	15.1	40.4	39.7	3.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	58.5	15.1	40.4	39.7	3.7
LOS	E	B	D	D	A
Approach Delay		35.7	40.4	36.0	
Approach LOS		D	D	D	

Intersection Summary

Cycle Length: 120	
Actuated Cycle Length: 86.5	
Natural Cycle: 80	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.85	
Intersection Signal Delay: 36.7	Intersection LOS: D
Intersection Capacity Utilization 52.2%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 10: I-15 NB Ramps & Nichols Rd.



HCM 6th Signalized Intersection Summary
10: I-15 NB Ramps & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

06/28/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	178	197	0	0	125	45	334	1	39	0	0	0
Future Volume (veh/h)	178	197	0	0	125	45	334	1	39	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1826	1826	0	0	1737	1737	1811	1900	1811			
Adj Flow Rate, veh/h	287	318	0	0	202	73	539	2	63			
Peak Hour Factor	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62			
Percent Heavy Veh, %	5	5	0	0	11	11	6	0	6			
Cap, veh/h	335	890	0	0	255	92	616	2	513			
Arrive On Green	0.19	0.49	0.00	0.00	0.21	0.21	0.34	0.34	0.34			
Sat Flow, veh/h	1739	1826	0	0	1218	440	1803	7	1502			
Grp Volume(v), veh/h	287	318	0	0	0	275	541	0	63			
Grp Sat Flow(s),veh/h/ln	1739	1826	0	0	0	1658	1810	0	1502			
Q Serve(g_s), s	10.8	7.3	0.0	0.0	0.0	10.7	19.1	0.0	2.0			
Cycle Q Clear(g_c), s	10.8	7.3	0.0	0.0	0.0	10.7	19.1	0.0	2.0			
Prop In Lane	1.00		0.00	0.00		0.27	1.00		1.00			
Lane Grp Cap(c), veh/h	335	890	0	0	0	347	618	0	513			
V/C Ratio(X)	0.86	0.36	0.00	0.00	0.00	0.79	0.88	0.00	0.12			
Avail Cap(c_a), veh/h	433	1760	0	0	0	1012	1182	0	981			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	0.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	26.5	10.8	0.0	0.0	0.0	25.4	21.0	0.0	15.4			
Incr Delay (d2), s/veh	12.6	0.2	0.0	0.0	0.0	4.1	1.6	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	5.2	2.4	0.0	0.0	0.0	4.1	7.1	0.0	0.6			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.0	11.0	0.0	0.0	0.0	29.5	22.6	0.0	15.4			
LnGrp LOS	D	B	A	A	A	C	C	A	B			
Approach Vol, veh/h	605			275			604					
Approach Delay, s/veh	24.3			29.5			21.8					
Approach LOS	C			C			C					
Timer - Assigned Phs	2			4			7			8		
Phs Duration (G+Y+Rc), s	29.0			38.9			18.9			20.0		
Change Period (Y+Rc), s	5.8			* 5.8			5.8			5.8		
Max Green Setting (Gmax), s	44.3			* 65			16.9			41.4		
Max Q Clear Time (g_c+I1), s	21.1			9.3			12.8			12.7		
Green Ext Time (p_c), s	2.1			1.8			0.3			1.5		
Intersection Summary												
HCM 6th Ctrl Delay			24.3									
HCM 6th LOS			C									
Notes												

Intersection	
Intersection Delay, s/veh	9.5
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	13	18	135	26	50	159
Future Vol, veh/h	13	18	135	26	50	159
Peak Hour Factor	0.66	0.66	0.66	0.66	0.66	0.66
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	20	27	205	39	76	241
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	8.2	9	10
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	42%	24%
Vol Thru, %	84%	0%	76%
Vol Right, %	16%	58%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	161	31	209
LT Vol	0	13	50
Through Vol	135	0	159
RT Vol	26	18	0
Lane Flow Rate	244	47	317
Geometry Grp	1	1	1
Degree of Util (X)	0.29	0.064	0.383
Departure Headway (Hd)	4.276	4.876	4.358
Convergence, Y/N	Yes	Yes	Yes
Cap	842	735	830
Service Time	2.292	2.906	2.358
HCM Lane V/C Ratio	0.29	0.064	0.382
HCM Control Delay	9	8.2	10
HCM Lane LOS	A	A	A
HCM 95th-tile Q	1.2	0.2	1.8

Intersection

Intersection Delay, s/veh 9.4

Intersection LOS A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	0	30	5	0	1	14	145	4	6	155	10
Future Vol, veh/h	15	0	30	5	0	1	14	145	4	6	155	10
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	22	0	43	7	0	1	20	210	6	9	225	14
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	1	1
HCM Control Delay	8.2	8.3	9.4	9.7
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	9%	33%	83%	4%	0%
Vol Thru, %	89%	0%	0%	96%	0%
Vol Right, %	2%	67%	17%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	163	45	6	161	10
LT Vol	14	15	5	6	0
Through Vol	145	0	0	155	0
RT Vol	4	30	1	0	10
Lane Flow Rate	236	65	9	233	14
Geometry Grp	5	2	2	7	7
Degree of Util (X)	0.295	0.086	0.013	0.318	0.017
Departure Headway (Hd)	4.496	4.731	5.216	4.907	4.206
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	801	757	686	735	856
Service Time	2.517	2.76	3.252	2.627	1.906
HCM Lane V/C Ratio	0.295	0.086	0.013	0.317	0.016
HCM Control Delay	9.4	8.2	8.3	9.9	7
HCM Lane LOS	A	A	A	A	A
HCM 95th-tile Q	1.2	0.3	0	1.4	0.1

Timings
19: Dexter Av. & Central Av. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

06/29/2018

	→	↘	←	↙	↗	↖
Lane Group	EBT	EBR	WBT	WBR	NBR	SBR
Lane Configurations	↑↑↑	↗	↑↑↑	↗	↗	↗
Traffic Volume (vph)	1800	179	1248	78	175	333
Future Volume (vph)	1800	179	1248	78	175	333
Turn Type	NA	Perm	NA	Perm	Perm	Perm
Protected Phases	4		8			
Permitted Phases		4		8	2	6
Detector Phase	4	4	8	8	2	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	70.0	70.0	70.0	70.0	50.0	50.0
Total Split (%)	58.3%	58.3%	58.3%	58.3%	41.7%	41.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	None	None	Min	Min
Act Effct Green (s)	49.7	49.7	49.7	49.7	25.0	25.0
Actuated g/C Ratio	0.59	0.59	0.59	0.59	0.30	0.30
v/c Ratio	0.66	0.19	0.36	0.09	0.41	0.74
Control Delay	13.5	2.0	9.8	2.5	26.6	35.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.5	2.0	9.8	2.5	26.6	35.5
LOS	B	A	A	A	C	D
Approach Delay	12.4		9.3			
Approach LOS	B		A			
Intersection Summary						
Cycle Length: 120						
Actuated Cycle Length: 84.4						
Natural Cycle: 50						
Control Type: Actuated-Uncoordinated						
Maximum v/c Ratio: 0.74						
Intersection Signal Delay: 14.0				Intersection LOS: B		
Intersection Capacity Utilization 53.4%				ICU Level of Service A		
Analysis Period (min) 15						

Splits and Phases: 19: Dexter Av. & Central Av. (SR-74)

↑ Ø2	→ Ø4
50 s	70 s
↓ Ø6	← Ø8
50 s	70 s

HCM 6th Signalized Intersection Summary
19: Dexter Av. & Central Av. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

06/29/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↗		↑↑↑	↗		↑	↗		↑	↗
Traffic Volume (veh/h)	0	1800	179	0	1248	78	0	0	175	0	0	333
Future Volume (veh/h)	0	1800	179	0	1248	78	0	0	175	0	0	333
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870	0	1870	1870	0	1870	1870
Adj Flow Rate, veh/h	0	1978	154	0	1371	44	0	0	151	0	0	310
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	2	2	0	2	2	0	2	2	0	2	2
Cap, veh/h	0	3219	999	0	4056	987	0	436	369	0	436	369
Arrive On Green	0.00	0.63	0.63	0.00	0.63	0.63	0.00	0.00	0.23	0.00	0.00	0.23
Sat Flow, veh/h	0	5274	1585	0	6696	1565	0	1870	1583	0	1870	1585
Grp Volume(v), veh/h	0	1978	154	0	1371	44	0	0	151	0	0	310
Grp Sat Flow(s),veh/h/ln	0	1702	1585	0	1609	1565	0	1870	1583	0	1870	1585
Q Serve(g_s), s	0.0	15.4	2.6	0.0	6.6	0.7	0.0	0.0	5.3	0.0	0.0	12.3
Cycle Q Clear(g_c), s	0.0	15.4	2.6	0.0	6.6	0.7	0.0	0.0	5.3	0.0	0.0	12.3
Prop In Lane	0.00		1.00	0.00		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	0	3219	999	0	4056	987	0	436	369	0	436	369
V/C Ratio(X)	0.00	0.61	0.15	0.00	0.34	0.04	0.00	0.00	0.41	0.00	0.00	0.84
Avail Cap(c_a), veh/h	0	5078	1576	0	6398	1557	0	1292	1094	0	1292	1095
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	7.3	5.0	0.0	5.7	4.6	0.0	0.0	21.4	0.0	0.0	24.1
Incr Delay (d2), s/veh	0.0	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0	5.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.5	0.6	0.0	1.4	0.1	0.0	0.0	1.9	0.0	0.0	4.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	7.5	5.1	0.0	5.8	4.6	0.0	0.0	22.1	0.0	0.0	29.2
LnGrp LOS	A	A	A	A	A	A	A	A	C	A	A	C
Approach Vol, veh/h	2132			1415			151			310		
Approach Delay, s/veh	7.4			5.7			22.1			29.2		
Approach LOS	A			A			C			C		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	19.8			46.0			19.8			46.0		
Change Period (Y+Rc), s	4.5			4.5			4.5			4.5		
Max Green Setting (Gmax), s	45.5			65.5			45.5			65.5		
Max Q Clear Time (g_c+I1), s	7.3			17.4			14.3			8.6		
Green Ext Time (p_c), s	0.5			24.1			1.0			13.1		
Intersection Summary												
HCM 6th Ctrl Delay			9.0									
HCM 6th LOS			A									
Notes												

Timings
19: Dexter Av. & Central Av. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

10/22/2018

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	356	1800	179	163	1248	78	138	138	81	97	333
Future Volume (vph)	356	1800	179	163	1248	78	138	138	81	97	333
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2	1	6	7
Permitted Phases			4			8					6
Detector Phase	7	4	4	3	8	8	5	2	1	6	7
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	25.5	25.5	9.5	25.5	25.5	9.5	41.5	9.5	9.5	9.5
Total Split (s)	25.4	50.0	50.0	17.0	41.6	41.6	23.0	41.8	11.2	30.0	25.4
Total Split (%)	21.2%	41.7%	41.7%	14.2%	34.7%	34.7%	19.2%	34.8%	9.3%	25.0%	21.2%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	None	Min	None
Act Effct Green (s)	17.1	45.7	45.7	12.6	41.1	41.1	13.9	24.2	6.7	17.0	38.7
Actuated g/C Ratio	0.16	0.43	0.43	0.12	0.38	0.38	0.13	0.23	0.06	0.16	0.36
v/c Ratio	0.71	0.91	0.26	0.86	0.56	0.12	0.66	0.81	0.80	0.36	0.58
Control Delay	51.0	37.6	8.0	84.4	28.7	0.3	59.6	48.0	97.0	44.3	23.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.0	37.6	8.0	84.4	28.7	0.3	59.6	48.0	97.0	44.3	23.6
LOS	D	D	A	F	C	A	E	D	F	D	C
Approach Delay		37.3			33.3			51.5		39.2	
Approach LOS		D			C			D		D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 107.3

Natural Cycle: 120

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.91

Intersection Signal Delay: 37.6

Intersection LOS: D

Intersection Capacity Utilization 81.8%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 19: Dexter Av. & Central Av. (SR-74)

			
Ø1	Ø2	Ø3	Ø4
11.2 s	41.8 s	17 s	50 s
			
Ø5	Ø6	Ø7	Ø8
23 s	30 s	25.4 s	41.6 s

HCM 6th Signalized Intersection Summary
19: Dexter Av. & Central Av. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

10/22/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	356	1800	179	163	1248	78	138	138	175	81	97	333
Future Volume (veh/h)	356	1800	179	163	1248	78	138	138	175	81	97	333
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	391	1978	154	179	1371	44	152	152	151	89	107	310
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	472	2150	667	208	2582	628	184	199	197	112	356	518
Arrive On Green	0.14	0.42	0.42	0.12	0.40	0.40	0.10	0.23	0.23	0.06	0.19	0.19
Sat Flow, veh/h	3456	5106	1585	1781	6434	1565	1781	860	855	1781	1870	1585
Grp Volume(v), veh/h	391	1978	154	179	1371	44	152	0	303	89	107	310
Grp Sat Flow(s),veh/h/ln	1728	1702	1585	1781	1609	1565	1781	0	1715	1781	1870	1585
Q Serve(g_s), s	11.8	39.1	6.7	10.5	17.3	1.8	8.9	0.0	17.6	5.3	5.2	17.5
Cycle Q Clear(g_c), s	11.8	39.1	6.7	10.5	17.3	1.8	8.9	0.0	17.6	5.3	5.2	17.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.50	1.00		1.00
Lane Grp Cap(c), veh/h	472	2150	667	208	2582	628	184	0	396	112	356	518
V/C Ratio(X)	0.83	0.92	0.23	0.86	0.53	0.07	0.83	0.00	0.77	0.80	0.30	0.60
Avail Cap(c_a), veh/h	677	2177	676	209	2582	628	309	0	599	112	447	595
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.9	29.2	19.8	46.3	24.3	19.7	46.9	0.0	38.4	49.3	37.1	30.1
Incr Delay (d2), s/veh	5.8	6.9	0.2	28.5	0.2	0.0	9.0	0.0	3.2	31.7	0.5	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.2	16.0	2.3	6.1	6.2	0.6	4.3	0.0	7.5	3.3	2.4	6.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.7	36.1	20.0	74.8	24.5	19.7	56.0	0.0	41.6	81.1	37.6	31.3
LnGrp LOS	D	D	B	E	C	B	E	A	D	F	D	C
Approach Vol, veh/h		2523			1594			455			506	
Approach Delay, s/veh		37.4			30.0			46.4			41.4	
Approach LOS		D			C			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.2	29.1	17.0	49.4	15.5	24.8	19.1	47.3				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	6.7	37.3	12.5	45.5	18.5	25.5	20.9	37.1				
Max Q Clear Time (g_c+I1), s	7.3	19.6	12.5	41.1	10.9	19.5	13.8	19.3				
Green Ext Time (p_c), s	0.0	1.6	0.0	3.9	0.2	0.8	0.8	8.8				

Intersection Summary

HCM 6th Ctrl Delay	36.3
HCM 6th LOS	D

Notes

User approved changes to right turn type.

APPENDIX 9.17:

**EAPC (2021) CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS
WITH IMPROVEMENTS**

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Timings
1: Lake St. & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

06/29/2018

									
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	122	131	205	69	57	742	404	20	298
Future Volume (vph)	122	131	205	69	57	742	404	20	298
Turn Type	Prot	NA	Prot	NA	Prot	NA	Perm	Prot	NA
Protected Phases	7	4	3	8	5	2		1	6
Permitted Phases							2		
Detector Phase	7	4	3	8	5	2	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	9.6	14.6	9.5	16.2	9.6	16.2	16.2	9.6	16.2
Total Split (s)	19.7	23.0	30.4	33.7	13.6	55.2	55.2	11.4	53.0
Total Split (%)	16.4%	19.2%	25.3%	28.1%	11.3%	46.0%	46.0%	9.5%	44.2%
Yellow Time (s)	3.6	3.6	3.5	5.2	3.6	5.2	5.2	3.6	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.5	6.2	4.6	6.2	6.2	4.6	6.2
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	None	Max
Act Effect Green (s)	12.4	15.3	18.4	19.6	7.5	53.7	53.7	5.9	48.1
Actuated g/C Ratio	0.12	0.14	0.17	0.18	0.07	0.50	0.50	0.06	0.45
v/c Ratio	0.64	0.74	0.72	0.35	0.50	0.45	0.45	0.23	0.25
Control Delay	62.2	59.6	57.1	33.9	65.3	20.6	7.4	58.5	21.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.2	59.6	57.1	33.9	65.3	20.6	7.4	58.5	21.2
LOS	E	E	E	C	E	C	A	E	C
Approach Delay		60.6		48.9		18.2			23.3
Approach LOS		E		D		B			C

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 107.1

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.74

Intersection Signal Delay: 29.4

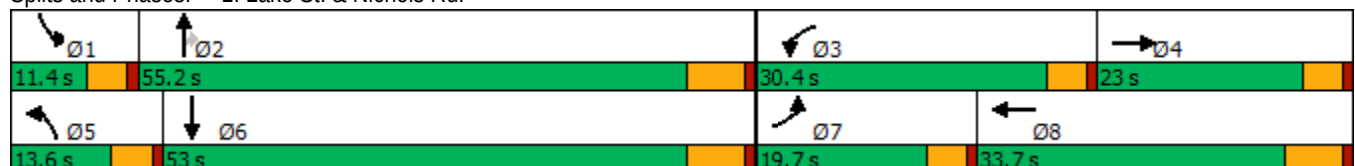
Intersection LOS: C

Intersection Capacity Utilization 62.8%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 1: Lake St. & Nichols Rd.



HCM 6th Signalized Intersection Summary

1: Lake St. & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

06/29/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	122	131	54	205	69	43	57	742	404	20	298	57
Future Volume (veh/h)	122	131	54	205	69	43	57	742	404	20	298	57
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	131	141	58	220	74	34	61	798	0	22	320	61
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	162	169	69	257	226	104	79	1726		41	1386	261
Arrive On Green	0.09	0.13	0.13	0.14	0.19	0.19	0.04	0.49	0.00	0.02	0.46	0.46
Sat Flow, veh/h	1781	1259	518	1781	1213	557	1781	3554	1585	1781	2984	562
Grp Volume(v), veh/h	131	0	199	220	0	108	61	798	0	22	189	192
Grp Sat Flow(s),veh/h/ln	1781	0	1777	1781	0	1770	1781	1777	1585	1781	1777	1769
Q Serve(g_s), s	7.3	0.0	11.0	12.2	0.0	5.3	3.4	15.0	0.0	1.2	6.4	6.6
Cycle Q Clear(g_c), s	7.3	0.0	11.0	12.2	0.0	5.3	3.4	15.0	0.0	1.2	6.4	6.6
Prop In Lane	1.00		0.29	1.00		0.31	1.00		1.00	1.00		0.32
Lane Grp Cap(c), veh/h	162	0	238	257	0	330	79	1726		41	825	822
V/C Ratio(X)	0.81	0.00	0.84	0.86	0.00	0.33	0.78	0.46		0.54	0.23	0.23
Avail Cap(c_a), veh/h	267	0	324	457	0	483	159	1726		120	825	822
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.0	0.0	42.6	42.1	0.0	35.6	47.7	17.2	0.0	48.8	16.2	16.2
Incr Delay (d2), s/veh	9.1	0.0	13.0	8.0	0.0	0.6	6.0	0.9	0.0	4.1	0.6	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	0.0	5.7	5.6	0.0	2.2	1.6	5.7	0.0	0.6	2.5	2.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.1	0.0	55.6	50.1	0.0	36.1	53.7	18.1	0.0	52.9	16.8	16.9
LnGrp LOS	D	A	E	D	A	D	D	B		D	B	B
Approach Vol, veh/h		330			328			859	A		403	
Approach Delay, s/veh		55.0			45.5			20.6			18.8	
Approach LOS		D			D			C			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.9	55.2	19.1	19.7	9.0	53.1	13.8	25.0				
Change Period (Y+Rc), s	4.6	6.2	4.5	* 6.2	4.6	6.2	4.6	6.2				
Max Green Setting (Gmax), s	6.8	49.0	25.9	* 18	9.0	46.8	15.1	27.5				
Max Q Clear Time (g_c+I1), s	3.2	17.0	14.2	13.0	5.4	8.6	9.3	7.3				
Green Ext Time (p_c), s	0.0	7.9	0.4	0.5	0.0	3.1	0.1	0.4				
Intersection Summary												
HCM 6th Ctrl Delay			30.4									
HCM 6th LOS			C									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.												

Timings

S. Nichols Mixed-Use Development (JN 10878)

5: Strickland Av./Gunnerson St. & Riverside Dr. (SR-74)

06/29/2018



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	←	→	←	→	←	→	←	→	←	→
Traffic Volume (vph)	1	927	4	708	1	2	14	51	3	7
Future Volume (vph)	1	927	4	708	1	2	14	51	3	7
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		8		2			6	
Permitted Phases	4		8		2		2	6		6
Detector Phase	4	4	8	8	2	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	22.4	22.4	22.4	22.4	21.6	21.6	21.6	22.4	22.4	22.4
Total Split (s)	93.0	93.0	93.0	93.0	27.0	27.0	27.0	27.0	27.0	27.0
Total Split (%)	77.5%	77.5%	77.5%	77.5%	22.5%	22.5%	22.5%	22.5%	22.5%	22.5%
Yellow Time (s)	4.4	4.4	4.4	4.4	3.6	3.6	3.6	4.4	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	5.4	5.4	5.4	5.4		4.6	4.6		5.4	5.4
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	None	None	None	None	Min	Min	Min	Min	Min	Min
Act Effect Green (s)	36.7	36.7	36.7	36.7		12.4	12.4		11.6	11.6
Actuated g/C Ratio	0.61	0.61	0.61	0.61		0.21	0.21		0.19	0.19
v/c Ratio	0.00	0.84	0.02	0.68		0.01	0.04		0.21	0.02
Control Delay	4.0	16.6	4.5	10.6		25.7	9.4		27.5	3.6
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	4.0	16.6	4.5	10.6		25.7	9.4		27.5	3.6
LOS	A	B	A	B		C	A		C	A
Approach Delay		16.6		10.5		12.3			24.8	
Approach LOS		B		B		B			C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 59.8

Natural Cycle: 65

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.84

Intersection Signal Delay: 14.3

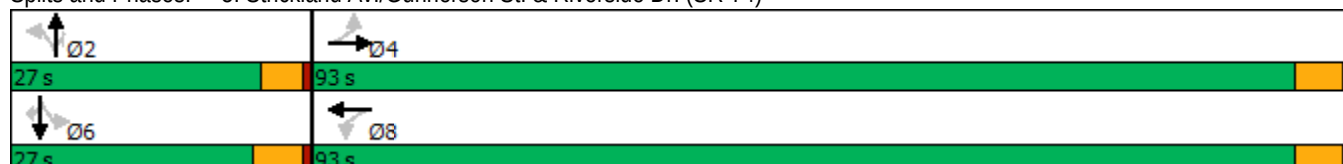
Intersection LOS: B

Intersection Capacity Utilization 78.5%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 5: Strickland Av./Gunnerson St. & Riverside Dr. (SR-74)



												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	927	4	4	708	39	1	2	14	51	3	7
Future Volume (veh/h)	1	927	4	4	708	39	1	2	14	51	3	7
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1	956	4	4	730	40	1	2	0	53	3	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	373	1148	5	257	1083	59	156	255		376	18	
Arrive On Green	0.62	0.62	0.62	0.62	0.62	0.62	0.18	0.18	0.00	0.18	0.18	0.00
Sat Flow, veh/h	699	1861	8	585	1757	96	367	1384	1585	1342	97	1585
Grp Volume(v), veh/h	1	0	960	4	0	770	3	0	0	56	0	0
Grp Sat Flow(s),veh/h/ln	699	0	1869	585	0	1853	1752	0	1585	1439	0	1585
Q Serve(g_s), s	0.1	0.0	22.0	0.3	0.0	14.8	0.0	0.0	0.0	1.7	0.0	0.0
Cycle Q Clear(g_c), s	14.8	0.0	22.0	22.3	0.0	14.8	0.1	0.0	0.0	1.8	0.0	0.0
Prop In Lane	1.00		0.00	1.00		0.05	0.33		1.00	0.95		1.00
Lane Grp Cap(c), veh/h	373	0	1153	257	0	1143	411	0		394	0	
V/C Ratio(X)	0.00	0.00	0.83	0.02	0.00	0.67	0.01	0.00		0.14	0.00	
Avail Cap(c_a), veh/h	1071	0	3017	840	0	2991	797	0		701	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	11.7	0.0	8.2	17.0	0.0	6.8	18.1	0.0	0.0	18.8	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	1.6	0.0	0.0	0.7	0.0	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	5.4	0.0	0.0	3.5	0.0	0.0	0.0	0.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.7	0.0	9.8	17.0	0.0	7.5	18.1	0.0	0.0	18.9	0.0	0.0
LnGrp LOS	B	A	A	B	A	A	B	A		B	A	
Approach Vol, veh/h	961			774			3			56		
Approach Delay, s/veh	9.8			7.6			18.1			18.9		
Approach LOS	A			A			B			B		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	15.4			38.9			15.4			38.9		
Change Period (Y+Rc), s	* 5.4			5.4			5.4			5.4		
Max Green Setting (Gmax), s	* 22			87.6			21.6			87.6		
Max Q Clear Time (g_c+I1), s	2.1			24.0			3.8			24.3		
Green Ext Time (p_c), s	0.0			9.5			0.2			6.4		

Intersection Summary

HCM 6th Ctrl Delay 9.2

HCM 6th LOS A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Timings
6: Collier Av. & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

06/29/2018

					
Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Configurations					
Traffic Volume (vph)	568	117	269	53	104
Future Volume (vph)	568	117	269	53	104
Turn Type	NA	Perm	NA	Prot	Perm
Protected Phases	4		8	2	
Permitted Phases		8			2
Detector Phase	4	8	8	2	2
Switch Phase					
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	26.8	15.8	15.8	16.2	16.2
Total Split (s)	92.0	92.0	92.0	28.0	28.0
Total Split (%)	76.7%	76.7%	76.7%	23.3%	23.3%
Yellow Time (s)	4.8	4.8	4.8	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.8	5.8	6.2	6.2
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	None	None	None	Min	Min
Act Effct Green (s)	23.0	23.0	23.0	10.2	10.2
Actuated g/C Ratio	0.51	0.51	0.51	0.22	0.22
v/c Ratio	0.77	0.60	0.33	0.15	0.27
Control Delay	15.0	20.4	7.2	18.0	6.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	15.0	20.4	7.2	18.0	6.7
LOS	B	C	A	B	A
Approach Delay	15.0		11.2	10.5	
Approach LOS	B		B	B	
Intersection Summary					
Cycle Length: 120					
Actuated Cycle Length: 45.4					
Natural Cycle: 50					
Control Type: Actuated-Uncoordinated					
Maximum v/c Ratio: 0.77					
Intersection Signal Delay: 13.2			Intersection LOS: B		
Intersection Capacity Utilization 65.1%			ICU Level of Service C		
Analysis Period (min) 15					

Splits and Phases: 6: Collier Av. & Nichols Rd.



HCM 6th Signalized Intersection Summary
6: Collier Av. & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

06/29/2018

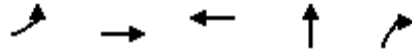
						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	568	61	117	269	53	104
Future Volume (veh/h)	568	61	117	269	53	104
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	653	70	134	309	61	120
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	920	99	340	1037	361	321
Arrive On Green	0.55	0.55	0.55	0.55	0.20	0.20
Sat Flow, veh/h	1660	178	730	1870	1781	1585
Grp Volume(v), veh/h	0	723	134	309	61	120
Grp Sat Flow(s),veh/h/ln	0	1838	730	1870	1781	1585
Q Serve(g_s), s	0.0	14.3	8.1	4.4	1.4	3.2
Cycle Q Clear(g_c), s	0.0	14.3	22.4	4.4	1.4	3.2
Prop In Lane		0.10	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	0	1019	340	1037	361	321
V/C Ratio(X)	0.00	0.71	0.39	0.30	0.17	0.37
Avail Cap(c_a), veh/h	0	3211	1210	3267	787	700
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	8.1	16.3	5.9	16.2	17.0
Incr Delay (d2), s/veh	0.0	0.9	0.7	0.2	0.2	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.3	1.1	1.0	0.5	1.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	9.0	17.1	6.0	16.5	17.7
LnGrp LOS	A	A	B	A	B	B
Approach Vol, veh/h	723			443	181	
Approach Delay, s/veh	9.0			9.4	17.3	
Approach LOS	A			A	B	
Timer - Assigned Phs		2		4		8
Phs Duration (G+Y+Rc), s		16.2		33.2		33.2
Change Period (Y+Rc), s		6.2		5.8		5.8
Max Green Setting (Gmax), s		21.8		86.2		86.2
Max Q Clear Time (g_c+l1), s		5.2		16.3		24.4
Green Ext Time (p_c), s		0.4		5.5		2.9
Intersection Summary						
HCM 6th Ctrl Delay			10.2			
HCM 6th LOS			B			

Timings

S. Nichols Mixed-Use Development (JN 10878)

10: I-15 NB Ramps & Nichols Rd.

06/29/2018



Lane Group	EBL	EBT	WBT	NBT	NBR
Lane Configurations					
Traffic Volume (vph)	131	356	192	3	125
Future Volume (vph)	131	356	192	3	125
Turn Type	Prot	NA	NA	NA	Perm
Protected Phases	7	4	8	2	
Permitted Phases					2
Detector Phase	7	4	8	2	2
Switch Phase					
Minimum Initial (s)	5.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	22.8	22.8	22.8	22.8
Total Split (s)	21.0	77.0	56.0	53.8	53.8
Total Split (%)	16.1%	58.9%	42.8%	41.1%	41.1%
Yellow Time (s)	3.6	4.8	4.8	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	5.8	5.8	5.8
Lead/Lag	Lead		Lag		
Lead-Lag Optimize?	Yes		Yes		
Recall Mode	None	None	None	Min	Min
Act Effect Green (s)	17.1	53.9	31.9	22.5	22.5
Actuated g/C Ratio	0.19	0.61	0.36	0.25	0.25
v/c Ratio	0.64	0.52	0.83	0.70	0.38
Control Delay	47.6	12.8	37.4	40.5	6.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	47.6	12.8	37.4	40.5	6.6
LOS	D	B	D	D	A
Approach Delay		22.1	37.4	27.1	
Approach LOS		C	D	C	

Intersection Summary

Cycle Length: 130.8

Actuated Cycle Length: 88.5

Natural Cycle: 70

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 27.8

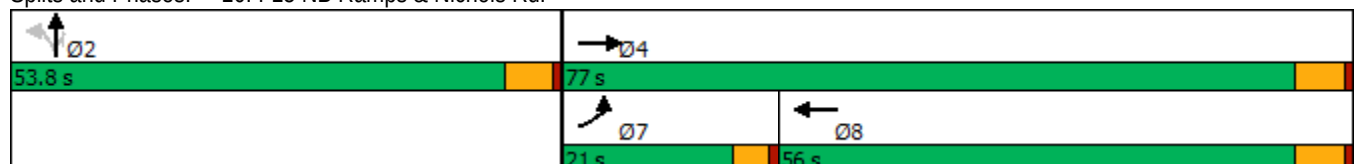
Intersection LOS: C

Intersection Capacity Utilization 53.9%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 10: I-15 NB Ramps & Nichols Rd.



HCM 6th Signalized Intersection Summary
10: I-15 NB Ramps & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

06/29/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	131	356	0	0	192	123	190	3	125	0	0	0
Future Volume (veh/h)	131	356	0	0	192	123	190	3	125	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1826	1826	0	0	1737	1737	1811	1900	1811			
Adj Flow Rate, veh/h	211	574	0	0	310	198	306	5	202			
Peak Hour Factor	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62			
Percent Heavy Veh, %	5	5	0	0	11	11	6	0	6			
Cap, veh/h	260	1078	0	0	366	234	409	7	345			
Arrive On Green	0.15	0.59	0.00	0.00	0.37	0.37	0.23	0.23	0.23			
Sat Flow, veh/h	1739	1826	0	0	990	633	1782	29	1502			
Grp Volume(v), veh/h	211	574	0	0	0	508	311	0	202			
Grp Sat Flow(s),veh/h/ln	1739	1826	0	0	0	1623	1811	0	1502			
Q Serve(g_s), s	7.6	12.1	0.0	0.0	0.0	18.5	10.3	0.0	7.7			
Cycle Q Clear(g_c), s	7.6	12.1	0.0	0.0	0.0	18.5	10.3	0.0	7.7			
Prop In Lane	1.00		0.00	0.00		0.39	0.98		1.00			
Lane Grp Cap(c), veh/h	260	1078	0	0	0	600	416	0	345			
V/C Ratio(X)	0.81	0.53	0.00	0.00	0.00	0.85	0.75	0.00	0.59			
Avail Cap(c_a), veh/h	442	2015	0	0	0	1263	1347	0	1117			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	0.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	26.5	7.9	0.0	0.0	0.0	18.7	23.1	0.0	22.1			
Incr Delay (d2), s/veh	6.0	0.4	0.0	0.0	0.0	3.4	2.7	0.0	1.6			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	3.2	3.3	0.0	0.0	0.0	6.3	4.1	0.0	2.5			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.5	8.3	0.0	0.0	0.0	22.1	25.8	0.0	23.7			
LnGrp LOS	C	A	A	A	A	C	C	A	C			
Approach Vol, veh/h	785			508			513					
Approach Delay, s/veh	14.8			22.1			25.0					
Approach LOS	B			C			C					
Timer - Assigned Phs	2			4			7			8		
Phs Duration (G+Y+Rc), s	20.6			43.9			14.3			29.6		
Change Period (Y+Rc), s	5.8			5.8			4.6			5.8		
Max Green Setting (Gmax), s	48.0			71.2			16.4			50.2		
Max Q Clear Time (g_c+l1), s	12.3			14.1			9.6			20.5		
Green Ext Time (p_c), s	2.5			3.8			0.3			3.3		
Intersection Summary												
HCM 6th Ctrl Delay	19.7											
HCM 6th LOS	B											

Intersection	
Intersection Delay, s/veh	61.8
Intersection LOS	F

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	177	24	200	69	19	453
Future Vol, veh/h	177	24	200	69	19	453
Peak Hour Factor	0.66	0.66	0.66	0.66	0.66	0.66
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	268	36	303	105	29	686
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	18.7	20.4	103.8
HCM LOS	C	C	F

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	88%	4%
Vol Thru, %	74%	0%	96%
Vol Right, %	26%	12%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	269	201	472
LT Vol	0	177	19
Through Vol	200	0	453
RT Vol	69	24	0
Lane Flow Rate	408	305	715
Geometry Grp	1	1	1
Degree of Util (X)	0.665	0.561	1.142
Departure Headway (Hd)	6.108	7.052	5.747
Convergence, Y/N	Yes	Yes	Yes
Cap	595	515	636
Service Time	4.108	5.052	3.762
HCM Lane V/C Ratio	0.686	0.592	1.124
HCM Control Delay	20.4	18.7	103.8
HCM Lane LOS	C	C	F
HCM 95th-tile Q	5	3.4	22.8

Intersection

Intersection Delay, s/veh	16.1
Intersection LOS	C

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	177	24	200	69	19	453
Future Vol, veh/h	177	24	200	69	19	453
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	192	26	217	75	21	492
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	12.5	11.9	20
HCM LOS	B	B	C

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	88%	4%
Vol Thru, %	74%	0%	96%
Vol Right, %	26%	12%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	269	201	472
LT Vol	0	177	19
Through Vol	200	0	453
RT Vol	69	24	0
Lane Flow Rate	292	218	513
Geometry Grp	1	1	1
Degree of Util (X)	0.42	0.365	0.719
Departure Headway (Hd)	5.174	6.021	5.048
Convergence, Y/N	Yes	Yes	Yes
Cap	696	596	718
Service Time	3.209	4.059	3.077
HCM Lane V/C Ratio	0.42	0.366	0.714
HCM Control Delay	11.9	12.5	20
HCM Lane LOS	B	B	C
HCM 95th-tile Q	2.1	1.7	6.2

Intersection

Intersection Delay, s/veh84.4

Intersection LOS F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	↗
Traffic Vol, veh/h	137	0	279	6	0	16	176	116	6	8	379	242
Future Vol, veh/h	137	0	279	6	0	16	176	116	6	8	379	242
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	199	0	404	9	0	23	255	168	9	12	549	351
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	1
Conflicting Approach Left SB		NB	EB	WB
Conflicting Lanes Left	2	1	1	1
Conflicting Approach RightNB		SB	WB	EB
Conflicting Lanes Right	1	2	1	1
HCM Control Delay	104.1	13.5	48.2	90.9
HCM LOS	F	B	E	F

Lane	NBLn1	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	59%	33%	27%	2%	0%
Vol Thru, %	39%	0%	0%	98%	0%
Vol Right, %	2%	67%	73%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	298	416	22	387	242
LT Vol	176	137	6	8	0
Through Vol	116	0	0	379	0
RT Vol	6	279	16	0	242
Lane Flow Rate	432	603	32	561	351
Geometry Grp	5	2	2	7	7
Degree of Util (X)	0.891	1.126	0.079	1.191	0.675
Departure Headway (Hd)	8.006	6.964	9.639	8.145	7.41
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	458	525	374	449	491
Service Time	6.006	4.964	7.639	5.845	5.11
HCM Lane V/C Ratio	0.943	1.149	0.086	1.249	0.715
HCM Control Delay	48.2	104.1	13.5	132.6	24.2
HCM Lane LOS	E	F	B	F	C
HCM 95th-tile Q	9.6	19.4	0.3	20.3	5

Intersection	
Intersection Delay, s/veh	24.5
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	↕
Traffic Vol, veh/h	137	0	279	6	0	16	176	116	6	8	379	242
Future Vol, veh/h	137	0	279	6	0	16	176	116	6	8	379	242
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	149	0	303	7	0	17	191	126	7	9	412	263
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	1	1
HCM Control Delay	28.3	11.1	20.1	24.6
HCM LOS	D	B	C	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	59%	33%	27%	2%	0%
Vol Thru, %	39%	0%	0%	98%	0%
Vol Right, %	2%	67%	73%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	298	416	22	387	242
LT Vol	176	137	6	8	0
Through Vol	116	0	0	379	0
RT Vol	6	279	16	0	242
Lane Flow Rate	324	452	24	421	263
Geometry Grp	5	2	2	7	7
Degree of Util (X)	0.613	0.785	0.051	0.797	0.445
Departure Headway (Hd)	6.812	6.247	7.604	6.823	6.097
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	528	583	469	530	589
Service Time	4.866	4.247	5.683	4.578	3.851
HCM Lane V/C Ratio	0.614	0.775	0.051	0.794	0.447
HCM Control Delay	20.1	28.3	11.1	31.4	13.7
HCM Lane LOS	C	D	B	D	B
HCM 95th-tile Q	4.1	7.4	0.2	7.5	2.3

Timings
19: Dexter Av. & Central Av. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

06/29/2018

	→	↘	←	↙	↗	↖
Lane Group	EBT	EBR	WBT	WBR	NBR	SBR
Lane Configurations	↑↑↑	↗	↑↑↑	↗	↗	↗
Traffic Volume (vph)	1018	147	1588	212	92	399
Future Volume (vph)	1018	147	1588	212	92	399
Turn Type	NA	Perm	NA	Perm	Perm	Perm
Protected Phases	4		8			
Permitted Phases		4		8	2	6
Detector Phase	4	4	8	8	2	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	26.8	26.8	26.8	26.8	42.4	15.8
Total Split (s)	69.0	69.0	69.0	69.0	51.0	51.0
Total Split (%)	57.5%	57.5%	57.5%	57.5%	42.5%	42.5%
Yellow Time (s)	4.8	4.8	4.8	4.8	4.4	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.8	5.8	5.8	5.4	5.8
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	None	None	Max	Max
Act Effct Green (s)	44.1	44.1	44.1	44.1	46.0	45.6
Actuated g/C Ratio	0.43	0.43	0.43	0.43	0.45	0.45
v/c Ratio	0.51	0.21	0.63	0.29	0.14	0.60
Control Delay	21.2	3.1	22.9	3.0	9.3	26.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.2	3.1	22.9	3.0	9.3	26.2
LOS	C	A	C	A	A	C
Approach Delay	18.9		20.6			
Approach LOS	B		C			
Intersection Summary						
Cycle Length: 120						
Actuated Cycle Length: 101.4						
Natural Cycle: 70						
Control Type: Actuated-Uncoordinated						
Maximum v/c Ratio: 0.63						
Intersection Signal Delay: 20.3				Intersection LOS: C		
Intersection Capacity Utilization 63.2%				ICU Level of Service B		
Analysis Period (min) 15						

Splits and Phases: 19: Dexter Av. & Central Av. (SR-74)

↑ Ø2	→ Ø4
51 s	69 s
↓ Ø6	← Ø8
51 s	69 s

HCM 6th Signalized Intersection Summary
19: Dexter Av. & Central Av. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

06/29/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↗		↑↑↑	↗		↑	↗		↑	↗
Traffic Volume (veh/h)	0	1018	147	0	1588	212	0	0	92	0	0	399
Future Volume (veh/h)	0	1018	147	0	1588	212	0	0	92	0	0	399
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870	0	1870	1870	0	1870	1870
Adj Flow Rate, veh/h	0	1119	119	0	1745	191	0	0	60	0	0	382
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	2	2	0	2	2	0	2	2	0	2	2
Cap, veh/h	0	2160	670	0	2721	662	0	860	729	0	860	729
Arrive On Green	0.00	0.42	0.42	0.00	0.42	0.42	0.00	0.00	0.46	0.00	0.00	0.46
Sat Flow, veh/h	0	5274	1585	0	6696	1565	0	1870	1584	0	1870	1585
Grp Volume(v), veh/h	0	1119	119	0	1745	191	0	0	60	0	0	382
Grp Sat Flow(s),veh/h/ln	0	1702	1585	0	1609	1565	0	1870	1584	0	1870	1585
Q Serve(g_s), s	0.0	16.1	4.6	0.0	21.3	8.0	0.0	0.0	2.1	0.0	0.0	17.0
Cycle Q Clear(g_c), s	0.0	16.1	4.6	0.0	21.3	8.0	0.0	0.0	2.1	0.0	0.0	17.0
Prop In Lane	0.00		1.00	0.00		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	0	2160	670	0	2721	662	0	860	729	0	860	729
V/C Ratio(X)	0.00	0.52	0.18	0.00	0.64	0.29	0.00	0.00	0.08	0.00	0.00	0.52
Avail Cap(c_a), veh/h	0	3256	1011	0	4102	998	0	860	729	0	860	729
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	21.1	17.8	0.0	22.6	18.8	0.0	0.0	15.0	0.0	0.0	19.0
Incr Delay (d2), s/veh	0.0	0.2	0.1	0.0	0.3	0.2	0.0	0.0	0.2	0.0	0.0	2.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	5.9	1.6	0.0	7.4	2.7	0.0	0.0	0.8	0.0	0.0	6.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	21.3	18.0	0.0	22.9	19.0	0.0	0.0	15.2	0.0	0.0	21.7
LnGrp LOS	A	C	B	A	C	B	A	A	B	A	A	C
Approach Vol, veh/h	1238			1936			60			382		
Approach Delay, s/veh	21.0			22.5			15.2			21.7		
Approach LOS	C			C			B			C		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	51.4			47.7			51.4			47.7		
Change Period (Y+Rc), s	* 5.8			5.8			5.8			5.8		
Max Green Setting (Gmax), s	* 46			63.2			45.2			63.2		
Max Q Clear Time (g_c+l1), s	4.1			18.1			19.0			23.3		
Green Ext Time (p_c), s	0.2			9.7			1.3			18.6		

Intersection Summary

HCM 6th Ctrl Delay	21.8
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Timings
19: Dexter Av. & Central Av. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

10/22/2018

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	246	1018	147	129	1588	212	118	270	80	154	399
Future Volume (vph)	246	1018	147	129	1588	212	118	270	80	154	399
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2	1	6	7
Permitted Phases			4			8					6
Detector Phase	7	4	4	3	8	8	5	2	1	6	7
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0	5.0
Minimum Split (s)	9.5	26.8	26.8	9.5	26.8	26.8	9.5	42.4	9.5	15.8	9.5
Total Split (s)	18.0	45.8	45.8	14.2	42.0	42.0	20.8	46.0	14.0	39.2	18.0
Total Split (%)	15.0%	38.2%	38.2%	11.8%	35.0%	35.0%	17.3%	38.3%	11.7%	32.7%	15.0%
Yellow Time (s)	3.5	4.8	4.8	3.5	4.8	4.8	3.5	4.4	3.5	4.8	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	5.8	5.8	4.5	5.8	5.8	4.5	5.4	4.5	5.8	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	None	Max	None
Act Effect Green (s)	12.8	39.9	39.9	9.1	36.2	36.2	13.4	40.6	9.0	35.8	54.4
Actuated g/C Ratio	0.11	0.34	0.34	0.08	0.30	0.30	0.11	0.34	0.08	0.30	0.46
v/c Ratio	0.73	0.66	0.25	0.54	0.89	0.37	0.65	0.64	0.66	0.30	0.56
Control Delay	63.8	36.0	5.3	61.1	46.6	7.1	66.0	37.6	76.8	34.7	21.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.8	36.0	5.3	61.1	46.6	7.1	66.0	37.6	76.8	34.7	21.0
LOS	E	D	A	E	D	A	E	D	E	C	C
Approach Delay		37.6			43.3			44.6		31.4	
Approach LOS		D			D			D		C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 118.8

Natural Cycle: 100

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.89

Intersection Signal Delay: 39.9

Intersection LOS: D

Intersection Capacity Utilization 82.1%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 19: Dexter Av. & Central Av. (SR-74)

			
Ø1	Ø2	Ø3	Ø4
14 s	46 s	14.2 s	45.8 s
			
Ø5	Ø6	Ø7	Ø8
20.8 s	39.2 s	18 s	42 s

HCM 6th Signalized Intersection Summary
19: Dexter Av. & Central Av. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

10/22/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	246	1018	147	129	1588	212	118	270	92	80	154	399
Future Volume (veh/h)	246	1018	147	129	1588	212	118	270	92	80	154	399
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	270	1119	119	142	1745	191	130	297	60	88	169	382
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	332	1769	549	201	1984	483	158	534	108	111	612	671
Arrive On Green	0.10	0.35	0.35	0.06	0.31	0.31	0.09	0.35	0.35	0.06	0.33	0.33
Sat Flow, veh/h	3456	5106	1585	3456	6434	1565	1781	1510	305	1781	1870	1585
Grp Volume(v), veh/h	270	1119	119	142	1745	191	130	0	357	88	169	382
Grp Sat Flow(s),veh/h/ln	1728	1702	1585	1728	1609	1565	1781	0	1815	1781	1870	1585
Q Serve(g_s), s	8.8	21.1	6.1	4.6	29.5	11.0	8.2	0.0	18.2	5.6	7.7	21.0
Cycle Q Clear(g_c), s	8.8	21.1	6.1	4.6	29.5	11.0	8.2	0.0	18.2	5.6	7.7	21.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.17	1.00		1.00
Lane Grp Cap(c), veh/h	332	1769	549	201	1984	483	158	0	642	111	612	671
V/C Ratio(X)	0.81	0.63	0.22	0.71	0.88	0.40	0.82	0.00	0.56	0.79	0.28	0.57
Avail Cap(c_a), veh/h	406	1779	552	292	2029	494	253	0	642	147	612	671
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.9	31.4	26.5	53.1	37.7	31.3	51.4	0.0	29.8	53.1	28.6	25.2
Incr Delay (d2), s/veh	10.0	0.7	0.2	4.5	4.8	0.5	10.9	0.0	3.5	18.9	1.1	3.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.2	8.4	2.3	2.1	11.7	4.1	4.1	0.0	8.3	3.0	3.5	8.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.8	32.1	26.7	57.6	42.4	31.8	62.3	0.0	33.3	72.0	29.7	28.6
LnGrp LOS	E	C	C	E	D	C	E	A	C	E	C	C
Approach Vol, veh/h	1508			2078			487			639		
Approach Delay, s/veh	36.8			42.5			41.0			34.9		
Approach LOS	D			D			D			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.7	46.4	11.2	45.6	14.7	43.4	15.5	41.2				
Change Period (Y+Rc), s	4.5	* 5.8	4.5	5.8	4.5	5.8	4.5	5.8				
Max Green Setting (Gmax), s	9.5	* 41	9.7	40.0	16.3	33.4	13.5	36.2				
Max Q Clear Time (g_c+l1), s	7.6	20.2	6.6	23.1	10.2	23.0	10.8	31.5				
Green Ext Time (p_c), s	0.0	1.9	0.1	7.1	0.1	1.7	0.2	3.8				

Intersection Summary

HCM 6th Ctrl Delay 39.5

HCM 6th LOS D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Timings
1: Lake St. & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

06/29/2018

									
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	104	130	283	164	79	402	203	35	926
Future Volume (vph)	104	130	283	164	79	402	203	35	926
Turn Type	Prot	NA	Prot	NA	Prot	NA	Perm	Prot	NA
Protected Phases	7	4	3	8	5	2		1	6
Permitted Phases							2		
Detector Phase	7	4	3	8	5	2	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	10.0	5.0	10.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	9.6	14.6	9.6	16.2	9.6	16.2	16.2	9.6	16.2
Total Split (s)	19.7	23.0	30.4	33.7	13.6	55.2	55.2	11.4	53.0
Total Split (%)	16.4%	19.2%	25.3%	28.1%	11.3%	46.0%	46.0%	9.5%	44.2%
Yellow Time (s)	3.6	3.6	3.6	5.2	3.6	5.2	5.2	3.6	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	6.2	4.6	6.2	6.2	4.6	6.2
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	None	Max
Act Effect Green (s)	12.1	16.7	23.1	26.1	8.2	53.3	53.3	6.2	47.0
Actuated g/C Ratio	0.11	0.15	0.20	0.23	0.07	0.46	0.46	0.05	0.41
v/c Ratio	0.61	0.84	0.86	0.48	0.67	0.26	0.26	0.40	0.81
Control Delay	64.0	69.3	67.9	42.3	79.4	21.4	3.8	67.1	36.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.0	69.3	67.9	42.3	79.4	21.4	3.8	67.1	36.5
LOS	E	E	E	D	E	C	A	E	D
Approach Delay		67.6		57.7		22.9			37.5
Approach LOS		E		E		C			D

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 115.1

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 41.0

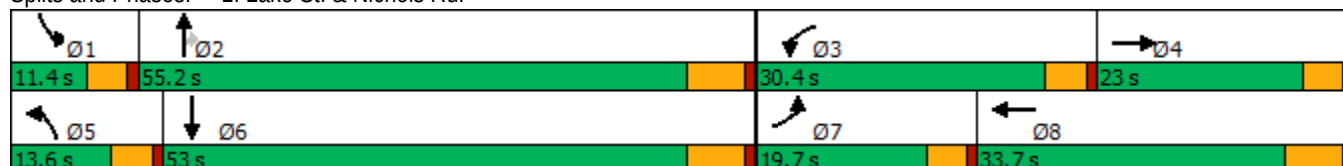
Intersection LOS: D

Intersection Capacity Utilization 78.6%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 1: Lake St. & Nichols Rd.



HCM 6th Signalized Intersection Summary

1: Lake St. & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

06/29/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	104	130	82	283	164	23	79	402	203	35	926	138
Future Volume (veh/h)	104	130	82	283	164	23	79	402	203	35	926	138
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	112	140	88	304	176	13	85	432	0	38	996	148
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	139	158	100	335	443	33	108	1573		55	1282	190
Arrive On Green	0.08	0.15	0.15	0.19	0.26	0.26	0.06	0.44	0.00	0.03	0.41	0.41
Sat Flow, veh/h	1781	1074	675	1781	1720	127	1781	3554	1585	1781	3103	461
Grp Volume(v), veh/h	112	0	228	304	0	189	85	432	0	38	570	574
Grp Sat Flow(s),veh/h/ln	1781	0	1749	1781	0	1847	1781	1777	1585	1781	1777	1787
Q Serve(g_s), s	7.0	0.0	14.5	18.9	0.0	9.6	5.3	8.7	0.0	2.4	31.4	31.4
Cycle Q Clear(g_c), s	7.0	0.0	14.5	18.9	0.0	9.6	5.3	8.7	0.0	2.4	31.4	31.4
Prop In Lane	1.00		0.39	1.00		0.07	1.00		1.00	1.00		0.26
Lane Grp Cap(c), veh/h	139	0	258	335	0	476	108	1573		55	734	739
V/C Ratio(X)	0.80	0.00	0.88	0.91	0.00	0.40	0.79	0.27		0.69	0.78	0.78
Avail Cap(c_a), veh/h	237	0	284	406	0	476	142	1573		107	734	739
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.3	0.0	47.3	45.0	0.0	34.8	52.5	20.0	0.0	54.4	28.7	28.7
Incr Delay (d2), s/veh	10.3	0.0	24.8	21.1	0.0	0.5	14.5	0.4	0.0	5.7	7.9	7.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	0.0	8.1	9.9	0.0	4.2	2.7	3.5	0.0	1.1	13.9	14.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	61.6	0.0	72.1	66.1	0.0	35.3	67.0	20.4	0.0	60.1	36.6	36.6
LnGrp LOS	E	A	E	E	A	D	E	C		E	D	D
Approach Vol, veh/h		340			493			517	A		1182	
Approach Delay, s/veh		68.6			54.3			28.1			37.4	
Approach LOS		E			D			C			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.1	56.4	25.9	22.9	11.4	53.0	13.5	35.4				
Change Period (Y+Rc), s	4.6	6.2	4.6	* 6.2	4.6	6.2	4.6	6.2				
Max Green Setting (Gmax), s	6.8	49.0	25.8	* 18	9.0	46.8	15.1	27.5				
Max Q Clear Time (g_c+I1), s	4.4	10.7	20.9	16.5	7.3	33.4	9.0	11.6				
Green Ext Time (p_c), s	0.0	3.9	0.4	0.2	0.0	7.4	0.1	0.7				
Intersection Summary												
HCM 6th Ctrl Delay			43.0									
HCM 6th LOS			D									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.												

Timings

S. Nichols Mixed-Use Development (JN 10878)

5: Strickland Av./Gunnerson St. & Riverside Dr. (SR-74)

06/29/2018



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	3	949	10	975	1	0	10	33	1	3
Future Volume (vph)	3	949	10	975	1	0	10	33	1	3
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		8		2			6	
Permitted Phases	4		8		2		2	6		6
Detector Phase	4	4	8	8	2	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	22.4	22.4	22.4	22.4	21.6	21.6	21.6	22.4	22.4	22.4
Total Split (s)	93.0	93.0	93.0	93.0	27.0	27.0	27.0	27.0	27.0	27.0
Total Split (%)	77.5%	77.5%	77.5%	77.5%	22.5%	22.5%	22.5%	22.5%	22.5%	22.5%
Yellow Time (s)	4.4	4.4	4.4	4.4	3.6	3.6	3.6	4.4	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	5.4	5.4	5.4	5.4		4.6	4.6		5.4	5.4
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	None	None	None	None	Min	Min	Min	Min	Min	Min
Act Effect Green (s)	52.8	52.8	52.8	52.8		12.5	12.5		11.7	11.7
Actuated g/C Ratio	0.69	0.69	0.69	0.69		0.16	0.16		0.15	0.15
v/c Ratio	0.02	0.76	0.04	0.89		0.00	0.04		0.17	0.01
Control Delay	3.7	11.5	3.7	18.7		37.0	7.4		37.5	0.0
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	3.7	11.5	3.7	18.7		37.0	7.4		37.5	0.0
LOS	A	B	A	B		D	A		D	A
Approach Delay		11.5		18.6		10.1			34.5	
Approach LOS		B		B		B			C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 76.1

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.89

Intersection Signal Delay: 15.6

Intersection LOS: B

Intersection Capacity Utilization 88.5%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 5: Strickland Av./Gunnerson St. & Riverside Dr. (SR-74)



												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	949	5	10	975	126	1	0	10	33	1	3
Future Volume (veh/h)	3	949	5	10	975	126	1	0	10	33	1	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	3	978	5	10	1005	130	1	0	0	34	1	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	215	1313	7	319	1146	148	310	0		295	7	
Arrive On Green	0.71	0.71	0.71	0.71	0.71	0.71	0.14	0.00	0.00	0.14	0.14	0.00
Sat Flow, veh/h	496	1859	10	572	1623	210	1471	0	1585	1378	52	1585
Grp Volume(v), veh/h	3	0	983	10	0	1135	1	0	0	35	0	0
Grp Sat Flow(s),veh/h/ln	496	0	1869	572	0	1833	1471	0	1585	1430	0	1585
Q Serve(g_s), s	0.3	0.0	23.1	0.8	0.0	33.8	0.0	0.0	0.0	1.4	0.0	0.0
Cycle Q Clear(g_c), s	34.2	0.0	23.1	23.9	0.0	33.8	0.0	0.0	0.0	1.5	0.0	0.0
Prop In Lane	1.00		0.01	1.00		0.11	1.00		1.00	0.97		1.00
Lane Grp Cap(c), veh/h	215	0	1319	319	0	1294	310	0		302	0	
V/C Ratio(X)	0.01	0.00	0.75	0.03	0.00	0.88	0.00	0.00		0.12	0.00	
Avail Cap(c_a), veh/h	478	0	2313	624	0	2269	558	0		536	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	21.2	0.0	6.5	13.9	0.0	8.0	26.1	0.0	0.0	26.7	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.9	0.0	0.0	2.1	0.0	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	5.4	0.1	0.0	8.1	0.0	0.0	0.0	0.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.3	0.0	7.3	13.9	0.0	10.1	26.1	0.0	0.0	26.9	0.0	0.0
LnGrp LOS	C	A	A	B	A	B	C	A		C	A	
Approach Vol, veh/h	986			1145			1			A		
Approach Delay, s/veh	7.3			10.1			26.1			26.9		
Approach LOS	A			B			C			C		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	15.4			55.4			15.4			55.4		
Change Period (Y+Rc), s	* 5.4			5.4			5.4			5.4		
Max Green Setting (Gmax), s	* 22			87.6			21.6			87.6		
Max Q Clear Time (g_c+I1), s	2.0			36.2			3.5			35.8		
Green Ext Time (p_c), s	0.0			9.9			0.1			14.1		

Intersection Summary

HCM 6th Ctrl Delay	9.1
HCM 6th LOS	A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Timings
6: Collier Av. & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

06/29/2018

					
Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Configurations					
Traffic Volume (vph)	333	249	442	119	290
Future Volume (vph)	333	249	442	119	290
Turn Type	NA	Perm	NA	Prot	Perm
Protected Phases	4		8	2	
Permitted Phases		8			2
Detector Phase	4	8	8	2	2
Switch Phase					
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	26.8	15.8	15.8	16.2	16.2
Total Split (s)	92.0	92.0	92.0	28.0	28.0
Total Split (%)	76.7%	76.7%	76.7%	23.3%	23.3%
Yellow Time (s)	4.8	4.8	4.8	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.8	5.8	6.2	6.2
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	None	None	None	Min	Min
Act Effct Green (s)	22.9	22.9	22.9	11.2	11.2
Actuated g/C Ratio	0.49	0.49	0.49	0.24	0.24
v/c Ratio	0.54	0.73	0.56	0.32	0.53
Control Delay	9.4	20.6	10.2	20.8	6.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	9.4	20.6	10.2	20.8	6.7
LOS	A	C	B	C	A
Approach Delay	9.4		13.9	10.8	
Approach LOS	A		B	B	
Intersection Summary					
Cycle Length: 120					
Actuated Cycle Length: 46.7					
Natural Cycle: 60					
Control Type: Actuated-Uncoordinated					
Maximum v/c Ratio: 0.73					
Intersection Signal Delay: 11.8			Intersection LOS: B		
Intersection Capacity Utilization 59.7%			ICU Level of Service B		
Analysis Period (min) 15					

Splits and Phases: 6: Collier Av. & Nichols Rd.



HCM 6th Signalized Intersection Summary
6: Collier Av. & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

06/29/2018

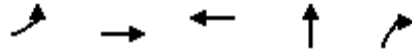
	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗		↖	↗	↖	↗
Traffic Volume (veh/h)	333	86	249	442	119	290
Future Volume (veh/h)	333	86	249	442	119	290
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	383	99	286	508	137	333
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	797	206	477	1040	442	393
Arrive On Green	0.56	0.56	0.56	0.56	0.25	0.25
Sat Flow, veh/h	1433	370	913	1870	1781	1585
Grp Volume(v), veh/h	0	482	286	508	137	333
Grp Sat Flow(s),veh/h/ln	0	1804	913	1870	1781	1585
Q Serve(g_s), s	0.0	9.9	17.0	10.2	3.8	12.3
Cycle Q Clear(g_c), s	0.0	9.9	26.9	10.2	3.8	12.3
Prop In Lane		0.21	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	0	1003	477	1040	442	393
V/C Ratio(X)	0.00	0.48	0.60	0.49	0.31	0.85
Avail Cap(c_a), veh/h	0	2533	1252	2626	633	563
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	8.2	16.4	8.3	18.8	22.0
Incr Delay (d2), s/veh	0.0	0.4	1.2	0.4	0.4	8.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.7	3.0	2.9	1.4	4.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	8.6	17.6	8.7	19.2	30.1
LnGrp LOS	A	A	B	A	B	C
Approach Vol, veh/h	482			794	470	
Approach Delay, s/veh	8.6			11.9	26.9	
Approach LOS	A			B	C	
Timer - Assigned Phs	2		4		8	
Phs Duration (G+Y+Rc), s	21.4		39.9		39.9	
Change Period (Y+Rc), s	6.2		5.8		5.8	
Max Green Setting (Gmax), s	21.8		86.2		86.2	
Max Q Clear Time (g_c+l1), s	14.3		11.9		28.9	
Green Ext Time (p_c), s	1.0		3.1		5.3	
Intersection Summary						
HCM 6th Ctrl Delay			15.0			
HCM 6th LOS			B			

Timings

S. Nichols Mixed-Use Development (JN 10878)

10: I-15 NB Ramps & Nichols Rd.

06/29/2018



Lane Group	EBL	EBT	WBT	NBT	NBR
Lane Configurations					
Traffic Volume (vph)	198	246	155	1	64
Future Volume (vph)	198	246	155	1	64
Turn Type	Prot	NA	NA	NA	Perm
Protected Phases	7	4	8	2	
Permitted Phases					2
Detector Phase	7	4	8	2	2
Switch Phase					
Minimum Initial (s)	5.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	22.8	22.8	22.8	22.8
Total Split (s)	21.0	77.0	56.0	53.8	53.8
Total Split (%)	16.1%	58.9%	42.8%	41.1%	41.1%
Yellow Time (s)	3.6	4.8	4.8	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	5.8	5.8	5.8
Lead/Lag	Lead		Lag		
Lead-Lag Optimize?	Yes		Yes		
Recall Mode	None	None	None	Min	Min
Act Effect Green (s)	16.7	47.5	26.1	42.4	42.4
Actuated g/C Ratio	0.16	0.47	0.26	0.42	0.42
v/c Ratio	1.13	0.47	0.79	0.84	0.15
Control Delay	135.1	21.3	47.8	39.3	7.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	135.1	21.3	47.8	39.3	7.4
LOS	F	C	D	D	A
Approach Delay		72.0	47.8	34.7	
Approach LOS		E	D	C	

Intersection Summary

Cycle Length: 130.8

Actuated Cycle Length: 101.7

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.13

Intersection Signal Delay: 52.3

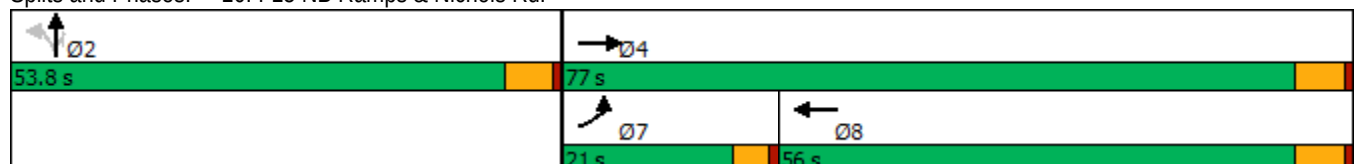
Intersection LOS: D

Intersection Capacity Utilization 57.2%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 10: I-15 NB Ramps & Nichols Rd.



HCM 6th Signalized Intersection Summary
10: I-15 NB Ramps & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

06/29/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	198	246	0	0	155	60	376	1	64	0	0	0
Future Volume (veh/h)	198	246	0	0	155	60	376	1	64	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1826	1826	0	0	1737	1737	1811	1900	1811			
Adj Flow Rate, veh/h	319	397	0	0	250	97	606	2	103			
Peak Hour Factor	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62			
Percent Heavy Veh, %	5	5	0	0	11	11	6	0	6			
Cap, veh/h	326	888	0	0	293	114	687	2	573			
Arrive On Green	0.19	0.49	0.00	0.00	0.25	0.25	0.38	0.38	0.38			
Sat Flow, veh/h	1739	1826	0	0	1191	462	1804	6	1503			
Grp Volume(v), veh/h	319	397	0	0	0	347	608	0	103			
Grp Sat Flow(s),veh/h/ln	1739	1826	0	0	0	1654	1810	0	1503			
Q Serve(g_s), s	16.0	12.5	0.0	0.0	0.0	17.5	27.4	0.0	4.0			
Cycle Q Clear(g_c), s	16.0	12.5	0.0	0.0	0.0	17.5	27.4	0.0	4.0			
Prop In Lane	1.00		0.00	0.00		0.28	1.00		1.00			
Lane Grp Cap(c), veh/h	326	888	0	0	0	407	690	0	573			
V/C Ratio(X)	0.98	0.45	0.00	0.00	0.00	0.85	0.88	0.00	0.18			
Avail Cap(c_a), veh/h	326	1486	0	0	0	949	993	0	824			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	0.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	35.4	14.8	0.0	0.0	0.0	31.5	25.2	0.0	18.0			
Incr Delay (d2), s/veh	43.9	0.4	0.0	0.0	0.0	5.1	6.8	0.0	0.1			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	10.3	4.6	0.0	0.0	0.0	7.1	11.8	0.0	1.3			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	79.3	15.1	0.0	0.0	0.0	36.6	32.0	0.0	18.1			
LnGrp LOS	E	B	A	A	A	D	C	A	B			
Approach Vol, veh/h	716			347			711					
Approach Delay, s/veh	43.7			36.6			30.0					
Approach LOS	D			D			C					
Timer - Assigned Phs	2			4			7			8		
Phs Duration (G+Y+Rc), s	39.1			48.4			21.0			27.4		
Change Period (Y+Rc), s	5.8			5.8			4.6			5.8		
Max Green Setting (Gmax), s	48.0			71.2			16.4			50.2		
Max Q Clear Time (g_c+l1), s	29.4			14.5			18.0			19.5		
Green Ext Time (p_c), s	4.0			2.4			0.0			2.0		
Intersection Summary												
HCM 6th Ctrl Delay	36.8											
HCM 6th LOS	D											

Intersection

Intersection Delay, s/veh	9.8
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	14	18	151	27	51	169
Future Vol, veh/h	14	18	151	27	51	169
Peak Hour Factor	0.66	0.66	0.66	0.66	0.66	0.66
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	21	27	229	41	77	256
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	8.4	9.4	10.3
HCM LOS	A	A	B

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	44%	23%
Vol Thru, %	85%	0%	77%
Vol Right, %	15%	56%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	178	32	220
LT Vol	0	14	51
Through Vol	151	0	169
RT Vol	27	18	0
Lane Flow Rate	270	48	333
Geometry Grp	1	1	1
Degree of Util (X)	0.323	0.067	0.405
Departure Headway (Hd)	4.306	4.98	4.374
Convergence, Y/N	Yes	Yes	Yes
Cap	836	719	823
Service Time	2.324	3.014	2.391
HCM Lane V/C Ratio	0.323	0.067	0.405
HCM Control Delay	9.4	8.4	10.3
HCM Lane LOS	A	A	B
HCM 95th-tile Q	1.4	0.2	2

Intersection

Intersection Delay, s/veh 9.7

Intersection LOS A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	↗
Traffic Vol, veh/h	15	0	31	5	0	1	14	161	4	6	166	11
Future Vol, veh/h	15	0	31	5	0	1	14	161	4	6	166	11
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	22	0	45	7	0	1	20	233	6	9	241	16
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	1	1
HCM Control Delay	8.3	8.4	9.7	10
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	8%	33%	83%	3%	0%
Vol Thru, %	90%	0%	0%	97%	0%
Vol Right, %	2%	67%	17%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	179	46	6	172	11
LT Vol	14	15	5	6	0
Through Vol	161	0	0	166	0
RT Vol	4	31	1	0	11
Lane Flow Rate	259	67	9	249	16
Geometry Grp	5	2	2	7	7
Degree of Util (X)	0.326	0.089	0.013	0.341	0.019
Departure Headway (Hd)	4.522	4.816	5.313	4.93	4.209
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	796	743	673	730	851
Service Time	2.544	2.849	3.354	2.652	1.931
HCM Lane V/C Ratio	0.325	0.09	0.013	0.341	0.019
HCM Control Delay	9.7	8.3	8.4	10.2	7
HCM Lane LOS	A	A	A	B	A
HCM 95th-tile Q	1.4	0.3	0	1.5	0.1

Timings
19: Dexter Av. & Central Av. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

06/29/2018

	→	↘	←	↙	↗	↖
Lane Group	EBT	EBR	WBT	WBR	NBR	SBR
Lane Configurations	↑↑↑	↗	↑↑↑	↗	↗	↗
Traffic Volume (vph)	1892	189	1317	85	179	342
Future Volume (vph)	1892	189	1317	85	179	342
Turn Type	NA	Perm	NA	Perm	Perm	Perm
Protected Phases	4		8			
Permitted Phases		4		8	2	6
Detector Phase	4	4	8	8	2	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	26.8	26.8	26.8	26.8	42.4	15.8
Total Split (s)	69.0	69.0	69.0	69.0	51.0	51.0
Total Split (%)	57.5%	57.5%	57.5%	57.5%	42.5%	42.5%
Yellow Time (s)	4.8	4.8	4.8	4.8	4.4	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.8	5.8	5.8	5.4	5.8
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	None	None	Max	Max
Act Effct Green (s)	60.0	60.0	60.0	60.0	45.7	45.3
Actuated g/C Ratio	0.51	0.51	0.51	0.51	0.39	0.39
v/c Ratio	0.80	0.23	0.44	0.11	0.32	0.60
Control Delay	26.1	3.3	18.3	3.2	23.9	32.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.1	3.3	18.3	3.2	23.9	32.0
LOS	C	A	B	A	C	C
Approach Delay	24.1		17.4			
Approach LOS	C		B			
Intersection Summary						
Cycle Length: 120						
Actuated Cycle Length: 116.9						
Natural Cycle: 80						
Control Type: Actuated-Uncoordinated						
Maximum v/c Ratio: 0.80						
Intersection Signal Delay: 22.4				Intersection LOS: C		
Intersection Capacity Utilization 76.7%				ICU Level of Service D		
Analysis Period (min) 15						

Splits and Phases: 19: Dexter Av. & Central Av. (SR-74)

↑ Ø2	→ Ø4
51 s	69 s
↓ Ø6	← Ø8
51 s	69 s

HCM 6th Signalized Intersection Summary
19: Dexter Av. & Central Av. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

06/29/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↗		↑↑↑	↗		↑	↗		↑	↗
Traffic Volume (veh/h)	0	1892	189	0	1317	85	0	0	179	0	0	342
Future Volume (veh/h)	0	1892	189	0	1317	85	0	0	179	0	0	342
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870	0	1870	1870	0	1870	1870
Adj Flow Rate, veh/h	0	2079	165	0	1447	51	0	0	156	0	0	320
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	2	2	0	2	2	0	2	2	0	2	2
Cap, veh/h	0	2551	792	0	3215	782	0	746	632	0	746	632
Arrive On Green	0.00	0.50	0.50	0.00	0.50	0.50	0.00	0.00	0.40	0.00	0.00	0.40
Sat Flow, veh/h	0	5274	1585	0	6696	1565	0	1870	1584	0	1870	1585
Grp Volume(v), veh/h	0	2079	165	0	1447	51	0	0	156	0	0	320
Grp Sat Flow(s),veh/h/ln	0	1702	1585	0	1609	1565	0	1870	1584	0	1870	1585
Q Serve(g_s), s	0.0	39.3	6.6	0.0	16.6	1.9	0.0	0.0	7.5	0.0	0.0	17.4
Cycle Q Clear(g_c), s	0.0	39.3	6.6	0.0	16.6	1.9	0.0	0.0	7.5	0.0	0.0	17.4
Prop In Lane	0.00		1.00	0.00		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	0	2551	792	0	3215	782	0	746	632	0	746	632
V/C Ratio(X)	0.00	0.81	0.21	0.00	0.45	0.07	0.00	0.00	0.25	0.00	0.00	0.51
Avail Cap(c_a), veh/h	0	2823	876	0	3557	865	0	746	632	0	746	632
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	24.1	16.0	0.0	18.5	14.8	0.0	0.0	22.9	0.0	0.0	25.9
Incr Delay (d2), s/veh	0.0	1.8	0.1	0.0	0.1	0.0	0.0	0.0	0.9	0.0	0.0	2.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	14.8	2.3	0.0	5.8	0.7	0.0	0.0	2.9	0.0	0.0	6.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	25.9	16.1	0.0	18.6	14.8	0.0	0.0	23.8	0.0	0.0	28.8
LnGrp LOS	A	C	B	A	B	B	A	A	C	A	A	C
Approach Vol, veh/h	2244			1498			156			320		
Approach Delay, s/veh	25.2			18.4			23.8			28.8		
Approach LOS	C			B			C			C		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	51.4			62.9			51.4			62.9		
Change Period (Y+Rc), s	* 5.8			5.8			5.8			5.8		
Max Green Setting (Gmax), s	* 46			63.2			45.2			63.2		
Max Q Clear Time (g_c+I1), s	9.5			41.3			19.4			18.6		
Green Ext Time (p_c), s	0.5			15.8			1.0			13.7		

Intersection Summary

HCM 6th Ctrl Delay	23.0
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Timings
19: Dexter Av. & Central Av. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

10/22/2018

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	365	1892	189	166	1317	85	148	144	90	101	342
Future Volume (vph)	365	1892	189	166	1317	85	148	144	90	101	342
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2	1	6	7
Permitted Phases			4			8					6
Detector Phase	7	4	4	3	8	8	5	2	1	6	7
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0	5.0
Minimum Split (s)	9.5	26.8	26.8	9.5	26.8	26.8	9.5	42.4	9.5	15.8	9.5
Total Split (s)	21.9	54.0	54.0	11.5	43.6	43.6	23.7	42.6	11.9	30.8	21.9
Total Split (%)	18.3%	45.0%	45.0%	9.6%	36.3%	36.3%	19.8%	35.5%	9.9%	25.7%	18.3%
Yellow Time (s)	3.5	4.8	4.8	3.5	4.8	4.8	3.5	4.4	3.5	4.8	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	5.8	5.8	4.5	5.8	5.8	4.5	5.4	4.5	5.8	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	None	Max	None
Act Effect Green (s)	16.9	48.2	48.2	7.0	38.3	38.3	15.7	37.2	7.4	28.5	51.2
Actuated g/C Ratio	0.14	0.40	0.40	0.06	0.32	0.32	0.13	0.31	0.06	0.24	0.43
v/c Ratio	0.83	1.02	0.29	0.91	0.71	0.15	0.71	0.63	0.91	0.25	0.51
Control Delay	65.8	60.4	8.4	100.2	38.3	0.5	66.3	35.7	120.5	40.2	20.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.8	60.4	8.4	100.2	38.3	0.5	66.3	35.7	120.5	40.2	20.9
LOS	E	E	A	F	D	A	E	D	F	D	C
Approach Delay		57.2			42.8			45.3		41.4	
Approach LOS		E			D			D		D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Natural Cycle: 120

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.02

Intersection Signal Delay: 49.9

Intersection LOS: D

Intersection Capacity Utilization 93.9%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 19: Dexter Av. & Central Av. (SR-74)

			
Ø1	Ø2	Ø3	Ø4
11.9 s	42.6 s	11.5 s	54 s
			
Ø5	Ø6	Ø7	Ø8
23.7 s	30.8 s	21.9 s	43.6 s

HCM 6th Signalized Intersection Summary
19: Dexter Av. & Central Av. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

10/22/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	365	1892	189	166	1317	85	148	144	179	90	101	342
Future Volume (veh/h)	365	1892	189	166	1317	85	148	144	179	90	101	342
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	401	2079	165	182	1447	51	163	158	156	99	111	320
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	459	2044	635	201	2096	510	192	267	263	109	491	627
Arrive On Green	0.13	0.40	0.40	0.06	0.33	0.33	0.11	0.31	0.31	0.06	0.26	0.26
Sat Flow, veh/h	3456	5106	1585	3456	6434	1565	1781	863	853	1781	1870	1585
Grp Volume(v), veh/h	401	2079	165	182	1447	51	163	0	314	99	111	320
Grp Sat Flow(s),veh/h/ln	1728	1702	1585	1728	1609	1565	1781	0	1716	1781	1870	1585
Q Serve(g_s), s	13.7	48.2	8.4	6.3	23.6	2.7	10.8	0.0	18.6	6.6	5.6	18.4
Cycle Q Clear(g_c), s	13.7	48.2	8.4	6.3	23.6	2.7	10.8	0.0	18.6	6.6	5.6	18.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.50	1.00		1.00
Lane Grp Cap(c), veh/h	459	2044	635	201	2096	510	192	0	530	109	491	627
V/C Ratio(X)	0.87	1.02	0.26	0.91	0.69	0.10	0.85	0.00	0.59	0.90	0.23	0.51
Avail Cap(c_a), veh/h	499	2044	635	201	2096	510	284	0	530	109	491	627
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.2	36.1	24.2	56.4	35.3	28.3	52.8	0.0	35.2	56.1	34.8	27.6
Incr Delay (d2), s/veh	14.9	24.3	0.2	38.5	1.0	0.1	14.5	0.0	4.8	56.9	1.1	3.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.7	23.3	3.1	3.8	9.0	1.0	5.5	0.0	8.3	4.6	2.6	7.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.2	60.4	24.4	94.9	36.3	28.4	67.2	0.0	40.0	113.0	35.9	30.5
LnGrp LOS	E	F	C	F	D	C	E	A	D	F	D	C
Approach Vol, veh/h	2645			1680			477			530		
Approach Delay, s/veh	59.0			42.4			49.3			47.1		
Approach LOS	E			D			D			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.9	43.0	11.5	54.0	17.5	37.4	20.5	45.0				
Change Period (Y+Rc), s	4.5	* 5.8	4.5	5.8	4.5	5.8	4.5	5.8				
Max Green Setting (Gmax), s	7.4	* 37	7.0	48.2	19.2	25.0	17.4	37.8				
Max Q Clear Time (g_c+I1), s	8.6	20.6	8.3	50.2	12.8	20.4	15.7	25.6				
Green Ext Time (p_c), s	0.0	1.6	0.0	0.0	0.2	0.7	0.3	7.3				

Intersection Summary

HCM 6th Ctrl Delay	51.7
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

APPENDIX 9.18:

**EAPC (2024) CONDITIONS INTERSECTION OPERATIONS ANALYSIS WORKSHEETS
WITH IMPROVEMENTS**

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Timings

S. Nichols Mixed-Use Development (JN 10878)

1: Lake St. & Nichols Rd.

06/29/2018

											
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	228	258	108	250	133	114	812	492	40	325	111
Future Volume (vph)	228	258	108	250	133	114	812	492	40	325	111
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	7	4		3	8	5	2		1	6	7
Permitted Phases			4					2			6
Detector Phase	7	4	4	3	8	5	2	2	1	6	7
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0
Minimum Split (s)	9.6	14.6	14.6	9.6	16.2	9.6	16.2	16.2	9.6	16.2	9.6
Total Split (s)	22.0	24.0	24.0	33.0	35.0	18.0	49.2	49.2	13.8	45.0	22.0
Total Split (%)	18.3%	20.0%	20.0%	27.5%	29.2%	15.0%	41.0%	41.0%	11.5%	37.5%	18.3%
Yellow Time (s)	3.6	3.6	3.6	3.6	5.2	3.6	5.2	5.2	3.6	5.2	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	4.6	6.2	4.6	6.2	6.2	4.6	6.2	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	None
Act Effect Green (s)	17.5	18.9	18.9	21.5	21.3	11.1	47.4	47.4	7.1	39.1	62.8
Actuated g/C Ratio	0.16	0.17	0.17	0.19	0.19	0.10	0.43	0.43	0.06	0.35	0.57
v/c Ratio	0.88	0.87	0.29	0.78	0.57	0.70	0.55	0.60	0.38	0.27	0.13
Control Delay	77.8	73.3	4.7	59.0	43.6	70.3	27.4	12.4	61.7	27.6	13.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	77.8	73.3	4.7	59.0	43.6	70.3	27.4	12.4	61.7	27.6	13.5
LOS	E	E	A	E	D	E	C	B	E	C	B
Approach Delay		62.5			52.4		25.7			27.2	
Approach LOS		E			D		C			C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 110.6

Natural Cycle: 75

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 37.4

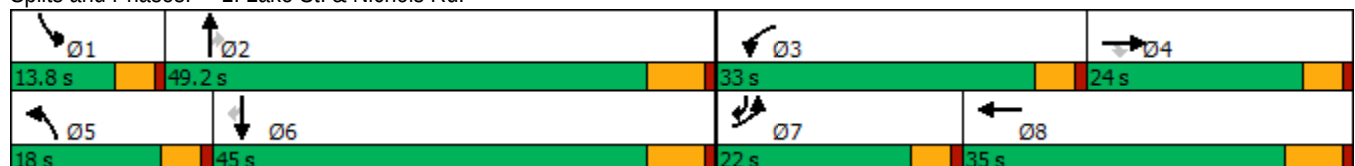
Intersection LOS: D

Intersection Capacity Utilization 70.7%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 1: Lake St. & Nichols Rd.



HCM 6th Signalized Intersection Summary 1: Lake St. & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

06/29/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	228	258	108	250	133	57	114	812	492	40	325	111
Future Volume (veh/h)	228	258	108	250	133	57	114	812	492	40	325	111
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	245	277	116	269	143	49	123	873	0	43	349	119
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	276	315	267	306	246	84	151	1573		61	1382	831
Arrive On Green	0.15	0.17	0.17	0.17	0.19	0.19	0.08	0.42	0.00	0.03	0.37	0.37
Sat Flow, veh/h	1781	1870	1585	1781	1332	456	1781	3741	1585	1781	3741	1585
Grp Volume(v), veh/h	245	277	116	269	0	192	123	873	0	43	349	119
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1788	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	14.2	15.2	6.9	15.5	0.0	10.3	7.1	18.5	0.0	2.5	6.8	4.1
Cycle Q Clear(g_c), s	14.2	15.2	6.9	15.5	0.0	10.3	7.1	18.5	0.0	2.5	6.8	4.1
Prop In Lane	1.00		1.00	1.00		0.26	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	276	315	267	306	0	331	151	1573		61	1382	831
V/C Ratio(X)	0.89	0.88	0.44	0.88	0.00	0.58	0.81	0.55		0.71	0.25	0.14
Avail Cap(c_a), veh/h	295	346	293	482	0	491	227	1573		156	1382	831
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.5	42.6	39.2	42.4	0.0	39.1	47.2	23.0	0.0	50.2	23.0	12.8
Incr Delay (d2), s/veh	25.5	20.9	1.1	11.0	0.0	1.6	7.4	1.4	0.0	5.6	0.4	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.2	8.9	2.6	7.4	0.0	4.4	3.3	7.8	0.0	1.2	2.9	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	69.0	63.6	40.3	53.5	0.0	40.7	54.6	24.4	0.0	55.8	23.4	13.2
LnGrp LOS	E	E	D	D	A	D	D	C		E	C	B
Approach Vol, veh/h		638			461			996	A		511	
Approach Delay, s/veh		61.4			48.1			28.1			23.8	
Approach LOS		E			D			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.2	50.3	22.6	23.9	13.5	45.0	20.8	25.6				
Change Period (Y+Rc), s	4.6	6.2	4.6	* 6.2	4.6	6.2	4.6	6.2				
Max Green Setting (Gmax), s	9.2	43.0	28.4	* 19	13.4	38.8	17.4	28.8				
Max Q Clear Time (g_c+I1), s	4.5	20.5	17.5	17.2	9.1	8.8	16.2	12.3				
Green Ext Time (p_c), s	0.0	7.8	0.5	0.5	0.0	3.6	0.1	0.8				

Intersection Summary

HCM 6th Ctrl Delay 39.0

HCM 6th LOS D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Timings

S. Nichols Mixed-Use Development (JN 10878)

3: Alberhill Ranch Rd. & Nichols Rd.

06/29/2018

	→	↖	←	↗	↘
Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Configurations	↱		↱	↱	↱
Traffic Volume (vph)	780	54	398	43	99
Future Volume (vph)	780	54	398	43	99
Turn Type	NA	Perm	NA	Prot	Perm
Protected Phases	4		8	2	
Permitted Phases		8			2
Detector Phase	4	8	8	2	2
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.2	23.2	23.2	22.2	22.2
Total Split (s)	97.0	97.0	97.0	23.0	23.0
Total Split (%)	80.8%	80.8%	80.8%	19.2%	19.2%
Yellow Time (s)	5.2	5.2	5.2	4.2	4.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.2		6.2	5.2	5.2
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	None	None	None	Min	Min
Act Effct Green (s)	31.7		31.7	8.4	8.4
Actuated g/C Ratio	0.60		0.60	0.16	0.16
v/c Ratio	0.81		0.66	0.17	0.33
Control Delay	14.6		11.4	24.6	9.0
Queue Delay	0.0		0.0	0.0	0.0
Total Delay	14.6		11.4	24.6	9.0
LOS	B		B	C	A
Approach Delay	14.6		11.4	13.7	
Approach LOS	B		B	B	
Intersection Summary					
Cycle Length: 120					
Actuated Cycle Length: 52.5					
Natural Cycle: 70					
Control Type: Actuated-Uncoordinated					
Maximum v/c Ratio: 0.81					
Intersection Signal Delay: 13.5				Intersection LOS: B	
Intersection Capacity Utilization 80.0%				ICU Level of Service D	
Analysis Period (min) 15					

Splits and Phases: 3: Alberhill Ranch Rd. & Nichols Rd.

↖ 02	→ 04
23 s	97 s
	↖ 08
	97 s

HCM 6th Signalized Intersection Summary 3: Alberhill Ranch Rd. & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

06/29/2018

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↰			↱	↰	↱
Traffic Volume (veh/h)	780	18	54	398	43	99
Future Volume (veh/h)	780	18	54	398	43	99
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	886	20	61	452	49	112
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1102	25	138	782	219	195
Arrive On Green	0.60	0.60	0.60	0.60	0.12	0.12
Sat Flow, veh/h	1822	41	68	1293	1781	1585
Grp Volume(v), veh/h	0	906	513	0	49	112
Grp Sat Flow(s),veh/h/ln	0	1863	1362	0	1781	1585
Q Serve(g_s), s	0.0	15.7	2.6	0.0	1.0	2.8
Cycle Q Clear(g_c), s	0.0	15.7	18.2	0.0	1.0	2.8
Prop In Lane		0.02	0.12		1.00	1.00
Lane Grp Cap(c), veh/h	0	1127	920	0	219	195
V/C Ratio(X)	0.00	0.80	0.56	0.00	0.22	0.58
Avail Cap(c_a), veh/h	0	4043	3276	0	758	674
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	6.4	5.0	0.0	16.6	17.3
Incr Delay (d2), s/veh	0.0	1.4	0.5	0.0	0.5	2.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.9	0.7	0.0	0.4	1.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	7.8	5.5	0.0	17.1	20.0
LnGrp LOS	A	A	A	A	B	B
Approach Vol, veh/h	906			513	161	
Approach Delay, s/veh	7.8			5.5	19.1	
Approach LOS	A			A	B	
Timer - Assigned Phs	2		4		8	
Phs Duration (G+Y+Rc), s	10.3		31.5		31.5	
Change Period (Y+Rc), s	5.2		6.2		6.2	
Max Green Setting (Gmax), s	17.8		90.8		90.8	
Max Q Clear Time (g_c+I1), s	4.8		17.7		20.2	
Green Ext Time (p_c), s	0.3		7.6		3.8	
Intersection Summary						
HCM 6th Ctrl Delay			8.2			
HCM 6th LOS			A			

Timings
4: Lakeshore Dr. & Riverside Dr. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

06/29/2018

										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	26	577	161	155	667	302	333	262	195	15
Future Volume (vph)	26	577	161	155	667	302	333	262	195	15
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA	Perm
Protected Phases	7	4		3	8	5	2	1	6	
Permitted Phases			4							6
Detector Phase	7	4	4	3	8	5	2	1	6	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	32.4	32.4	9.6	33.4	9.6	34.7	9.6	32.7	32.7
Total Split (s)	9.7	36.3	36.3	18.8	45.4	26.0	35.7	29.2	38.9	38.9
Total Split (%)	8.1%	30.3%	30.3%	15.7%	37.8%	21.7%	29.8%	24.3%	32.4%	32.4%
Yellow Time (s)	3.6	4.4	4.4	3.6	4.4	3.6	3.7	3.6	3.7	3.7
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.4	5.4	4.6	5.4	4.6	4.7	4.6	4.7	4.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	None	Max	Max
Act Effect Green (s)	5.1	28.2	28.2	13.5	40.7	21.4	33.7	22.0	34.2	34.2
Actuated g/C Ratio	0.04	0.24	0.24	0.12	0.35	0.18	0.29	0.19	0.29	0.29
v/c Ratio	0.38	0.76	0.36	0.85	0.98	1.05	0.52	0.88	0.21	0.03
Control Delay	69.8	47.5	9.9	85.4	56.0	109.1	34.8	73.5	32.4	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.8	47.5	9.9	85.4	56.0	109.1	34.8	73.5	32.4	0.1
LOS	E	D	A	F	E	F	C	E	C	A
Approach Delay		40.3			59.7		63.9		54.1	
Approach LOS		D			E		E		D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 116.7

Natural Cycle: 110

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.05

Intersection Signal Delay: 55.3

Intersection LOS: E

Intersection Capacity Utilization 91.3%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 4: Lakeshore Dr. & Riverside Dr. (SR-74)

			
Ø1	Ø2	Ø3	Ø4
29.2 s	35.7 s	18.8 s	36.3 s
			
Ø5	Ø6	Ø7	Ø8
26 s	38.9 s	9.7 s	45.4 s

HCM 6th Signalized Intersection Summary 4: Lakeshore Dr. & Riverside Dr. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

06/29/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	577	161	155	667	409	302	333	135	262	195	15
Future Volume (veh/h)	26	577	161	155	667	409	302	333	135	262	195	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No				No				No			
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	29	648	118	174	749	81	339	374	87	294	219	14
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	47	783	348	202	994	107	339	898	207	323	1081	482
Arrive On Green	0.03	0.22	0.22	0.11	0.31	0.31	0.19	0.31	0.31	0.18	0.30	0.30
Sat Flow, veh/h	1781	3554	1581	1781	3234	350	1781	2867	659	1781	3554	1585
Grp Volume(v), veh/h	29	648	118	174	411	419	339	230	231	294	219	14
Grp Sat Flow(s),veh/h/ln	1781	1777	1581	1781	1777	1807	1781	1777	1749	1781	1777	1585
Q Serve(g_s), s	1.8	19.6	7.1	10.8	23.5	23.5	21.4	11.5	11.7	18.2	5.1	0.7
Cycle Q Clear(g_c), s	1.8	19.6	7.1	10.8	23.5	23.5	21.4	11.5	11.7	18.2	5.1	0.7
Prop In Lane	1.00		1.00	1.00		0.19	1.00		0.38	1.00		1.00
Lane Grp Cap(c), veh/h	47	783	348	202	546	555	339	556	548	323	1081	482
V/C Ratio(X)	0.61	0.83	0.34	0.86	0.75	0.75	1.00	0.41	0.42	0.91	0.20	0.03
Avail Cap(c_a), veh/h	81	977	434	225	632	643	339	556	548	390	1081	482
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.2	41.8	36.9	49.0	35.1	35.1	45.5	30.5	30.5	45.1	29.0	27.5
Incr Delay (d2), s/veh	4.7	4.9	0.6	23.3	4.4	4.3	48.8	2.3	2.4	20.5	0.4	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	8.9	2.7	6.0	10.4	10.6	14.0	5.3	5.3	9.8	2.3	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.9	46.7	37.5	72.3	39.5	39.4	94.3	32.7	32.9	65.6	29.4	27.6
LnGrp LOS	E	D	D	E	D	D	F	C	C	E	C	C
Approach Vol, veh/h	795				1004				800			
Approach Delay, s/veh	45.8				45.1				58.9			
Approach LOS	D				D				E			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	25.0	39.9	17.4	30.2	26.0	38.9	7.6	39.9				
Change Period (Y+Rc), s	4.6	* 4.7	4.6	5.4	4.6	* 4.7	4.6	5.4				
Max Green Setting (Gmax), s	24.6	* 31	14.2	30.9	21.4	* 34	5.1	40.0				
Max Q Clear Time (g_c+I1), s	20.2	13.7	12.8	21.6	23.4	7.1	3.8	25.5				
Green Ext Time (p_c), s	0.2	2.6	0.0	3.1	0.0	1.4	0.0	4.3				
Intersection Summary												
HCM 6th Ctrl Delay			49.6									
HCM 6th LOS			D									
Notes												

Timings

S. Nichols Mixed-Use Development (JN 10878)

5: Strickland Av./Gunnerson St. & Riverside Dr. (SR-74)

06/29/2018



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	2	1056	16	804	2	2	31	71	3	8
Future Volume (vph)	2	1056	16	804	2	2	31	71	3	8
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		8		2			6	
Permitted Phases	4		8		2		2	6		6
Detector Phase	4	4	8	8	2	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	24.5	24.5	23.4	23.4	22.6	22.6	22.6	23.4	23.4	23.4
Total Split (s)	93.0	93.0	93.0	93.0	27.0	27.0	27.0	27.0	27.0	27.0
Total Split (%)	77.5%	77.5%	77.5%	77.5%	22.5%	22.5%	22.5%	22.5%	22.5%	22.5%
Yellow Time (s)	4.4	4.4	4.4	4.4	3.6	3.6	3.6	4.4	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	5.4	5.4	5.4	5.4		4.6	4.6		5.4	5.4
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	None	None	None	None	Min	Min	Min	Min	Min	Min
Act Effect Green (s)	49.2	49.2	49.2	49.2		13.1	13.1		12.3	12.3
Actuated g/C Ratio	0.67	0.67	0.67	0.67		0.18	0.18		0.17	0.17
v/c Ratio	0.01	0.88	0.12	0.71		0.01	0.10		0.33	0.03
Control Delay	3.5	18.0	5.9	10.4		35.2	14.7		38.6	4.9
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	3.5	18.0	5.9	10.4		35.2	14.7		38.6	4.9
LOS	A	B	A	B		D	B		D	A
Approach Delay		18.0		10.4		17.0			35.3	
Approach LOS		B		B		B			D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 73.3

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 15.4

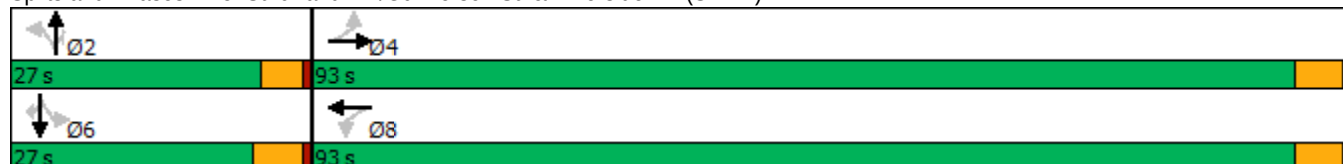
Intersection LOS: B

Intersection Capacity Utilization 85.4%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 5: Strickland Av./Gunnerson St. & Riverside Dr. (SR-74)



													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (veh/h)	2	1056	6	16	804	53	2	2	31	71	3	8	
Future Volume (veh/h)	2	1056	6	16	804	53	2	2	31	71	3	8	
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach	No			No			No			No			
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	
Adj Flow Rate, veh/h	2	1089	6	16	829	55	2	2	0	73	3	0	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2	
Cap, veh/h	354	1263	7	227	1179	78	185	158		318	11		
Arrive On Green	0.68	0.68	0.68	0.68	0.68	0.68	0.15	0.15	0.00	0.15	0.15	0.00	
Sat Flow, veh/h	628	1858	10	515	1735	115	661	1023	1585	1362	71	1585	
Grp Volume(v), veh/h	2	0	1095	16	0	884	4	0	0	76	0	0	
Grp Sat Flow(s),veh/h/ln	628	0	1869	515	0	1850	1685	0	1585	1434	0	1585	
Q Serve(g_s), s	0.1	0.0	29.4	1.6	0.0	19.0	0.0	0.0	0.0	2.9	0.0	0.0	
Cycle Q Clear(g_c), s	19.2	0.0	29.4	31.1	0.0	19.0	0.1	0.0	0.0	3.1	0.0	0.0	
Prop In Lane	1.00		0.01	1.00		0.06	0.50		1.00	0.96		1.00	
Lane Grp Cap(c), veh/h	354	0	1270	227	0	1257	343	0		329	0		
V/C Ratio(X)	0.01	0.00	0.86	0.07	0.00	0.70	0.01	0.00		0.23	0.00		
Avail Cap(c_a), veh/h	774	0	2521	572	0	2495	650	0		585	0		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00	
Uniform Delay (d), s/veh	12.3	0.0	8.0	20.1	0.0	6.4	23.3	0.0	0.0	24.5	0.0	0.0	
Incr Delay (d2), s/veh	0.0	0.0	1.9	0.1	0.0	0.7	0.0	0.0	0.0	0.4	0.0	0.0	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	0.0	0.0	7.1	0.2	0.0	4.4	0.1	0.0	0.0	1.0	0.0	0.0	
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	12.3	0.0	9.9	20.2	0.0	7.1	23.3	0.0	0.0	24.9	0.0	0.0	
LnGrp LOS	B	A	A	C	A	A	C	A		C	A		
Approach Vol, veh/h	1097			900				4		A		76	A
Approach Delay, s/veh	9.9			7.3				23.3				24.9	
Approach LOS	A			A				C				C	
Timer - Assigned Phs	2			4			6		8				
Phs Duration (G+Y+Rc), s	15.4			49.5			15.4		49.5				
Change Period (Y+Rc), s	* 5.4			5.4			5.4		5.4				
Max Green Setting (Gmax), s	* 22			87.6			21.6		87.6				
Max Q Clear Time (g_c+I1), s	2.1			31.4			5.1		33.1				
Green Ext Time (p_c), s	0.0			12.7			0.2		8.4				
Intersection Summary													
HCM 6th Ctrl Delay				9.4									
HCM 6th LOS				A									
Notes													
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.													
Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.													

Timings
6: Collier Av. & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

06/29/2018

	→	↖	←	↗	↘
Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Configurations	↗	↖	↗	↖	↗
Traffic Volume (vph)	800	183	394	69	201
Future Volume (vph)	800	183	394	69	201
Turn Type	NA	Perm	NA	Prot	Perm
Protected Phases	4		8	2	
Permitted Phases		8			2
Detector Phase	4	8	8	2	2
Switch Phase					
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	26.8	15.8	15.8	16.2	16.2
Total Split (s)	86.0	86.0	86.0	34.0	34.0
Total Split (%)	71.7%	71.7%	71.7%	28.3%	28.3%
Yellow Time (s)	4.8	4.8	4.8	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.8	5.8	6.2	6.2
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	None	None	None	Min	Min
Act Efect Green (s)	80.2	80.2	80.2	12.0	12.0
Actuated g/C Ratio	0.77	0.77	0.77	0.12	0.12
v/c Ratio	0.72	0.73	0.32	0.39	0.69
Control Delay	10.4	25.9	4.6	48.3	22.9
Queue Delay	0.0	0.0	0.9	0.0	0.0
Total Delay	10.4	25.9	5.5	48.3	22.9
LOS	B	C	A	D	C
Approach Delay	10.4		12.0	29.4	
Approach LOS	B		B	C	
Intersection Summary					
Cycle Length: 120					
Actuated Cycle Length: 104.2					
Natural Cycle: 80					
Control Type: Actuated-Uncoordinated					
Maximum v/c Ratio: 0.73					
Intersection Signal Delay: 13.9			Intersection LOS: B		
Intersection Capacity Utilization 80.8%			ICU Level of Service D		
Analysis Period (min) 15					

Splits and Phases: 6: Collier Av. & Nichols Rd.



HCM 6th Signalized Intersection Summary
6: Collier Av. & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

06/29/2018

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↰		↱	↰	↱	↱
Traffic Volume (veh/h)	800	89	183	394	69	201
Future Volume (veh/h)	800	89	183	394	69	201
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	920	102	210	453	79	231
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1199	133	275	1356	296	264
Arrive On Green	0.73	0.73	0.73	0.73	0.17	0.17
Sat Flow, veh/h	1654	183	552	1870	1781	1585
Grp Volume(v), veh/h	0	1022	210	453	79	231
Grp Sat Flow(s),veh/h/ln	0	1837	552	1870	1781	1585
Q Serve(g_s), s	0.0	38.1	42.1	9.7	4.3	15.7
Cycle Q Clear(g_c), s	0.0	38.1	80.2	9.7	4.3	15.7
Prop In Lane		0.10	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	0	1332	275	1356	296	264
V/C Ratio(X)	0.00	0.77	0.76	0.33	0.27	0.88
Avail Cap(c_a), veh/h	0	1332	275	1356	448	398
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	9.4	34.3	5.5	40.2	45.0
Incr Delay (d2), s/veh	0.0	2.8	12.0	0.1	0.5	13.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	12.3	6.2	3.0	1.8	6.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	12.2	46.2	5.7	40.7	58.2
LnGrp LOS	A	B	D	A	D	E
Approach Vol, veh/h	1022			663	310	
Approach Delay, s/veh	12.2			18.5	53.8	
Approach LOS	B			B	D	
Timer - Assigned Phs		2		4		8
Phs Duration (G+Y+Rc), s		24.6		86.0		86.0
Change Period (Y+Rc), s		6.2		5.8		5.8
Max Green Setting (Gmax), s		27.8		80.2		80.2
Max Q Clear Time (g_c+I1), s		17.7		40.1		82.2
Green Ext Time (p_c), s		0.7		9.9		0.0
Intersection Summary						
HCM 6th Ctrl Delay			20.7			
HCM 6th LOS			C			

Timings

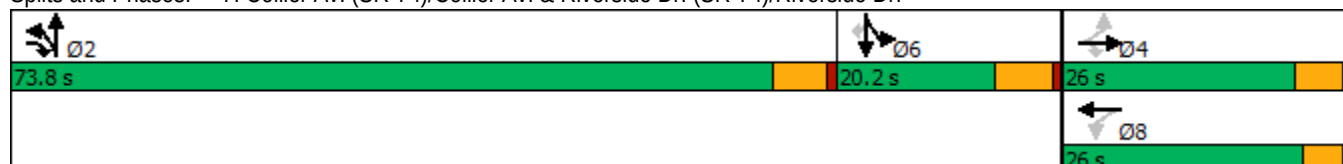
S. Nichols Mixed-Use Development (JN 10878)

7: Collier Av. (SR-74)/Collier Av. & Riverside Dr. (SR-74)/Riverside Dr.

07/02/2018

										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	144	11	1004	6	1	777	144	1	143	98
Future Volume (vph)	144	11	1004	6	1	777	144	1	143	98
Turn Type	Perm	NA	pm+ov	Perm	NA	Split	NA	Split	NA	Perm
Protected Phases		4	2		8	2	2	6	6	
Permitted Phases	4		4	8						6
Detector Phase	4	4	2	8	8	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	15.4	15.4	15.8	14.6	14.6	15.8	15.8	16.2	16.2	16.2
Total Split (s)	26.0	26.0	73.8	26.0	26.0	73.8	73.8	20.2	20.2	20.2
Total Split (%)	21.7%	21.7%	61.5%	21.7%	21.7%	61.5%	61.5%	16.8%	16.8%	16.8%
Yellow Time (s)	4.4	4.4	4.8	3.6	3.6	4.8	4.8	5.2	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.4	5.8		4.6	5.8	5.8	6.2	6.2	6.2
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	None	None	Max	None	None	Max	Max	Max	Max	Max
Act Effct Green (s)		17.7	91.2		18.5	68.1	68.1	14.0	14.0	14.0
Actuated g/C Ratio		0.15	0.78		0.16	0.58	0.58	0.12	0.12	0.12
v/c Ratio		0.79	0.83		0.04	0.41	0.15	0.00	0.68	0.37
Control Delay		74.5	13.4		37.1	14.6	11.9	47.0	66.3	13.3
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		74.5	13.4		37.1	14.6	11.9	47.0	66.3	13.3
LOS		E	B		D	B	B	D	E	B
Approach Delay		21.6			37.1		14.2		44.8	
Approach LOS		C			D		B		D	
Intersection Summary										
Cycle Length: 120										
Actuated Cycle Length: 117.2										
Natural Cycle: 80										
Control Type: Actuated-Uncoordinated										
Maximum v/c Ratio: 0.83										
Intersection Signal Delay: 21.1					Intersection LOS: C					
Intersection Capacity Utilization 92.7%					ICU Level of Service F					
Analysis Period (min) 15										

Splits and Phases: 7: Collier Av. (SR-74)/Collier Av. & Riverside Dr. (SR-74)/Riverside Dr.



HCM 6th Signalized Intersection Summary S. Nichols Mixed-Use Development (JN 10878)
 7: Collier Av. (SR-74)/Collier Av. & Riverside Dr. (SR-74)/Riverside Dr. 07/02/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	144	11	1004	6	1	2	777	144	11	1	143	98
Future Volume (veh/h)	144	11	1004	6	1	2	777	144	11	1	143	98
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	152	12	991	6	1	0	818	152	11	1	151	63
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	303	19	1170	98	12	0	1958	976	71	208	218	185
Arrive On Green	0.17	0.17	0.17	0.17	0.17	0.00	0.57	0.57	0.57	0.12	0.12	0.12
Sat Flow, veh/h	1430	113	1585	245	71	0	3456	1723	125	1781	1870	1585
Grp Volume(v), veh/h	164	0	991	7	0	0	818	0	163	1	151	63
Grp Sat Flow(s),veh/h/ln	1542	0	1585	316	0	0	1728	0	1848	1781	1870	1585
Q Serve(g_s), s	0.0	0.0	20.6	0.2	0.0	0.0	16.1	0.0	5.0	0.1	9.3	4.4
Cycle Q Clear(g_c), s	11.2	0.0	20.6	11.4	0.0	0.0	16.1	0.0	5.0	0.1	9.3	4.4
Prop In Lane	0.93		1.00	0.86		0.00	1.00		0.07	1.00		1.00
Lane Grp Cap(c), veh/h	323	0	1170	110	0	0	1958	0	1047	208	218	185
V/C Ratio(X)	0.51	0.00	0.85	0.06	0.00	0.00	0.42	0.00	0.16	0.00	0.69	0.34
Avail Cap(c_a), veh/h	323	0	1170	114	0	0	1958	0	1047	208	218	185
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.8	0.0	6.8	42.8	0.0	0.0	14.8	0.0	12.4	46.8	50.9	48.8
Incr Delay (d2), s/veh	1.3	0.0	5.9	0.2	0.0	0.0	0.7	0.0	0.3	0.0	16.6	4.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.5	0.0	31.6	0.2	0.0	0.0	6.0	0.0	2.0	0.0	5.2	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.1	0.0	12.7	43.0	0.0	0.0	15.4	0.0	12.7	46.9	67.5	53.7
LnGrp LOS	D	A	B	D	A	A	B	A	B	D	E	D
Approach Vol, veh/h		1155			7			981			215	
Approach Delay, s/veh		17.6			43.0			15.0			63.3	
Approach LOS		B			D			B			E	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		73.8		26.0		20.2		26.0				
Change Period (Y+Rc), s		5.8		5.4		6.2		* 5.4				
Max Green Setting (Gmax), s		68.0		20.6		14.0		* 21				
Max Q Clear Time (g_c+I1), s		18.1		22.6		11.3		13.4				
Green Ext Time (p_c), s		4.3		0.0		0.2		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			20.8									
HCM 6th LOS			C									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Timings
9: I-15 SB Ramps & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

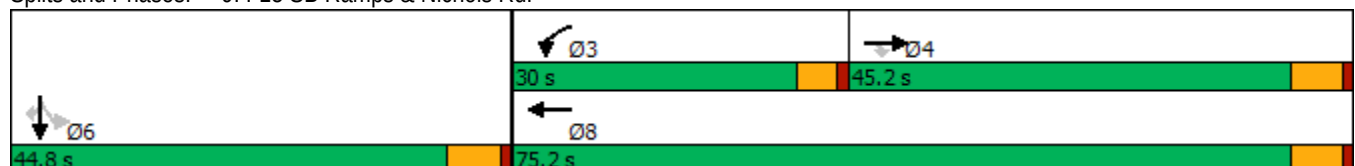
06/29/2018

	→	↘	↙	←	↘	↓	↙
Lane Group	EBT	EBR	WBL	WBT	SBL	SBT	SBR
Lane Configurations	↑↑	↑	↘	↑↑	↘	↑	↘
Traffic Volume (vph)	529	472	131	455	257	7	121
Future Volume (vph)	529	472	131	455	257	7	121
Turn Type	NA	Perm	Prot	NA	Perm	NA	Perm
Protected Phases	4		3	8		6	
Permitted Phases		4			6		6
Detector Phase	4	4	3	8	6	6	6
Switch Phase							
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0	10.0	10.0
Minimum Split (s)	22.8	22.8	9.6	22.8	26.8	26.8	26.8
Total Split (s)	45.2	45.2	30.0	75.2	44.8	44.8	44.8
Total Split (%)	37.7%	37.7%	25.0%	62.7%	37.3%	37.3%	37.3%
Yellow Time (s)	4.8	4.8	3.6	4.8	4.8	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.8	4.6	5.8	5.8	5.8	5.8
Lead/Lag	Lag	Lag	Lead				
Lead-Lag Optimize?	Yes	Yes	Yes				
Recall Mode	None	None	None	None	Min	Min	Min
Act Effect Green (s)	27.7	27.7	16.4	49.0	24.3	24.3	24.3
Actuated g/C Ratio	0.32	0.32	0.19	0.57	0.28	0.28	0.28
v/c Ratio	0.62	0.67	0.63	0.30	0.73	0.20	0.19
Control Delay	28.9	6.5	46.8	10.5	39.3	9.3	7.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.9	6.5	46.8	10.5	39.3	9.3	7.5
LOS	C	A	D	B	D	A	A
Approach Delay	18.4			18.6		29.0	
Approach LOS	B			B		C	

Intersection Summary

Cycle Length: 120	
Actuated Cycle Length: 85.8	
Natural Cycle: 65	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.73	
Intersection Signal Delay: 20.5	Intersection LOS: C
Intersection Capacity Utilization 64.2%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 9: I-15 SB Ramps & Nichols Rd.



HCM 6th Signalized Intersection Summary
9: I-15 SB Ramps & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

06/29/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗	↖	↑↑					↖	↗	↗
Traffic Volume (veh/h)	0	529	472	131	455	0	0	0	0	257	7	121
Future Volume (veh/h)	0	529	472	131	455	0	0	0	0	257	7	121
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1856	1856	1530	1856	0				1781	907	1707
Adj Flow Rate, veh/h	0	705	629	175	607	0				343	0	167
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75				0.75	0.75	0.75
Percent Heavy Veh, %	0	3	3	25	3	0				8	67	13
Cap, veh/h	0	1530	682	207	2220	0				400	0	682
Arrive On Green	0.00	0.43	0.43	0.14	0.63	0.00				0.24	0.00	0.24
Sat Flow, veh/h	0	3618	1572	1457	3618	0				1697	0	2894
Grp Volume(v), veh/h	0	705	629	175	607	0				343	0	167
Grp Sat Flow(s),veh/h/ln	0	1763	1572	1457	1763	0				1697	0	1447
Q Serve(g_s), s	0.0	12.2	32.5	10.1	6.6	0.0				16.7	0.0	4.0
Cycle Q Clear(g_c), s	0.0	12.2	32.5	10.1	6.6	0.0				16.7	0.0	4.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1530	682	207	2220	0				400	0	682
V/C Ratio(X)	0.00	0.46	0.92	0.84	0.27	0.00				0.86	0.00	0.25
Avail Cap(c_a), veh/h	0	1613	719	430	2841	0				768	0	1310
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	17.2	23.0	36.0	7.1	0.0				31.5	0.0	26.7
Incr Delay (d2), s/veh	0.0	0.2	16.9	9.0	0.1	0.0				5.4	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	4.4	13.7	3.9	2.0	0.0				6.9	0.0	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	17.5	39.8	45.0	7.2	0.0				37.0	0.0	26.9
LnGrp LOS	A	B	D	D	A	A				D	A	C
Approach Vol, veh/h	1334			782			510					
Approach Delay, s/veh	28.0			15.7			33.7					
Approach LOS	C			B			C					
Timer - Assigned Phs	3			4			6			8		
Phs Duration (G+Y+Rc), s	16.9			43.2			26.1			60.0		
Change Period (Y+Rc), s	4.6			5.8			5.8			5.8		
Max Green Setting (Gmax), s	25.4			39.4			39.0			69.4		
Max Q Clear Time (g_c+I1), s	12.1			34.5			18.7			8.6		
Green Ext Time (p_c), s	0.4			2.9			1.6			4.2		
Intersection Summary												
HCM 6th Ctrl Delay			25.4									
HCM 6th LOS			C									
Notes												

Timings

S. Nichols Mixed-Use Development (JN 10878)

10: I-15 NB Ramps & Nichols Rd.

06/29/2018

					
Lane Group	EBL	EBT	WBT	NBT	NBR
Lane Configurations	 	 	 		
Traffic Volume (vph)	189	597	345	3	201
Future Volume (vph)	189	597	345	3	201
Turn Type	Prot	NA	NA	NA	Perm
Protected Phases	7	4	8	2	
Permitted Phases					2
Detector Phase	7	4	8	2	2
Switch Phase					
Minimum Initial (s)	5.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	22.8	22.8	22.8	22.8
Total Split (s)	21.0	52.0	31.0	68.0	68.0
Total Split (%)	17.5%	43.3%	25.8%	56.7%	56.7%
Yellow Time (s)	3.6	4.8	4.8	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	5.8	5.8	5.8
Lead/Lag	Lead		Lag		
Lead-Lag Optimize?	Yes		Yes		
Recall Mode	None	None	None	Min	Min
Act Effect Green (s)	12.4	42.6	25.6	24.1	24.1
Actuated g/C Ratio	0.16	0.54	0.33	0.31	0.31
v/c Ratio	0.58	0.52	0.77	0.74	0.64
Control Delay	36.5	13.6	30.2	33.2	24.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	36.5	13.6	30.2	33.2	24.6
LOS	D	B	C	C	C
Approach Delay		19.1	30.2	29.3	
Approach LOS		B	C	C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 78.5

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.77

Intersection Signal Delay: 25.0

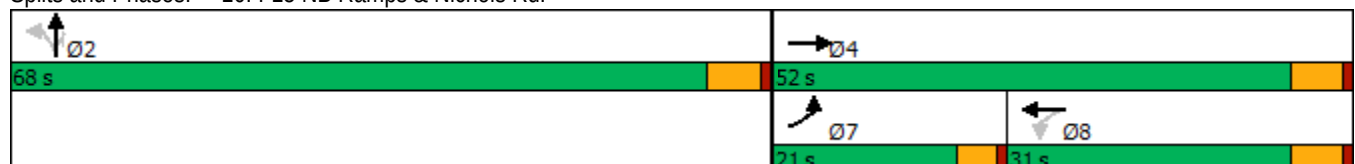
Intersection LOS: C

Intersection Capacity Utilization 64.2%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 10: I-15 NB Ramps & Nichols Rd.



HCM 6th Signalized Intersection Summary
10: I-15 NB Ramps & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

06/29/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			 			 				
Traffic Volume (veh/h)	189	597	0	0	345	164	241	3	201	0	0	0
Future Volume (veh/h)	189	597	0	0	345	164	241	3	201	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1826	1826	0	1737	1737	1737	1811	1900	1811			
Adj Flow Rate, veh/h	305	963	0	0	556	265	389	5	324			
Peak Hour Factor	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62			
Percent Heavy Veh, %	5	5	0	11	11	11	6	0	6			
Cap, veh/h	436	1813	0	0	692	329	518	7	435			
Arrive On Green	0.13	0.52	0.00	0.00	0.32	0.32	0.29	0.29	0.29			
Sat Flow, veh/h	3374	3561	0	0	2256	1032	1788	23	1502			
Grp Volume(v), veh/h	305	963	0	0	423	398	394	0	324			
Grp Sat Flow(s),veh/h/ln	1687	1735	0	0	1650	1551	1811	0	1502			
Q Serve(g_s), s	5.3	11.3	0.0	0.0	14.5	14.5	12.2	0.0	12.1			
Cycle Q Clear(g_c), s	5.3	11.3	0.0	0.0	14.5	14.5	12.2	0.0	12.1			
Prop In Lane	1.00		0.00	0.00		0.67	0.99		1.00			
Lane Grp Cap(c), veh/h	436	1813	0	0	526	495	524	0	435			
V/C Ratio(X)	0.70	0.53	0.00	0.00	0.80	0.81	0.75	0.00	0.74			
Avail Cap(c_a), veh/h	895	2594	0	0	673	633	1823	0	1512			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	25.7	9.7	0.0	0.0	19.3	19.3	19.9	0.0	19.9			
Incr Delay (d2), s/veh	2.0	0.2	0.0	0.0	5.5	5.9	2.2	0.0	2.6			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	2.0	3.1	0.0	0.0	5.4	5.2	4.7	0.0	3.9			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.8	10.0	0.0	0.0	24.7	25.2	22.1	0.0	22.4			
LnGrp LOS	C	A	A	A	C	C	C	A	C			
Approach Vol, veh/h	1268			821			718					
Approach Delay, s/veh	14.3			25.0			22.3					
Approach LOS	B			C			C					
Timer - Assigned Phs	2			4			7			8		
Phs Duration (G+Y+Rc), s	23.7			38.1			12.6			25.5		
Change Period (Y+Rc), s	5.8			5.8			4.6			5.8		
Max Green Setting (Gmax), s	62.2			46.2			16.4			25.2		
Max Q Clear Time (g_c+l1), s	14.2			13.3			7.3			16.5		
Green Ext Time (p_c), s	3.7			7.3			0.7			3.2		
Intersection Summary												
HCM 6th Ctrl Delay	19.4											
HCM 6th LOS	B											

Intersection

Intersection Delay, s/veh 122.8

Intersection LOS F

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	188	40	266	74	30	515
Future Vol, veh/h	188	40	266	74	30	515
Peak Hour Factor	0.66	0.66	0.66	0.66	0.66	0.66
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	285	61	403	112	45	780
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left NB			WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right SB		WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	24.4	39.8	215.7
HCM LOS	C	E	F

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	82%	6%
Vol Thru, %	78%	0%	94%
Vol Right, %	22%	18%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	340	228	545
LT Vol	0	188	30
Through Vol	266	0	515
RT Vol	74	40	0
Lane Flow Rate	515	345	826
Geometry Grp	1	1	1
Degree of Util (X)	0.873	0.664	1.416
Departure Headway (Hd)	6.69	7.622	6.174
Convergence, Y/N	Yes	Yes	Yes
Cap	546	477	586
Service Time	4.69	5.622	4.23
HCM Lane V/C Ratio	0.943	0.723	1.41
HCM Control Delay	39.8	24.4	215.7
HCM Lane LOS	E	C	F
HCM 95th-tile Q	9.7	4.8	38.1

Intersection	
Intersection Delay, s/veh	24.8
Intersection LOS	C

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	188	40	266	74	30	515
Future Vol, veh/h	188	40	266	74	30	515
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	204	43	289	80	33	560
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	14.5	15.6	34.8
HCM LOS	B	C	D

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	82%	6%
Vol Thru, %	78%	0%	94%
Vol Right, %	22%	18%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	340	228	545
LT Vol	0	188	30
Through Vol	266	0	515
RT Vol	74	40	0
Lane Flow Rate	370	248	592
Geometry Grp	1	1	1
Degree of Util (X)	0.565	0.441	0.879
Departure Headway (Hd)	5.507	6.41	5.34
Convergence, Y/N	Yes	Yes	Yes
Cap	650	560	675
Service Time	3.569	4.476	3.392
HCM Lane V/C Ratio	0.569	0.443	0.877
HCM Control Delay	15.6	14.5	34.8
HCM Lane LOS	C	B	D
HCM 95th-tile Q	3.5	2.2	10.6

Timings
18: El Toro Rd. & Carmela Ct.

S. Nichols Mixed-Use Development (JN 10878)

06/29/2018



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations		↔		↔	↔	↔		↔	↔
Traffic Volume (vph)	145	0	7	0	187	177	9	438	257
Future Volume (vph)	145	0	7	0	187	177	9	438	257
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm
Protected Phases		4		8		2		6	
Permitted Phases	4		8		2		6		6
Detector Phase	4	4	8	8	2	2	6	6	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6
Total Split (s)	54.0	54.0	54.0	54.0	66.0	66.0	66.0	66.0	66.0
Total Split (%)	45.0%	45.0%	45.0%	45.0%	55.0%	55.0%	55.0%	55.0%	55.0%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)		4.6		4.6	4.6	4.6		4.6	4.6
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	Min	Min	Min	Min	Min
Act Effect Green (s)		47.6		47.6	61.5	61.5		61.5	61.5
Actuated g/C Ratio		0.40		0.40	0.52	0.52		0.52	0.52
v/c Ratio		0.97		0.06	1.21	0.28		0.68	0.42
Control Delay		57.8		10.7	156.7	17.2		25.9	10.5
Queue Delay		0.0		0.0	0.0	0.0		0.0	0.0
Total Delay		57.8		10.7	156.7	17.2		25.9	10.5
LOS		E		B	F	B		C	B
Approach Delay		57.8		10.7		87.5		20.3	
Approach LOS		E		B		F		C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 118.3

Natural Cycle: 55

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.21

Intersection Signal Delay: 47.1

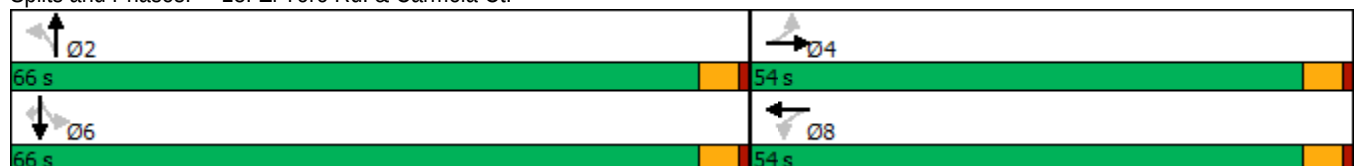
Intersection LOS: D

Intersection Capacity Utilization 79.7%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 18: El Toro Rd. & Carmela Ct.



HCM 6th Signalized Intersection Summary
18: El Toro Rd. & Carmela Ct.

S. Nichols Mixed-Use Development (JN 10878)

06/29/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	145	0	296	7	0	17	187	177	7	9	438	257
Future Volume (veh/h)	145	0	296	7	0	17	187	177	7	9	438	257
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		1.00	1.00		0.95	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	210	0	429	10	0	25	271	257	10	13	635	372
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	241	3	417	164	19	361	201	914	36	38	944	810
Arrive On Green	0.41	0.00	0.41	0.41	0.00	0.41	0.51	0.51	0.51	0.51	0.51	0.51
Sat Flow, veh/h	489	7	1014	305	46	877	560	1787	70	15	1844	1584
Grp Volume(v), veh/h	639	0	0	35	0	0	271	0	267	648	0	372
Grp Sat Flow(s),veh/h/ln	1510	0	0	1228	0	0	560	0	1857	1860	0	1584
Q Serve(g_s), s	47.8	0.0	0.0	0.0	0.0	0.0	30.3	0.0	9.8	0.0	0.0	18.0
Cycle Q Clear(g_c), s	49.4	0.0	0.0	1.6	0.0	0.0	61.4	0.0	9.8	31.1	0.0	18.0
Prop In Lane	0.33		0.67	0.29		0.71	1.00		0.04	0.02		1.00
Lane Grp Cap(c), veh/h	661	0	0	544	0	0	201	0	950	982	0	810
V/C Ratio(X)	0.97	0.00	0.00	0.06	0.00	0.00	1.35	0.00	0.28	0.66	0.00	0.46
Avail Cap(c_a), veh/h	661	0	0	544	0	0	201	0	950	982	0	810
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	35.8	0.0	0.0	21.2	0.0	0.0	49.3	0.0	16.7	21.9	0.0	18.7
Incr Delay (d2), s/veh	26.7	0.0	0.0	0.0	0.0	0.0	184.6	0.0	0.2	1.6	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	23.7	0.0	0.0	0.6	0.0	0.0	16.5	0.0	4.3	14.0	0.0	6.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.6	0.0	0.0	21.3	0.0	0.0	233.9	0.0	16.9	23.5	0.0	19.1
LnGrp LOS	E	A	A	C	A	A	F	A	B	C	A	B
Approach Vol, veh/h	639			35			538			1020		
Approach Delay, s/veh	62.6			21.3			126.2			21.9		
Approach LOS	E			C			F			C		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	66.0			54.0			66.0			54.0		
Change Period (Y+Rc), s	4.6			4.6			4.6			4.6		
Max Green Setting (Gmax), s	61.4			49.4			61.4			49.4		
Max Q Clear Time (g_c+l1), s	63.4			51.4			33.1			3.6		
Green Ext Time (p_c), s	0.0			0.0			6.9			0.2		
Intersection Summary												
HCM 6th Ctrl Delay	58.7											
HCM 6th LOS	E											

Timings

18: El Toro Rd. & Carmela Ct.

06/29/2018



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations		↔		↔	↔	↔		↔	↔
Traffic Volume (vph)	145	0	7	0	187	177	9	438	257
Future Volume (vph)	145	0	7	0	187	177	9	438	257
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm
Protected Phases		4		8		2		6	
Permitted Phases	4		8		2		6		6
Detector Phase	4	4	8	8	2	2	6	6	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6
Total Split (s)	54.0	54.0	54.0	54.0	66.0	66.0	66.0	66.0	66.0
Total Split (%)	45.0%	45.0%	45.0%	45.0%	55.0%	55.0%	55.0%	55.0%	55.0%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)		4.6		4.6	4.6	4.6		4.6	4.6
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	Min	Min	Min	Min	Min
Act Effect Green (s)		32.5		32.5	55.7	55.7		55.7	55.7
Actuated g/C Ratio		0.33		0.33	0.57	0.57		0.57	0.57
v/c Ratio		0.85		0.05	0.49	0.19		0.46	0.29
Control Delay		39.2		12.2	20.3	12.5		15.9	6.0
Queue Delay		0.0		0.0	0.0	0.0		0.0	0.0
Total Delay		39.2		12.2	20.3	12.5		15.9	6.0
LOS		D		B	C	B		B	A
Approach Delay		39.2		12.3		16.4		12.3	
Approach LOS		D		B		B		B	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 97.9

Natural Cycle: 50

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.85

Intersection Signal Delay: 21.0

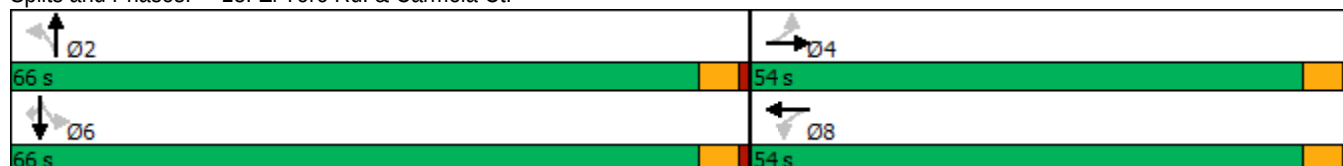
Intersection LOS: C

Intersection Capacity Utilization 79.7%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 18: El Toro Rd. & Carmela Ct.



HCM 6th Signalized Intersection Summary
18: El Toro Rd. & Carmela Ct.

06/29/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	145	0	296	7	0	17	187	177	7	9	438	257
Future Volume (veh/h)	145	0	296	7	0	17	187	177	7	9	438	257
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		1.00	1.00		0.95	1.00		0.99	0.99		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	158	0	322	8	0	18	203	192	8	10	476	279
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	230	18	375	184	30	339	334	905	38	55	941	804
Arrive On Green	0.37	0.00	0.37	0.37	0.00	0.37	0.51	0.51	0.51	0.51	0.51	0.51
Sat Flow, veh/h	450	50	1018	329	80	920	709	1782	74	11	1852	1583
Grp Volume(v), veh/h	480	0	0	26	0	0	203	0	200	486	0	279
Grp Sat Flow(s),veh/h/ln	1517	0	0	1329	0	0	709	0	1856	1864	0	1583
Q Serve(g_s), s	19.2	0.0	0.0	0.0	0.0	0.0	19.9	0.0	4.4	0.0	0.0	7.8
Cycle Q Clear(g_c), s	21.7	0.0	0.0	0.8	0.0	0.0	32.7	0.0	4.4	12.9	0.0	7.8
Prop In Lane	0.33		0.67	0.31		0.69	1.00		0.04	0.02		1.00
Lane Grp Cap(c), veh/h	623	0	0	553	0	0	334	0	943	996	0	804
V/C Ratio(X)	0.77	0.00	0.00	0.05	0.00	0.00	0.61	0.00	0.21	0.49	0.00	0.35
Avail Cap(c_a), veh/h	1066	0	0	946	0	0	559	0	1530	1581	0	1306
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.6	0.0	0.0	15.1	0.0	0.0	23.1	0.0	10.1	12.2	0.0	10.9
Incr Delay (d2), s/veh	2.0	0.0	0.0	0.0	0.0	0.0	1.8	0.0	0.1	0.4	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.6	0.0	0.0	0.3	0.0	0.0	3.3	0.0	1.7	5.0	0.0	2.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.6	0.0	0.0	15.1	0.0	0.0	24.8	0.0	10.2	12.6	0.0	11.2
LnGrp LOS	C	A	A	B	A	A	C	A	B	B	A	B
Approach Vol, veh/h	480			26			403			765		
Approach Delay, s/veh	23.6			15.1			17.6			12.1		
Approach LOS	C			B			B			B		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	42.4			32.0			42.4			32.0		
Change Period (Y+Rc), s	4.6			4.6			4.6			4.6		
Max Green Setting (Gmax), s	61.4			49.4			61.4			49.4		
Max Q Clear Time (g_c+I1), s	34.7			23.7			14.9			2.8		
Green Ext Time (p_c), s	3.1			3.8			4.9			0.1		
Intersection Summary												
HCM 6th Ctrl Delay	16.8											
HCM 6th LOS	B											

Timings
19: Dexter Av. & Central Av. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

06/29/2018

	→	↘	←	↙	↗	↖
Lane Group	EBT	EBR	WBT	WBR	NBR	SBR
Lane Configurations	↑↑↑	↗	↑↑↑	↗	↗	↗
Traffic Volume (vph)	1154	170	1809	267	98	427
Future Volume (vph)	1154	170	1809	267	98	427
Turn Type	NA	Perm	NA	Perm	Perm	Perm
Protected Phases	4		8			
Permitted Phases		4		8	2	6
Detector Phase	4	4	8	8	2	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	10.0
Minimum Split (s)	26.8	26.8	26.8	26.8	22.5	15.8
Total Split (s)	68.0	68.0	68.0	68.0	52.0	52.0
Total Split (%)	56.7%	56.7%	56.7%	56.7%	43.3%	43.3%
Yellow Time (s)	4.8	4.8	4.8	4.8	3.5	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.8	5.8	5.8	4.5	5.8
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	None	None	Min	Max
Act Effct Green (s)	53.6	53.6	53.6	53.6	47.8	46.5
Actuated g/C Ratio	0.48	0.48	0.48	0.48	0.43	0.42
v/c Ratio	0.52	0.22	0.65	0.32	0.16	0.70
Control Delay	20.7	2.7	22.7	2.7	15.0	33.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.7	2.7	22.7	2.7	15.0	33.7
LOS	C	A	C	A	B	C
Approach Delay	18.4		20.1			
Approach LOS	B		C			
Intersection Summary						
Cycle Length: 120						
Actuated Cycle Length: 111.8						
Natural Cycle: 50						
Control Type: Actuated-Uncoordinated						
Maximum v/c Ratio: 0.70						
Intersection Signal Delay: 20.9				Intersection LOS: C		
Intersection Capacity Utilization 62.3%				ICU Level of Service B		
Analysis Period (min) 15						

Splits and Phases: 19: Dexter Av. & Central Av. (SR-74)

↑ Ø2	→ Ø4
52 s	68 s
↓ Ø6	← Ø8
52 s	68 s

HCM 6th Signalized Intersection Summary
19: Dexter Av. & Central Av. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

06/29/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↗		↑↑↑	↗		↑	↗		↑	↗
Traffic Volume (veh/h)	0	1154	170	0	1809	267	0	0	98	0	0	427
Future Volume (veh/h)	0	1154	170	0	1809	267	0	0	98	0	0	427
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870	0	1870	1870	0	1870	1870
Adj Flow Rate, veh/h	0	1268	144	0	1988	251	0	0	67	0	0	413
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	2	2	0	2	2	0	2	2	0	2	2
Cap, veh/h	0	2338	726	0	2946	717	0	811	686	0	811	687
Arrive On Green	0.00	0.46	0.46	0.00	0.46	0.46	0.00	0.00	0.43	0.00	0.00	0.43
Sat Flow, veh/h	0	5274	1585	0	6696	1565	0	1870	1584	0	1870	1585
Grp Volume(v), veh/h	0	1268	144	0	1988	251	0	0	67	0	0	413
Grp Sat Flow(s),veh/h/ln	0	1702	1585	0	1609	1565	0	1870	1584	0	1870	1585
Q Serve(g_s), s	0.0	19.1	5.8	0.0	25.8	11.0	0.0	0.0	2.7	0.0	0.0	21.3
Cycle Q Clear(g_c), s	0.0	19.1	5.8	0.0	25.8	11.0	0.0	0.0	2.7	0.0	0.0	21.3
Prop In Lane	0.00		1.00	0.00		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	0	2338	726	0	2946	717	0	811	686	0	811	687
V/C Ratio(X)	0.00	0.54	0.20	0.00	0.67	0.35	0.00	0.00	0.10	0.00	0.00	0.60
Avail Cap(c_a), veh/h	0	2979	925	0	3754	913	0	833	706	0	811	687
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	20.8	17.2	0.0	22.7	18.7	0.0	0.0	17.9	0.0	0.0	23.1
Incr Delay (d2), s/veh	0.0	0.2	0.1	0.0	0.3	0.3	0.0	0.0	0.1	0.0	0.0	3.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	7.1	2.0	0.0	9.0	3.8	0.0	0.0	1.0	0.0	0.0	8.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	21.0	17.4	0.0	23.0	19.0	0.0	0.0	17.9	0.0	0.0	27.0
LnGrp LOS	A	C	B	A	C	B	A	A	B	A	A	C
Approach Vol, veh/h	1412			2239			67			413		
Approach Delay, s/veh	20.7			22.6			17.9			27.0		
Approach LOS	C			C			B			C		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	52.0			54.6			52.0			54.6		
Change Period (Y+Rc), s	* 5.8			5.8			5.8			5.8		
Max Green Setting (Gmax), s	* 48			62.2			46.2			62.2		
Max Q Clear Time (g_c+I1), s	4.7			21.1			23.3			27.8		
Green Ext Time (p_c), s	0.2			11.6			1.4			21.0		
Intersection Summary												
HCM 6th Ctrl Delay			22.3									
HCM 6th LOS			C									
Notes												

Timings
19: Dexter Av. & Central Av. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

10/22/2018

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	265	1154	170	137	1809	267	138	289	111	165	427
Future Volume (vph)	265	1154	170	137	1809	267	138	289	111	165	427
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2	1	6	7
Permitted Phases			4			8					6
Detector Phase	7	4	4	3	8	8	5	2	1	6	7
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	5.0	5.0	10.0	5.0
Minimum Split (s)	9.5	26.8	26.8	9.5	26.8	26.8	9.5	22.5	9.5	15.8	9.5
Total Split (s)	20.0	50.5	50.5	14.5	45.0	45.0	22.5	40.0	15.0	32.5	20.0
Total Split (%)	16.7%	42.1%	42.1%	12.1%	37.5%	37.5%	18.8%	33.3%	12.5%	27.1%	16.7%
Yellow Time (s)	3.5	4.8	4.8	3.5	4.8	4.8	3.5	3.5	3.5	4.8	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	5.8	5.8	4.5	5.8	5.8	4.5	4.5	4.5	5.8	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	None	Max	None
Act Effect Green (s)	14.0	44.0	44.0	9.3	39.3	39.3	14.5	32.4	10.2	26.8	46.6
Actuated g/C Ratio	0.12	0.38	0.38	0.08	0.34	0.34	0.13	0.28	0.09	0.23	0.40
v/c Ratio	0.70	0.52	0.26	0.55	0.91	0.42	0.68	0.83	0.78	0.42	0.67
Control Delay	58.6	28.7	4.5	59.6	44.1	8.1	64.5	53.0	84.2	42.2	27.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.6	28.7	4.5	59.6	44.1	8.1	64.5	53.0	84.2	42.2	27.0
LOS	E	C	A	E	D	A	E	D	F	D	C
Approach Delay		31.1			40.8			56.0		39.6	
Approach LOS		C			D			E		D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 115.2

Natural Cycle: 80

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.91

Intersection Signal Delay: 39.1

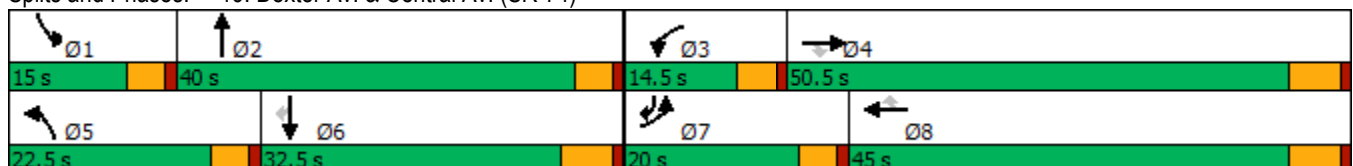
Intersection LOS: D

Intersection Capacity Utilization 77.2%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 19: Dexter Av. & Central Av. (SR-74)



HCM 6th Signalized Intersection Summary
19: Dexter Av. & Central Av. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

10/22/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	265	1154	170	137	1809	267	138	289	98	111	165	427
Future Volume (veh/h)	265	1154	170	137	1809	267	138	289	98	111	165	427
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	291	1268	144	151	1988	251	152	318	67	122	181	413
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	361	2559	630	214	2284	556	183	398	84	149	462	557
Arrive On Green	0.10	0.40	0.40	0.06	0.36	0.36	0.10	0.27	0.27	0.08	0.25	0.25
Sat Flow, veh/h	3456	6434	1585	3456	6434	1565	1781	1498	316	1781	1870	1585
Grp Volume(v), veh/h	291	1268	144	151	1988	251	152	0	385	122	181	413
Grp Sat Flow(s),veh/h/ln	1728	1609	1585	1728	1609	1565	1781	0	1813	1781	1870	1585
Q Serve(g_s), s	8.9	16.0	6.5	4.6	31.2	13.3	9.0	0.0	21.4	7.3	8.7	24.7
Cycle Q Clear(g_c), s	8.9	16.0	6.5	4.6	31.2	13.3	9.0	0.0	21.4	7.3	8.7	24.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.17	1.00		1.00
Lane Grp Cap(c), veh/h	361	2559	630	214	2284	556	183	0	482	149	462	557
V/C Ratio(X)	0.81	0.50	0.23	0.71	0.87	0.45	0.83	0.00	0.80	0.82	0.39	0.74
Avail Cap(c_a), veh/h	495	2660	655	320	2333	567	297	0	595	173	462	557
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.3	24.4	21.6	49.8	32.5	26.8	47.6	0.0	37.0	48.7	33.9	30.7
Incr Delay (d2), s/veh	6.7	0.1	0.2	4.2	3.8	0.6	9.9	0.0	6.2	22.6	2.5	8.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.0	5.8	2.3	2.1	12.0	4.8	4.4	0.0	10.0	4.1	4.1	10.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.1	24.6	21.7	54.0	36.4	27.4	57.5	0.0	43.2	71.3	36.4	39.4
LnGrp LOS	D	C	C	D	D	C	E	A	D	E	D	D
Approach Vol, veh/h	1703				2390				537			
Approach Delay, s/veh	29.4				36.5				47.2			
Approach LOS	C				D				D			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.6	34.6	11.2	48.8	15.6	32.5	15.8	44.2				
Change Period (Y+Rc), s	4.5	* 5.8	4.5	5.8	4.5	5.8	4.5	5.8				
Max Green Setting (Gmax), s	10.5	* 36	10.0	44.7	18.0	26.7	15.5	39.2				
Max Q Clear Time (g_c+l1), s	9.3	23.4	6.6	18.0	11.0	26.7	10.9	33.2				
Green Ext Time (p_c), s	0.0	1.7	0.1	10.2	0.2	0.0	0.4	5.2				

Intersection Summary

HCM 6th Ctrl Delay	36.3
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Timings

S. Nichols Mixed-Use Development (JN 10878)

20: Cambern Av./Cambern Av & Central Av. (SR-74)

06/29/2018



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations	←←	→→→	←	→→→	←	←	→	←←	→	←
Traffic Volume (vph)	406	1298	159	2080	125	178	297	253	173	101
Future Volume (vph)	406	1298	159	2080	125	178	297	253	173	101
Turn Type	Prot	NA	Prot	NA	Perm	Perm	NA	Perm	NA	Perm
Protected Phases	7	4	3	8			2		6	
Permitted Phases					8	2		6		6
Detector Phase	7	4	3	8	8	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	24.8	9.6	25.5	25.5	34.7	34.7	14.7	14.7	14.7
Total Split (s)	20.4	55.4	25.0	60.0	60.0	39.6	39.6	39.6	39.6	39.6
Total Split (%)	17.0%	46.2%	20.8%	50.0%	50.0%	33.0%	33.0%	33.0%	33.0%	33.0%
Yellow Time (s)	3.6	4.8	3.6	5.5	5.5	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	4.6	6.5	6.5	4.7	4.7	4.7	4.7	4.7
Lead/Lag	Lead	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	Max	None	None	None	None	Max	Max	Max	Max	Max
Act Effect Green (s)	15.8	54.2	15.8	53.5	53.5	34.9	34.9	34.9	34.9	34.9
Actuated g/C Ratio	0.13	0.45	0.13	0.45	0.45	0.29	0.29	0.29	0.29	0.29
v/c Ratio	0.96	0.57	0.75	0.92	0.18	0.67	0.69	0.94	0.35	0.21
Control Delay	84.7	26.0	69.9	38.3	3.8	50.5	45.0	82.1	35.9	6.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	84.7	26.0	69.9	38.3	3.8	50.5	45.0	82.1	35.9	6.8
LOS	F	C	E	D	A	D	D	F	D	A
Approach Delay		39.8		38.6			46.9		52.5	
Approach LOS		D		D			D		D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Natural Cycle: 100

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.96

Intersection Signal Delay: 41.3

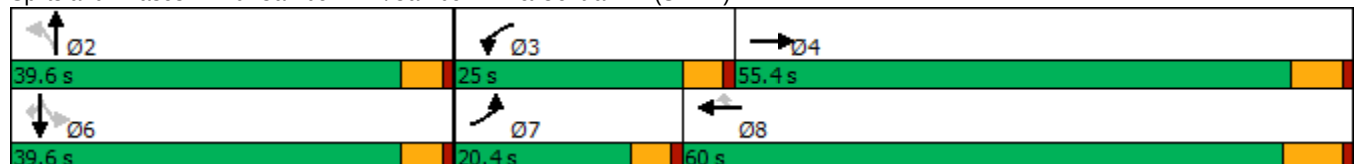
Intersection LOS: D

Intersection Capacity Utilization 102.2%

ICU Level of Service G

Analysis Period (min) 15

Splits and Phases: 20: Cambern Av./Cambern Av & Central Av. (SR-74)



HCM 6th Signalized Intersection Summary S. Nichols Mixed-Use Development (JN 10878)
 20: Cambern Av./Cambern Av & Central Av. (SR-74) 06/29/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	406	1298	20	159	2080	125	178	297	40	253	173	101
Future Volume (veh/h)	406	1298	20	159	2080	125	178	297	40	253	173	101
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	446	1426	22	175	2286	95	196	326	43	278	190	67
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	470	2549	39	203	2494	695	297	472	62	349	545	462
Arrive On Green	0.13	0.46	0.46	0.11	0.44	0.44	0.29	0.29	0.29	0.29	0.29	0.29
Sat Flow, veh/h	3563	5511	85	1781	5611	1564	1122	1618	213	2025	1870	1583
Grp Volume(v), veh/h	446	968	480	175	2286	95	196	0	369	278	190	67
Grp Sat Flow(s),veh/h/ln	1781	1870	1855	1781	1870	1564	1122	0	1831	1013	1870	1583
Q Serve(g_s), s	14.9	22.5	22.5	11.6	45.7	4.3	20.0	0.0	21.4	13.5	9.6	3.7
Cycle Q Clear(g_c), s	14.9	22.5	22.5	11.6	45.7	4.3	29.6	0.0	21.4	34.9	9.6	3.7
Prop In Lane	1.00		0.05	1.00		1.00	1.00		0.12	1.00		1.00
Lane Grp Cap(c), veh/h	470	1730	858	203	2494	695	297	0	534	349	545	462
V/C Ratio(X)	0.95	0.56	0.56	0.86	0.92	0.14	0.66	0.00	0.69	0.80	0.35	0.15
Avail Cap(c_a), veh/h	470	1730	858	304	2508	699	297	0	534	349	545	462
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.5	23.3	23.3	52.1	31.2	19.7	45.1	0.0	37.6	54.3	33.4	31.4
Incr Delay (d2), s/veh	30.4	0.5	1.0	10.5	6.0	0.1	10.9	0.0	7.2	17.1	1.8	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.4	9.5	9.5	5.5	20.0	1.5	6.4	0.0	10.6	5.0	4.6	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	82.0	23.8	24.4	62.6	37.2	19.8	56.0	0.0	44.8	71.4	35.2	32.0
LnGrp LOS	F	C	C	E	D	B	E	A	D	E	D	C
Approach Vol, veh/h		1894			2556			565			535	
Approach Delay, s/veh		37.7			38.3			48.7			53.6	
Approach LOS		D			D			D			D	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		39.6	18.2	61.9		39.6	20.4	59.7				
Change Period (Y+Rc), s		* 4.7	4.6	* 6.5		* 4.7	4.6	6.5				
Max Green Setting (Gmax), s		* 35	20.4	* 50		* 35	15.8	53.5				
Max Q Clear Time (g_c+I1), s		31.6	13.6	24.5		36.9	16.9	47.7				
Green Ext Time (p_c), s		1.0	0.1	14.1		0.0	0.0	5.5				
Intersection Summary												
HCM 6th Ctrl Delay			40.6									
HCM 6th LOS			D									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Timings

S. Nichols Mixed-Use Development (JN 10878)

1: Lake St. & Nichols Rd.

06/29/2018

											
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	207	254	164	357	328	158	442	259	50	1011	275
Future Volume (vph)	207	254	164	357	328	158	442	259	50	1011	275
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	7	4		3	8	5	2		1	6	7
Permitted Phases			4					2			6
Detector Phase	7	4	4	3	8	5	2	2	1	6	7
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0
Minimum Split (s)	9.6	14.6	14.6	9.6	16.2	9.6	16.2	16.2	9.6	16.2	9.6
Total Split (s)	22.0	24.0	24.0	33.0	35.0	18.0	49.2	49.2	13.8	45.0	22.0
Total Split (%)	18.3%	20.0%	20.0%	27.5%	29.2%	15.0%	41.0%	41.0%	11.5%	37.5%	18.3%
Yellow Time (s)	3.6	3.6	3.6	3.6	5.2	3.6	5.2	5.2	3.6	5.2	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	4.6	4.6	4.6	6.2	4.6	6.2	6.2	4.6	6.2	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	None
Act Effect Green (s)	16.8	18.9	18.9	27.4	27.9	12.9	46.2	46.2	7.6	38.8	61.8
Actuated g/C Ratio	0.14	0.16	0.16	0.23	0.24	0.11	0.39	0.39	0.06	0.33	0.52
v/c Ratio	0.89	0.91	0.44	0.94	0.90	0.88	0.33	0.35	0.48	0.89	0.36
Control Delay	84.4	83.8	10.1	76.3	68.2	92.8	27.1	4.4	67.7	48.1	18.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	84.4	83.8	10.1	76.3	68.2	92.8	27.1	4.4	67.7	48.1	18.3
LOS	F	F	B	E	E	F	C	A	E	D	B
Approach Delay		64.7			72.2		32.4			42.7	
Approach LOS		E			E		C			D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 118.1

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.94

Intersection Signal Delay: 50.1

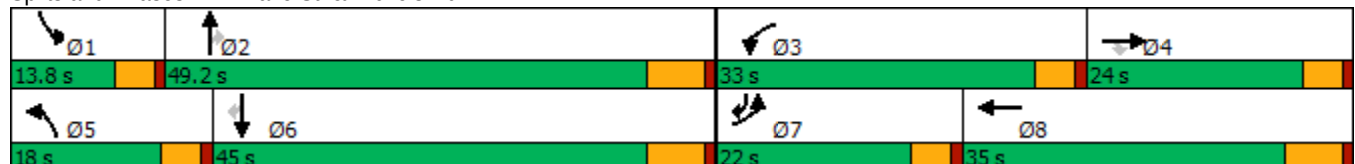
Intersection LOS: D

Intersection Capacity Utilization 86.5%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 1: Lake St. & Nichols Rd.



HCM 6th Signalized Intersection Summary

1: Lake St. & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

06/29/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	207	254	164	357	328	37	158	442	259	50	1011	275
Future Volume (veh/h)	207	254	164	357	328	37	158	442	259	50	1011	275
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	223	273	176	384	353	28	170	475	0	54	1087	296
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	249	300	254	409	427	34	196	1468		70	1202	731
Arrive On Green	0.14	0.16	0.16	0.23	0.25	0.25	0.11	0.39	0.00	0.04	0.32	0.32
Sat Flow, veh/h	1781	1870	1585	1781	1710	136	1781	3741	1585	1781	3741	1585
Grp Volume(v), veh/h	223	273	176	384	0	381	170	475	0	54	1087	296
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1846	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	14.9	17.3	12.7	25.6	0.0	23.6	11.3	10.7	0.0	3.6	33.6	14.9
Cycle Q Clear(g_c), s	14.9	17.3	12.7	25.6	0.0	23.6	11.3	10.7	0.0	3.6	33.6	14.9
Prop In Lane	1.00		1.00	1.00		0.07	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	249	300	254	409	0	461	196	1468		70	1202	731
V/C Ratio(X)	0.89	0.91	0.69	0.94	0.00	0.83	0.87	0.32		0.78	0.90	0.40
Avail Cap(c_a), veh/h	257	301	255	419	0	461	198	1468		136	1202	731
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.0	49.8	47.9	45.7	0.0	42.8	52.8	25.5	0.0	57.5	39.2	21.5
Incr Delay (d2), s/veh	29.9	30.0	7.8	28.9	0.0	11.8	29.7	0.6	0.0	6.7	11.2	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.7	10.6	5.4	14.1	0.0	11.8	6.5	4.6	0.0	1.7	16.4	5.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	81.0	79.9	55.7	74.7	0.0	54.6	82.5	26.1	0.0	64.2	50.4	23.2
LnGrp LOS	F	E	E	E	A	D	F	C		E	D	C
Approach Vol, veh/h	672			765			645			A1437		
Approach Delay, s/veh	73.9			64.7			41.0			45.3		
Approach LOS	E			E			D			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.3	53.6	32.3	25.5	17.9	45.0	21.5	36.3				
Change Period (Y+Rc), s	4.6	6.2	4.6	* 6.2	4.6	6.2	4.6	6.2				
Max Green Setting (Gmax), s	9.2	43.0	28.4	* 19	13.4	38.8	17.4	28.8				
Max Q Clear Time (g_c+l1), s	5.6	12.7	27.6	19.3	13.3	35.6	16.9	25.6				
Green Ext Time (p_c), s	0.0	4.2	0.1	0.0	0.0	2.5	0.0	0.6				

Intersection Summary

HCM 6th Ctrl Delay 54.2

HCM 6th LOS D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

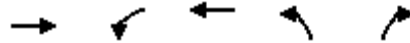
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Timings

S. Nichols Mixed-Use Development (JN 10878)

3: Alberhill Ranch Rd. & Nichols Rd.

06/29/2018



Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Configurations	→	↶	↷	↶	↷
Traffic Volume (vph)	545	102	714	10	87
Future Volume (vph)	545	102	714	10	87
Turn Type	NA	Perm	NA	Prot	Perm
Protected Phases	4		8	2	
Permitted Phases		8			2
Detector Phase	4	8	8	2	2
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	23.2	23.2	23.2	22.2	22.2
Total Split (s)	97.0	97.0	97.0	23.0	23.0
Total Split (%)	80.8%	80.8%	80.8%	19.2%	19.2%
Yellow Time (s)	5.2	5.2	5.2	4.2	4.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.2		6.2	5.2	5.2
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	None	None	None	Min	Min
Act Effect Green (s)	47.2		47.2	8.0	8.0
Actuated g/C Ratio	0.69		0.69	0.12	0.12
v/c Ratio	0.50		0.85	0.05	0.36
Control Delay	5.9		15.9	36.7	13.2
Queue Delay	0.0		0.0	0.0	0.0
Total Delay	5.9		15.9	36.7	13.2
LOS	A		B	D	B
Approach Delay	5.9		15.9	15.5	
Approach LOS	A		B	B	

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 68.2
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.85
Intersection Signal Delay: 12.1
Intersection LOS: B
Intersection Capacity Utilization 91.9%
ICU Level of Service F
Analysis Period (min) 15

Splits and Phases: 3: Alberhill Ranch Rd. & Nichols Rd.



HCM 6th Signalized Intersection Summary 3: Alberhill Ranch Rd. & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

06/29/2018

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↰			↱	↱	↱
Traffic Volume (veh/h)	545	20	102	714	10	87
Future Volume (veh/h)	545	20	102	714	10	87
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	619	23	116	811	11	99
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1180	44	179	985	188	167
Arrive On Green	0.66	0.66	0.66	0.66	0.11	0.11
Sat Flow, veh/h	1792	67	145	1497	1781	1585
Grp Volume(v), veh/h	0	642	927	0	11	99
Grp Sat Flow(s),veh/h/ln	0	1858	1642	0	1781	1585
Q Serve(g_s), s	0.0	8.7	12.0	0.0	0.3	2.9
Cycle Q Clear(g_c), s	0.0	8.7	20.7	0.0	0.3	2.9
Prop In Lane		0.04	0.13		1.00	1.00
Lane Grp Cap(c), veh/h	0	1224	1165	0	188	167
V/C Ratio(X)	0.00	0.52	0.80	0.00	0.06	0.59
Avail Cap(c_a), veh/h	0	3495	3115	0	657	584
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	4.3	6.1	0.0	19.4	20.6
Incr Delay (d2), s/veh	0.0	0.4	1.3	0.0	0.1	3.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.9	1.9	0.0	0.1	1.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	4.7	7.4	0.0	19.6	23.9
LnGrp LOS	A	A	A	A	B	C
Approach Vol, veh/h	642			927	110	
Approach Delay, s/veh	4.7			7.4	23.5	
Approach LOS	A			A	C	
Timer - Assigned Phs	2		4		8	
Phs Duration (G+Y+Rc), s	10.3		38.0		38.0	
Change Period (Y+Rc), s	5.2		6.2		6.2	
Max Green Setting (Gmax), s	17.8		90.8		90.8	
Max Q Clear Time (g_c+I1), s	4.9		10.7		22.7	
Green Ext Time (p_c), s	0.2		4.3		9.1	
Intersection Summary						
HCM 6th Ctrl Delay			7.4			
HCM 6th LOS			A			

Timings
4: Lakeshore Dr. & Riverside Dr. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

06/29/2018

										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	38	633	299	144	766	221	286	329	349	21
Future Volume (vph)	38	633	299	144	766	221	286	329	349	21
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA	Perm
Protected Phases	7	4		3	8	5	2	1	6	
Permitted Phases			4							6
Detector Phase	7	4	4	3	8	5	2	1	6	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.6	32.4	32.4	9.6	33.4	9.6	34.7	9.6	32.7	32.7
Total Split (s)	9.7	36.3	36.3	18.8	45.4	26.0	35.7	29.2	38.9	38.9
Total Split (%)	8.1%	30.3%	30.3%	15.7%	37.8%	21.7%	29.8%	24.3%	32.4%	32.4%
Yellow Time (s)	3.6	4.4	4.4	3.6	4.4	3.6	3.7	3.6	3.7	3.7
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.4	5.4	4.6	5.4	4.6	4.7	4.6	4.7	4.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	None	Max	Max
Act Effect Green (s)	5.1	30.0	30.0	13.1	40.1	19.2	31.0	24.6	36.4	36.4
Actuated g/C Ratio	0.04	0.25	0.25	0.11	0.34	0.16	0.26	0.21	0.31	0.31
v/c Ratio	0.57	0.79	0.56	0.83	1.08	0.86	0.55	1.01	0.36	0.04
Control Delay	84.2	48.6	12.7	83.3	87.4	75.5	31.2	95.4	34.0	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	84.2	48.6	12.7	83.3	87.4	75.5	31.2	95.4	34.0	0.1
LOS	F	D	B	F	F	E	C	F	C	A
Approach Delay		38.9			87.0		45.3		61.9	
Approach LOS		D			F		D		E	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 118.1

Natural Cycle: 130

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.08

Intersection Signal Delay: 61.5

Intersection LOS: E

Intersection Capacity Utilization 96.8%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 4: Lakeshore Dr. & Riverside Dr. (SR-74)

			
Ø1	Ø2	Ø3	Ø4
29.2 s	35.7 s	18.8 s	36.3 s
			
Ø5	Ø6	Ø7	Ø8
26 s	38.9 s	9.7 s	45.4 s

HCM 6th Signalized Intersection Summary 4: Lakeshore Dr. & Riverside Dr. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

06/29/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	38	633	299	144	766	377	221	286	188	329	349	21
Future Volume (veh/h)	38	633	299	144	766	377	221	286	188	329	349	21
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No				No				No			
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	43	711	273	162	861	45	248	321	146	370	392	21
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	58	840	373	190	1066	56	277	650	289	384	1181	527
Arrive On Green	0.03	0.24	0.24	0.11	0.31	0.31	0.16	0.27	0.27	0.22	0.33	0.33
Sat Flow, veh/h	1781	3554	1581	1781	3435	180	1781	2388	1063	1781	3554	1585
Grp Volume(v), veh/h	43	711	273	162	445	461	248	237	230	370	392	21
Grp Sat Flow(s),veh/h/ln	1781	1777	1581	1781	1777	1838	1781	1777	1675	1781	1777	1585
Q Serve(g_s), s	2.7	21.8	18.2	10.2	26.3	26.3	15.6	12.8	13.2	23.4	9.4	1.0
Cycle Q Clear(g_c), s	2.7	21.8	18.2	10.2	26.3	26.3	15.6	12.8	13.2	23.4	9.4	1.0
Prop In Lane	1.00		1.00	1.00		0.10	1.00		0.63	1.00		1.00
Lane Grp Cap(c), veh/h	58	840	373	190	551	570	277	483	455	384	1181	527
V/C Ratio(X)	0.74	0.85	0.73	0.85	0.81	0.81	0.90	0.49	0.50	0.96	0.33	0.04
Avail Cap(c_a), veh/h	80	963	429	222	624	645	334	483	455	384	1181	527
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.7	41.6	40.2	50.0	36.2	36.2	47.2	34.9	35.0	44.2	28.5	25.7
Incr Delay (d2), s/veh	12.2	6.4	5.4	21.0	7.0	6.8	20.5	3.5	4.0	35.8	0.8	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	10.0	7.4	5.6	12.1	12.5	8.4	6.0	5.9	14.1	4.1	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.9	48.0	45.6	71.0	43.2	43.0	67.7	38.4	39.0	80.0	29.3	25.9
LnGrp LOS	E	D	D	E	D	D	E	D	D	F	C	C
Approach Vol, veh/h	1027				1068				715			
Approach Delay, s/veh	48.1				47.3				48.7			
Approach LOS	D				D				D			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	29.2	35.7	16.8	32.3	22.3	42.6	8.3	40.8				
Change Period (Y+Rc), s	4.6	* 4.7	4.6	5.4	4.6	* 4.7	4.6	5.4				
Max Green Setting (Gmax), s	24.6	* 31	14.2	30.9	21.4	* 34	5.1	40.0				
Max Q Clear Time (g_c+I1), s	25.4	15.2	12.2	23.8	17.6	11.4	4.7	28.3				
Green Ext Time (p_c), s	0.0	2.6	0.0	3.1	0.1	2.7	0.0	4.2				
Intersection Summary												
HCM 6th Ctrl Delay			49.1									
HCM 6th LOS			D									
Notes												

Timings

S. Nichols Mixed-Use Development (JN 10878)

5: Strickland Av./Gunnerson St. & Riverside Dr. (SR-74)

06/29/2018



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	5	1075	23	1110	3	0	22	47	1	5
Future Volume (vph)	5	1075	23	1110	3	0	22	47	1	5
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4		8		2			6	
Permitted Phases	4		8		2		2	6		6
Detector Phase	4	4	8	8	2	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	24.5	24.5	23.4	23.4	22.6	22.6	22.6	23.4	23.4	23.4
Total Split (s)	93.0	93.0	93.0	93.0	27.0	27.0	27.0	27.0	27.0	27.0
Total Split (%)	77.5%	77.5%	77.5%	77.5%	22.5%	22.5%	22.5%	22.5%	22.5%	22.5%
Yellow Time (s)	4.4	4.4	4.4	4.4	3.6	3.6	3.6	4.4	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	5.4	5.4	5.4	5.4		4.6	4.6		5.4	5.4
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	None	None	None	None	Min	Min	Min	Min	Min	Min
Act Effect Green (s)	78.3	78.3	78.3	78.3		12.4	12.4		11.6	11.6
Actuated g/C Ratio	0.78	0.78	0.78	0.78		0.12	0.12		0.11	0.11
v/c Ratio	0.05	0.77	0.10	0.91		0.02	0.11		0.32	0.03
Control Delay	4.0	11.1	4.0	20.0		42.7	17.5		50.4	0.2
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	4.0	11.1	4.0	20.0		42.7	17.5		50.4	0.2
LOS	A	B	A	B		D	B		D	A
Approach Delay		11.0		19.7		20.4			45.7	
Approach LOS		B		B		C			D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 100.9

Natural Cycle: 100

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.91

Intersection Signal Delay: 16.4

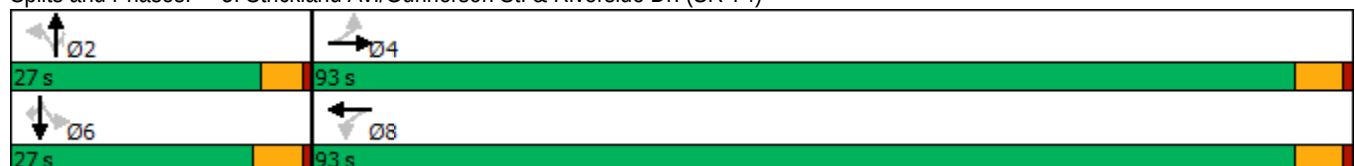
Intersection LOS: B

Intersection Capacity Utilization 96.8%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 5: Strickland Av./Gunnerson St. & Riverside Dr. (SR-74)



												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	1075	7	23	1110	146	3	0	22	47	1	5
Future Volume (veh/h)	5	1075	7	23	1110	146	3	0	22	47	1	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	5	1108	7	24	1144	151	3	0	0	48	1	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	171	1429	9	296	1246	164	248	0		233	4	
Arrive On Green	0.77	0.77	0.77	0.77	0.77	0.77	0.11	0.00	0.00	0.11	0.11	0.00
Sat Flow, veh/h	426	1857	12	505	1618	214	1519	0	1585	1393	37	1585
Grp Volume(v), veh/h	5	0	1115	24	0	1295	3	0	0	49	0	0
Grp Sat Flow(s),veh/h/ln	426	0	1868	505	0	1832	1519	0	1585	1430	0	1585
Q Serve(g_s), s	0.8	0.0	30.8	2.6	0.0	50.2	0.0	0.0	0.0	2.7	0.0	0.0
Cycle Q Clear(g_c), s	51.0	0.0	30.8	33.4	0.0	50.2	0.1	0.0	0.0	2.8	0.0	0.0
Prop In Lane	1.00		0.01	1.00		0.12	1.00		1.00	0.98		1.00
Lane Grp Cap(c), veh/h	171	0	1438	296	0	1410	248	0		237	0	
V/C Ratio(X)	0.03	0.00	0.78	0.08	0.00	0.92	0.01	0.00		0.21	0.00	
Avail Cap(c_a), veh/h	256	0	1812	397	0	1776	442	0		420	0	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	28.2	0.0	5.9	15.5	0.0	8.2	35.8	0.0	0.0	37.0	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.0	1.7	0.1	0.0	6.9	0.0	0.0	0.0	0.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	7.5	0.3	0.0	13.6	0.1	0.0	0.0	1.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.3	0.0	7.6	15.6	0.0	15.1	35.8	0.0	0.0	37.4	0.0	0.0
LnGrp LOS	C	A	A	B	A	B	D	A		D	A	
Approach Vol, veh/h	1120				1319				3	A	49	A
Approach Delay, s/veh	7.7				15.1				35.8		37.4	
Approach LOS	A				B				D		D	
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	15.4			74.9			15.4			74.9		
Change Period (Y+Rc), s	* 5.4			5.4			5.4			5.4		
Max Green Setting (Gmax), s	* 22			87.6			21.6			87.6		
Max Q Clear Time (g_c+I1), s	2.1			53.0			4.8			52.2		
Green Ext Time (p_c), s	0.0			11.9			0.1			17.4		

Intersection Summary

HCM 6th Ctrl Delay 12.3

HCM 6th LOS B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Timings
6: Collier Av. & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

06/29/2018

	→	↖	←	↗	↘
Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Configurations	↗	↖	↗	↖	↗
Traffic Volume (vph)	516	322	675	161	365
Future Volume (vph)	516	322	675	161	365
Turn Type	NA	Perm	NA	Prot	Perm
Protected Phases	4		8	2	
Permitted Phases		8			2
Detector Phase	4	8	8	2	2
Switch Phase					
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	26.8	15.8	15.8	16.2	16.2
Total Split (s)	86.0	86.0	86.0	34.0	34.0
Total Split (%)	71.7%	71.7%	71.7%	28.3%	28.3%
Yellow Time (s)	4.8	4.8	4.8	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.8	5.8	6.2	6.2
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	None	None	None	Min	Min
Act Efft Green (s)	80.4	80.4	80.4	17.2	17.2
Actuated g/C Ratio	0.73	0.73	0.73	0.16	0.16
v/c Ratio	0.55	0.85	0.57	0.67	0.78
Control Delay	9.0	33.0	9.6	55.2	20.0
Queue Delay	0.0	0.0	3.8	0.0	0.0
Total Delay	9.0	33.0	13.4	55.2	20.0
LOS	A	C	B	E	C
Approach Delay	9.0		19.7	30.8	
Approach LOS	A		B	C	
Intersection Summary					
Cycle Length: 120					
Actuated Cycle Length: 109.7					
Natural Cycle: 90					
Control Type: Actuated-Uncoordinated					
Maximum v/c Ratio: 0.85					
Intersection Signal Delay: 19.3			Intersection LOS: B		
Intersection Capacity Utilization 76.0%			ICU Level of Service D		
Analysis Period (min) 15					

Splits and Phases: 6: Collier Av. & Nichols Rd.



HCM 6th Signalized Intersection Summary
6: Collier Av. & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

06/29/2018

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗		↖	↑	↖	↗
Traffic Volume (veh/h)	516	119	322	675	161	365
Future Volume (veh/h)	516	119	322	675	161	365
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	593	137	370	776	185	420
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	982	227	382	1250	413	367
Arrive On Green	0.67	0.67	0.67	0.67	0.23	0.23
Sat Flow, veh/h	1470	340	726	1870	1781	1585
Grp Volume(v), veh/h	0	730	370	776	185	420
Grp Sat Flow(s),veh/h/ln	0	1809	726	1870	1781	1585
Q Serve(g_s), s	0.0	26.9	53.3	28.2	10.7	27.8
Cycle Q Clear(g_c), s	0.0	26.9	80.2	28.2	10.7	27.8
Prop In Lane		0.19	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	0	1209	382	1250	413	367
V/C Ratio(X)	0.00	0.60	0.97	0.62	0.45	1.14
Avail Cap(c_a), veh/h	0	1209	382	1250	413	367
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	11.1	36.8	11.3	39.5	46.1
Incr Delay (d2), s/veh	0.0	0.9	37.6	1.0	0.8	92.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	9.5	15.0	10.3	4.6	19.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	11.9	74.4	12.2	40.3	138.2
LnGrp LOS	A	B	E	B	D	F
Approach Vol, veh/h	730			1146	605	
Approach Delay, s/veh	11.9			32.3	108.3	
Approach LOS	B			C	F	
Timer - Assigned Phs	2		4		8	
Phs Duration (G+Y+Rc), s	34.0		86.0		86.0	
Change Period (Y+Rc), s	6.2		5.8		5.8	
Max Green Setting (Gmax), s	27.8		80.2		80.2	
Max Q Clear Time (g_c+l1), s	29.8		28.9		82.2	
Green Ext Time (p_c), s	0.0		5.6		0.0	
Intersection Summary						
HCM 6th Ctrl Delay			44.8			
HCM 6th LOS			D			

Timings

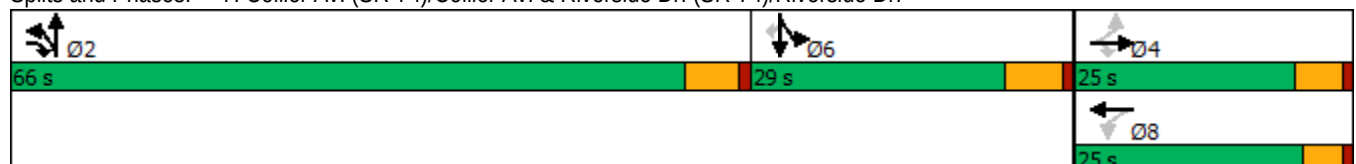
S. Nichols Mixed-Use Development (JN 10878)

7: Collier Av. (SR-74)/Collier Av. & Riverside Dr. (SR-74)/Riverside Dr.

07/02/2018

										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	162	12	984	23	19	1122	352	3	283	149
Future Volume (vph)	162	12	984	23	19	1122	352	3	283	149
Turn Type	Perm	NA	pm+ov	Perm	NA	Split	NA	Split	NA	Perm
Protected Phases		4	2		8	2	2	6	6	
Permitted Phases	4		4	8						6
Detector Phase	4	4	2	8	8	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	15.4	15.4	15.8	14.6	14.6	15.8	15.8	16.2	16.2	16.2
Total Split (s)	25.0	25.0	66.0	25.0	25.0	66.0	66.0	29.0	29.0	29.0
Total Split (%)	20.8%	20.8%	55.0%	20.8%	20.8%	55.0%	55.0%	24.2%	24.2%	24.2%
Yellow Time (s)	4.4	4.4	4.8	3.6	3.6	4.8	4.8	5.2	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		5.4	5.8		4.6	5.8	5.8	6.2	6.2	6.2
Lead/Lag										
Lead-Lag Optimize?										
Recall Mode	None	None	Max	None	None	Max	Max	Max	Max	Max
Act Effct Green (s)		18.4	84.0		19.2	60.2	60.2	22.8	22.8	22.8
Actuated g/C Ratio		0.15	0.71		0.16	0.51	0.51	0.19	0.19	0.19
v/c Ratio		0.86	0.89		0.23	0.68	0.42	0.01	0.83	0.37
Control Delay		83.2	23.7		41.1	24.7	20.1	39.7	67.3	9.0
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		83.2	23.7		41.1	24.7	20.1	39.7	67.3	9.0
LOS		F	C		D	C	C	D	E	A
Approach Delay		32.7			41.1		23.6		47.1	
Approach LOS		C			D		C		D	
Intersection Summary										
Cycle Length: 120										
Actuated Cycle Length: 118.8										
Natural Cycle: 90										
Control Type: Actuated-Uncoordinated										
Maximum v/c Ratio: 0.89										
Intersection Signal Delay: 30.5					Intersection LOS: C					
Intersection Capacity Utilization 98.0%					ICU Level of Service F					
Analysis Period (min) 15										

Splits and Phases: 7: Collier Av. (SR-74)/Collier Av. & Riverside Dr. (SR-74)/Riverside Dr.



HCM 6th Signalized Intersection Summary S. Nichols Mixed-Use Development (JN 10878)
 7: Collier Av. (SR-74)/Collier Av. & Riverside Dr. (SR-74)/Riverside Dr. 07/02/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	162	12	984	23	19	8	1122	352	21	3	283	149
Future Volume (veh/h)	162	12	984	23	19	8	1122	352	21	3	283	149
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	171	13	970	24	20	6	1181	371	21	3	298	117
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	207	11	1058	44	29	4	1722	874	49	336	353	299
Arrive On Green	0.17	0.17	0.17	0.17	0.17	0.17	0.50	0.50	0.50	0.19	0.19	0.19
Sat Flow, veh/h	887	67	1585	0	171	23	3456	1753	99	1781	1870	1585
Grp Volume(v), veh/h	184	0	970	50	0	0	1181	0	392	3	298	117
Grp Sat Flow(s),veh/h/ln	955	0	1585	194	0	0	1728	0	1852	1781	1870	1585
Q Serve(g_s), s	0.0	0.0	20.4	0.0	0.0	0.0	31.5	0.0	16.3	0.2	18.6	7.8
Cycle Q Clear(g_c), s	20.4	0.0	20.4	20.4	0.0	0.0	31.5	0.0	16.3	0.2	18.6	7.8
Prop In Lane	0.93		1.00	0.48		0.12	1.00		0.05	1.00		1.00
Lane Grp Cap(c), veh/h	219	0	1058	77	0	0	1722	0	923	336	353	299
V/C Ratio(X)	0.84	0.00	0.92	0.65	0.00	0.00	0.69	0.00	0.42	0.01	0.84	0.39
Avail Cap(c_a), veh/h	219	0	1058	77	0	0	1722	0	923	336	353	299
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.5	0.0	10.1	47.7	0.0	0.0	23.1	0.0	19.3	39.8	47.3	42.9
Incr Delay (d2), s/veh	24.4	0.0	12.3	17.7	0.0	0.0	2.2	0.0	1.4	0.0	21.2	3.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.0	0.0	32.9	1.9	0.0	0.0	12.5	0.0	7.0	0.1	10.4	3.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	75.9	0.0	22.4	65.4	0.0	0.0	25.3	0.0	20.7	39.9	68.5	46.7
LnGrp LOS	E	A	C	E	A	A	C	A	C	D	E	D
Approach Vol, veh/h	1154		50				1573				418	
Approach Delay, s/veh	30.9		65.4				24.2				62.2	
Approach LOS	C		E				C				E	
Timer - Assigned Phs	2		4		6		8					
Phs Duration (G+Y+Rc), s	66.0		25.8		29.0		25.8					
Change Period (Y+Rc), s	5.8		5.4		6.2		* 5.4					
Max Green Setting (Gmax), s	60.2		19.6		22.8		* 20					
Max Q Clear Time (g_c+I1), s	33.5		22.4		20.6		22.4					
Green Ext Time (p_c), s	7.9		0.0		0.4		0.0					
Intersection Summary												
HCM 6th Ctrl Delay			32.2									
HCM 6th LOS			C									
Notes												

Timings
9: I-15 SB Ramps & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

06/29/2018

	→	↘	↙	←	↘	↓	↙
Lane Group	EBT	EBR	WBL	WBT	SBL	SBT	SBR
Lane Configurations	↑↑	↑	↙	↑↑	↙	↑	↑
Traffic Volume (vph)	494	461	88	714	155	2	282
Future Volume (vph)	494	461	88	714	155	2	282
Turn Type	NA	Perm	Prot	NA	Perm	NA	Perm
Protected Phases	4		3	8		6	
Permitted Phases		4			6		6
Detector Phase	4	4	3	8	6	6	6
Switch Phase							
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0	10.0	10.0
Minimum Split (s)	22.8	22.8	9.6	22.8	26.8	26.8	26.8
Total Split (s)	57.0	57.0	26.0	83.0	37.0	37.0	37.0
Total Split (%)	47.5%	47.5%	21.7%	69.2%	30.8%	30.8%	30.8%
Yellow Time (s)	4.8	4.8	3.6	4.8	4.8	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.8	4.6	5.8	5.8	5.8	5.8
Lead/Lag	Lag	Lag	Lead				
Lead-Lag Optimize?	Yes	Yes	Yes				
Recall Mode	None	None	None	None	Min	Min	Min
Act Effect Green (s)	23.7	23.7	11.8	36.4	15.9	15.9	15.9
Actuated g/C Ratio	0.36	0.36	0.18	0.56	0.24	0.24	0.24
v/c Ratio	0.52	0.64	0.45	0.49	0.51	0.43	0.42
Control Delay	19.6	5.3	34.7	9.2	30.1	10.8	10.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.6	5.3	34.7	9.2	30.1	10.8	10.5
LOS	B	A	C	A	C	B	B
Approach Delay	12.7			12.0		17.5	
Approach LOS	B			B		B	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 65.3

Natural Cycle: 60

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.64

Intersection Signal Delay: 13.4

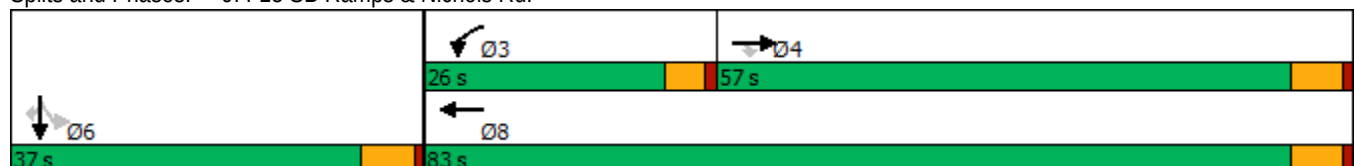
Intersection LOS: B

Intersection Capacity Utilization 60.1%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 9: I-15 SB Ramps & Nichols Rd.



HCM 6th Signalized Intersection Summary
9: I-15 SB Ramps & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

06/29/2018

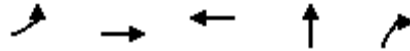
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑	↑↑					↑	↑	↑
Traffic Volume (veh/h)	0	494	461	88	714	0	0	0	0	155	2	282
Future Volume (veh/h)	0	494	461	88	714	0	0	0	0	155	2	282
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1856	1856	1530	1856	0				1781	907	1707
Adj Flow Rate, veh/h	0	659	615	117	952	0				207	0	378
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75				0.75	0.75	0.75
Percent Heavy Veh, %	0	3	3	25	3	0				8	67	13
Cap, veh/h	0	1675	747	144	2267	0				311	0	530
Arrive On Green	0.00	0.48	0.48	0.10	0.64	0.00				0.18	0.00	0.18
Sat Flow, veh/h	0	3618	1572	1457	3618	0				1697	0	2894
Grp Volume(v), veh/h	0	659	615	117	952	0				207	0	378
Grp Sat Flow(s),veh/h/ln	0	1763	1572	1457	1763	0				1697	0	1447
Q Serve(g_s), s	0.0	8.1	22.5	5.3	8.8	0.0				7.6	0.0	8.2
Cycle Q Clear(g_c), s	0.0	8.1	22.5	5.3	8.8	0.0				7.6	0.0	8.2
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1675	747	144	2267	0				311	0	530
V/C Ratio(X)	0.00	0.39	0.82	0.81	0.42	0.00				0.67	0.00	0.71
Avail Cap(c_a), veh/h	0	2702	1205	467	4075	0				792	0	1352
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	11.3	15.1	29.5	5.8	0.0				25.4	0.0	25.6
Incr Delay (d2), s/veh	0.0	0.2	2.5	10.3	0.1	0.0				2.5	0.0	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.5	6.8	2.1	2.0	0.0				2.9	0.0	2.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	11.5	17.6	39.7	6.0	0.0				27.8	0.0	27.4
LnGrp LOS	A	B	B	D	A	A				C	A	C
Approach Vol, veh/h		1274			1069						585	
Approach Delay, s/veh		14.4			9.6						27.6	
Approach LOS		B			A						C	
Timer - Assigned Phs			3	4		6		8				
Phs Duration (G+Y+Rc), s			11.2	37.5		18.0		48.8				
Change Period (Y+Rc), s			4.6	5.8		5.8		5.8				
Max Green Setting (Gmax), s			21.4	51.2		31.2		77.2				
Max Q Clear Time (g_c+I1), s			7.3	24.5		10.2		10.8				
Green Ext Time (p_c), s			0.2	7.2		2.0		7.6				
Intersection Summary												
HCM 6th Ctrl Delay			15.3									
HCM 6th LOS			B									
Notes												
User approved volume balancing among the lanes for turning movement.												

Timings

S. Nichols Mixed-Use Development (JN 10878)

10: I-15 NB Ramps & Nichols Rd.

06/29/2018

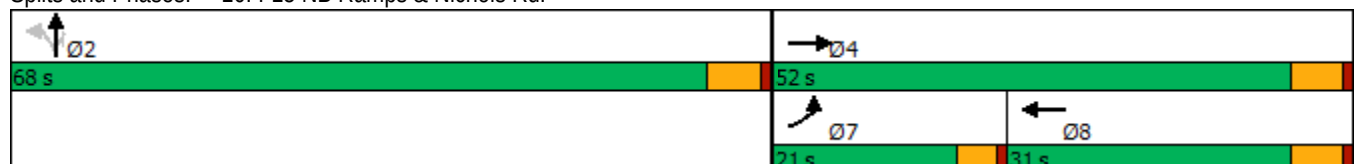


Lane Group	EBL	EBT	WBT	NBT	NBR
Lane Configurations	←←	↑↑	↑↑	↑	←
Traffic Volume (vph)	256	394	302	1	105
Future Volume (vph)	256	394	302	1	105
Turn Type	Prot	NA	NA	NA	Perm
Protected Phases	7	4	8	2	
Permitted Phases					2
Detector Phase	7	4	8	2	2
Switch Phase					
Minimum Initial (s)	5.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	22.8	22.8	22.8	22.8
Total Split (s)	21.0	52.0	31.0	68.0	68.0
Total Split (%)	17.5%	43.3%	25.8%	56.7%	56.7%
Yellow Time (s)	3.6	4.8	4.8	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	5.8	5.8	5.8
Lead/Lag	Lead		Lag		
Lead-Lag Optimize?	Yes		Yes		
Recall Mode	None	None	None	Min	Min
Act Effect Green (s)	16.1	45.1	24.3	56.2	56.2
Actuated g/C Ratio	0.14	0.40	0.22	0.50	0.50
v/c Ratio	0.87	0.46	0.92	0.94	0.21
Control Delay	68.3	27.3	60.8	45.7	6.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	68.3	27.3	60.8	45.7	6.0
LOS	E	C	E	D	A
Approach Delay		43.5	60.8	38.8	
Approach LOS		D	E	D	

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 113
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.94
Intersection Signal Delay: 46.0
Intersection LOS: D
Intersection Capacity Utilization 89.0%
ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 10: I-15 NB Ramps & Nichols Rd.



HCM 6th Signalized Intersection Summary
10: I-15 NB Ramps & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

06/29/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					 							
Traffic Volume (veh/h)	256	394	0	0	302	99	500	1	105	0	0	0
Future Volume (veh/h)	256	394	0	0	302	99	500	1	105	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach	No			No			No					
Adj Sat Flow, veh/h/ln	1826	1826	0	0	1737	1737	1811	1900	1811			
Adj Flow Rate, veh/h	413	635	0	0	487	160	806	2	169			
Peak Hour Factor	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62			
Percent Heavy Veh, %	5	5	0	0	11	11	6	0	6			
Cap, veh/h	476	1409	0	0	543	177	876	2	730			
Arrive On Green	0.14	0.41	0.00	0.00	0.22	0.22	0.49	0.49	0.49			
Sat Flow, veh/h	3374	3561	0	0	2532	798	1805	4	1503			
Grp Volume(v), veh/h	413	635	0	0	328	319	808	0	169			
Grp Sat Flow(s),veh/h/ln	1687	1735	0	0	1650	1593	1810	0	1503			
Q Serve(g_s), s	12.8	14.2	0.0	0.0	20.6	20.8	44.4	0.0	7.0			
Cycle Q Clear(g_c), s	12.8	14.2	0.0	0.0	20.6	20.8	44.4	0.0	7.0			
Prop In Lane	1.00		0.00	0.00		0.50	1.00		1.00			
Lane Grp Cap(c), veh/h	476	1409	0	0	366	354	879	0	730			
V/C Ratio(X)	0.87	0.45	0.00	0.00	0.89	0.90	0.92	0.00	0.23			
Avail Cap(c_a), veh/h	518	1499	0	0	389	376	1053	0	875			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	44.9	23.1	0.0	0.0	40.4	40.5	25.6	0.0	15.9			
Incr Delay (d2), s/veh	13.8	0.2	0.0	0.0	21.6	23.5	11.3	0.0	0.2			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	6.1	5.5	0.0	0.0	10.2	10.1	19.9	0.0	2.3			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.7	23.3	0.0	0.0	61.9	64.0	36.9	0.0	16.1			
LnGrp LOS	E	C	A	A	E	E	D	A	B			
Approach Vol, veh/h	1048			647			977					
Approach Delay, s/veh	37.3			63.0			33.3					
Approach LOS	D			E			C					
Timer - Assigned Phs	2			4			7			8		
Phs Duration (G+Y+Rc), s	57.7			49.2			19.7			29.5		
Change Period (Y+Rc), s	5.8			5.8			4.6			5.8		
Max Green Setting (Gmax), s	62.2			46.2			16.4			25.2		
Max Q Clear Time (g_c+l1), s	46.4			16.2			14.8			22.8		
Green Ext Time (p_c), s	5.5			4.2			0.3			0.9		
Intersection Summary												
HCM 6th Ctrl Delay	42.0											
HCM 6th LOS	D											

Intersection

Intersection Delay, s/veh 11.4

Intersection LOS B

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	15	28	193	29	63	213
Future Vol, veh/h	15	28	193	29	63	213
Peak Hour Factor	0.66	0.66	0.66	0.66	0.66	0.66
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	23	42	292	44	95	323
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left NB			WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right SB		WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	8.9	10.7	12.4
HCM LOS	A	B	B

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	35%	23%
Vol Thru, %	87%	0%	77%
Vol Right, %	13%	65%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	222	43	276
LT Vol	0	15	63
Through Vol	193	0	213
RT Vol	29	28	0
Lane Flow Rate	336	65	418
Geometry Grp	1	1	1
Degree of Util (X)	0.417	0.095	0.523
Departure Headway (Hd)	4.468	5.24	4.502
Convergence, Y/N	Yes	Yes	Yes
Cap	804	681	799
Service Time	2.499	3.296	2.531
HCM Lane V/C Ratio	0.418	0.095	0.523
HCM Control Delay	10.7	8.9	12.4
HCM Lane LOS	B	A	B
HCM 95th-tile Q	2.1	0.3	3.1

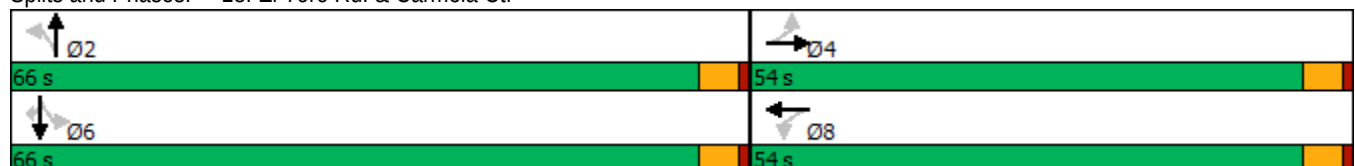
Timings
18: El Toro Rd. & Carmela Ct.

S. Nichols Mixed-Use Development (JN 10878)

06/29/2018

									
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	16	0	6	0	15	205	7	210	11
Future Volume (vph)	16	0	6	0	15	205	7	210	11
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm
Protected Phases		4		8		2		6	
Permitted Phases	4		8		2		6		6
Detector Phase	4	4	8	8	2	2	6	6	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6
Total Split (s)	54.0	54.0	54.0	54.0	66.0	66.0	66.0	66.0	66.0
Total Split (%)	45.0%	45.0%	45.0%	45.0%	55.0%	55.0%	55.0%	55.0%	55.0%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)		0.0		0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)		4.6		4.6	4.6	4.6		4.6	4.6
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	Min	Min	Min	Min	Min
Act Effct Green (s)		11.5		11.5	24.3	24.3		24.3	24.3
Actuated g/C Ratio		0.32		0.32	0.68	0.68		0.68	0.68
v/c Ratio		0.14		0.02	0.03	0.24		0.25	0.02
Control Delay		5.6		4.4	7.1	6.9		7.0	4.3
Queue Delay		0.0		0.0	0.0	0.0		0.0	0.0
Total Delay		5.6		4.4	7.1	6.9		7.0	4.3
LOS		A		A	A	A		A	A
Approach Delay		5.6		4.4		6.9		6.9	
Approach LOS		A		A		A		A	
Intersection Summary									
Cycle Length: 120									
Actuated Cycle Length: 35.9									
Natural Cycle: 45									
Control Type: Actuated-Uncoordinated									
Maximum v/c Ratio: 0.25									
Intersection Signal Delay: 6.7					Intersection LOS: A				
Intersection Capacity Utilization 43.6%					ICU Level of Service A				
Analysis Period (min) 15									

Splits and Phases: 18: El Toro Rd. & Carmela Ct.



HCM 6th Signalized Intersection Summary
18: El Toro Rd. & Carmela Ct.

S. Nichols Mixed-Use Development (JN 10878)

06/29/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	0	33	6	0	1	15	205	5	7	210	11
Future Volume (veh/h)	16	0	33	6	0	1	15	205	5	7	210	11
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.95		1.00	1.00		0.95	1.00		0.98	0.99		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	23	0	48	9	0	1	22	297	7	10	304	16
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	256	43	221	533	15	30	611	762	18	158	770	663
Arrive On Green	0.21	0.00	0.21	0.21	0.00	0.21	0.42	0.42	0.42	0.42	0.42	0.42
Sat Flow, veh/h	302	204	1056	1229	71	144	1059	1819	43	18	1838	1583
Grp Volume(v), veh/h	71	0	0	10	0	0	22	0	304	314	0	16
Grp Sat Flow(s),veh/h/ln	1562	0	0	1443	0	0	1059	0	1862	1857	0	1583
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	2.8	0.0	0.0	0.1
Cycle Q Clear(g_c), s	0.9	0.0	0.0	0.1	0.0	0.0	3.3	0.0	2.8	2.9	0.0	0.1
Prop In Lane	0.32		0.68	0.90		0.10	1.00		0.02	0.03		1.00
Lane Grp Cap(c), veh/h	519	0	0	578	0	0	611	0	780	928	0	663
V/C Ratio(X)	0.14	0.00	0.00	0.02	0.00	0.00	0.04	0.00	0.39	0.34	0.00	0.02
Avail Cap(c_a), veh/h	3200	0	0	3031	0	0	2796	0	4623	4698	0	3931
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	8.1	0.0	0.0	7.8	0.0	0.0	6.2	0.0	5.0	5.0	0.0	4.2
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.6	0.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	8.2	0.0	0.0	7.8	0.0	0.0	6.2	0.0	5.3	5.2	0.0	4.2
LnGrp LOS	A	A	A	A	A	A	A	A	A	A	A	A
Approach Vol, veh/h		71			10			326			330	
Approach Delay, s/veh		8.2			7.8			5.4			5.2	
Approach LOS		A			A			A			A	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		15.0		9.8		15.0		9.8				
Change Period (Y+Rc), s		4.6		4.6		4.6		4.6				
Max Green Setting (Gmax), s		61.4		49.4		61.4		49.4				
Max Q Clear Time (g_c+I1), s		5.3		2.9		4.9		2.1				
Green Ext Time (p_c), s		2.3		0.5		2.3		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			5.6									
HCM 6th LOS			A									

Timings
19: Dexter Av. & Central Av. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

06/29/2018

	→	↘	←	↖	↗	↙
Lane Group	EBT	EBR	WBT	WBR	NBR	SBR
Lane Configurations	↑↑↑	↗	↑↑↑	↗	↗	↗
Traffic Volume (vph)	2173	217	1526	121	190	370
Future Volume (vph)	2173	217	1526	121	190	370
Turn Type	NA	Perm	NA	Perm	Perm	Perm
Protected Phases	4		8			
Permitted Phases		4		8	2	6
Detector Phase	4	4	8	8	2	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	26.8	26.8	26.8	26.8	42.4	15.8
Total Split (s)	68.0	68.0	68.0	68.0	52.0	52.0
Total Split (%)	56.7%	56.7%	56.7%	56.7%	43.3%	43.3%
Yellow Time (s)	4.8	4.8	4.8	4.8	4.4	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.8	5.8	5.8	5.4	5.8
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	None	None	Max	Max
Act Effct Green (s)	62.2	62.2	62.2	62.2	46.6	46.2
Actuated g/C Ratio	0.52	0.52	0.52	0.52	0.39	0.38
v/c Ratio	0.91	0.26	0.50	0.15	0.34	0.65
Control Delay	32.4	4.7	19.5	2.9	24.4	34.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.4	4.7	19.5	2.9	24.4	34.2
LOS	C	A	B	A	C	C
Approach Delay	29.9		18.3			
Approach LOS	C		B			
Intersection Summary						
Cycle Length: 120						
Actuated Cycle Length: 120						
Natural Cycle: 90						
Control Type: Actuated-Uncoordinated						
Maximum v/c Ratio: 0.91						
Intersection Signal Delay: 25.9				Intersection LOS: C		
Intersection Capacity Utilization 82.2%				ICU Level of Service E		
Analysis Period (min) 15						

Splits and Phases: 19: Dexter Av. & Central Av. (SR-74)

↑ Ø2	→ Ø4
52 s	68 s
↓ Ø6	← Ø8
52 s	68 s

HCM 6th Signalized Intersection Summary
19: Dexter Av. & Central Av. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

06/29/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↗		↑↑↑	↗		↑	↗		↑	↗
Traffic Volume (veh/h)	0	2173	217	0	1526	121	0	0	190	0	0	370
Future Volume (veh/h)	0	2173	217	0	1526	121	0	0	190	0	0	370
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870	0	1870	1870	0	1870	1870
Adj Flow Rate, veh/h	0	2388	195	0	1677	91	0	0	168	0	0	351
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	2	2	0	2	2	0	2	2	0	2	2
Cap, veh/h	0	2619	813	0	3300	803	0	729	618	0	729	618
Arrive On Green	0.00	0.51	0.51	0.00	0.51	0.51	0.00	0.00	0.39	0.00	0.00	0.39
Sat Flow, veh/h	0	5274	1585	0	6696	1565	0	1870	1584	0	1870	1585
Grp Volume(v), veh/h	0	2388	195	0	1677	91	0	0	168	0	0	351
Grp Sat Flow(s),veh/h/ln	0	1702	1585	0	1609	1565	0	1870	1584	0	1870	1585
Q Serve(g_s), s	0.0	51.1	8.2	0.0	20.5	3.6	0.0	0.0	8.6	0.0	0.0	20.7
Cycle Q Clear(g_c), s	0.0	51.1	8.2	0.0	20.5	3.6	0.0	0.0	8.6	0.0	0.0	20.7
Prop In Lane	0.00		1.00	0.00		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	0	2619	813	0	3300	803	0	729	618	0	729	618
V/C Ratio(X)	0.00	0.91	0.24	0.00	0.51	0.11	0.00	0.00	0.27	0.00	0.00	0.57
Avail Cap(c_a), veh/h	0	2658	825	0	3349	815	0	729	618	0	729	618
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	26.6	16.2	0.0	19.2	15.0	0.0	0.0	24.9	0.0	0.0	28.6
Incr Delay (d2), s/veh	0.0	5.3	0.2	0.0	0.1	0.1	0.0	0.0	1.1	0.0	0.0	3.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	20.1	2.8	0.0	7.2	1.2	0.0	0.0	3.4	0.0	0.0	8.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	31.9	16.3	0.0	19.3	15.1	0.0	0.0	26.0	0.0	0.0	32.3
LnGrp LOS	A	C	B	A	B	B	A	A	C	A	A	C
Approach Vol, veh/h	2583			1768			168			351		
Approach Delay, s/veh	30.7			19.1			26.0			32.3		
Approach LOS	C			B			C			C		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	52.4			67.1			52.4			67.1		
Change Period (Y+Rc), s	* 5.8			5.8			5.8			5.8		
Max Green Setting (Gmax), s	* 47			62.2			46.2			62.2		
Max Q Clear Time (g_c+I1), s	10.6			53.1			22.7			22.5		
Green Ext Time (p_c), s	0.5			8.2			1.2			16.9		

Intersection Summary

HCM 6th Ctrl Delay	26.4
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Timings
19: Dexter Av. & Central Av. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

10/22/2018

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	394	2173	217	176	1526	121	177	156	130	111	370
Future Volume (vph)	394	2173	217	176	1526	121	177	156	130	111	370
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA	pm+ov
Protected Phases	7	4		3	8		5	2	1	6	7
Permitted Phases			4			8					6
Detector Phase	7	4	4	3	8	8	5	2	1	6	7
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	5.0	10.0	5.0
Minimum Split (s)	9.5	26.8	26.8	9.5	26.8	26.8	9.5	42.4	9.5	15.8	9.5
Total Split (s)	20.6	50.0	50.0	12.0	41.4	41.4	27.2	43.3	14.7	30.8	20.6
Total Split (%)	17.2%	41.7%	41.7%	10.0%	34.5%	34.5%	22.7%	36.1%	12.3%	25.7%	17.2%
Yellow Time (s)	3.5	4.8	4.8	3.5	4.8	4.8	3.5	4.4	3.5	4.8	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	5.8	5.8	4.5	5.8	5.8	4.5	5.4	4.5	5.8	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	None	Max	None
Act Effect Green (s)	16.1	44.2	44.2	7.5	35.6	35.6	18.0	37.9	10.2	29.7	51.6
Actuated g/C Ratio	0.13	0.37	0.37	0.06	0.30	0.30	0.15	0.32	0.08	0.25	0.43
v/c Ratio	0.94	1.01	0.34	0.90	0.88	0.22	0.74	0.66	0.95	0.26	0.55
Control Delay	81.3	59.3	8.9	96.5	46.8	2.0	65.0	36.8	117.1	39.7	22.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	81.3	59.3	8.9	96.5	46.8	2.0	65.0	36.8	117.1	39.7	22.4
LOS	F	E	A	F	D	A	E	D	F	D	C
Approach Delay		58.5			48.6			46.4		45.7	
Approach LOS		E			D			D		D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Natural Cycle: 120

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.01

Intersection Signal Delay: 52.9

Intersection LOS: D

Intersection Capacity Utilization 91.4%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 19: Dexter Av. & Central Av. (SR-74)

			
Ø1	Ø2	Ø3	Ø4
14.7 s	43.3 s	12 s	50 s
			
Ø5	Ø6	Ø7	Ø8
27.2 s	30.8 s	20.6 s	41.4 s

HCM 6th Signalized Intersection Summary
19: Dexter Av. & Central Av. (SR-74)

S. Nichols Mixed-Use Development (JN 10878)

10/22/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	394	2173	217	176	1526	121	177	156	190	130	111	370
Future Volume (veh/h)	394	2173	217	176	1526	121	177	156	190	130	111	370
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	433	2388	195	193	1677	91	195	171	168	143	122	351
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	462	2362	582	215	1902	463	225	273	268	151	511	645
Arrive On Green	0.13	0.37	0.37	0.06	0.30	0.30	0.13	0.31	0.31	0.08	0.27	0.27
Sat Flow, veh/h	3456	6434	1585	3456	6434	1565	1781	866	851	1781	1870	1585
Grp Volume(v), veh/h	433	2388	195	193	1677	91	195	0	339	143	122	351
Grp Sat Flow(s),veh/h/ln	1728	1609	1585	1728	1609	1565	1781	0	1716	1781	1870	1585
Q Serve(g_s), s	14.9	44.2	10.7	6.7	29.9	5.2	12.9	0.0	20.3	9.6	6.1	20.3
Cycle Q Clear(g_c), s	14.9	44.2	10.7	6.7	29.9	5.2	12.9	0.0	20.3	9.6	6.1	20.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.50	1.00		1.00
Lane Grp Cap(c), veh/h	462	2362	582	215	1902	463	225	0	540	151	511	645
V/C Ratio(X)	0.94	1.01	0.34	0.90	0.88	0.20	0.87	0.00	0.63	0.95	0.24	0.54
Avail Cap(c_a), veh/h	462	2362	582	215	1902	463	336	0	540	151	511	645
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.6	38.1	27.5	56.1	40.4	31.7	51.6	0.0	35.2	54.8	34.0	27.2
Incr Delay (d2), s/veh	26.8	21.3	0.3	34.8	5.2	0.2	14.4	0.0	5.4	57.5	1.1	3.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.0	19.9	4.0	3.9	12.0	2.0	6.6	0.0	9.1	6.6	2.9	7.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	78.5	59.4	27.8	90.8	45.6	31.9	66.0	0.0	40.7	112.4	35.1	30.5
LnGrp LOS	E	F	C	F	D	C	E	A	D	F	D	C
Approach Vol, veh/h	3016			1961			534			616		
Approach Delay, s/veh	60.1			49.4			49.9			50.4		
Approach LOS	E			D			D			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.7	43.7	12.0	50.0	19.7	38.7	20.6	41.4				
Change Period (Y+Rc), s	4.5	* 5.8	4.5	5.8	4.5	5.8	4.5	5.8				
Max Green Setting (Gmax), s	10.2	* 38	7.5	44.2	22.7	25.0	16.1	35.6				
Max Q Clear Time (g_c+I1), s	11.6	22.3	8.7	46.2	14.9	22.3	16.9	31.9				
Green Ext Time (p_c), s	0.0	1.7	0.0	0.0	0.3	0.5	0.0	3.0				

Intersection Summary

HCM 6th Ctrl Delay	54.8
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Timings

S. Nichols Mixed-Use Development (JN 10878)

20: Cambern Av./Cambern Av & Central Av. (SR-74)

06/29/2018

										
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations	 	  		  				 		
Traffic Volume (vph)	681	2306	211	1515	161	229	164	389	122	97
Future Volume (vph)	681	2306	211	1515	161	229	164	389	122	97
Turn Type	Prot	NA	Prot	NA	Perm	Perm	NA	Perm	NA	Perm
Protected Phases	7	4	3	8			2		6	
Permitted Phases					8	2		6		6
Detector Phase	7	4	3	8	8	2	2	6	6	6
Switch Phase										
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	24.8	9.6	25.5	25.5	34.7	34.7	14.7	14.7	14.7
Total Split (s)	32.0	63.7	21.0	52.7	52.7	35.3	35.3	35.3	35.3	35.3
Total Split (%)	26.7%	53.1%	17.5%	43.9%	43.9%	29.4%	29.4%	29.4%	29.4%	29.4%
Yellow Time (s)	3.6	4.8	3.6	5.5	5.5	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.8	4.6	6.5	6.5	4.7	4.7	4.7	4.7	4.7
Lead/Lag	Lead	Lag	Lead	Lag	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes					
Recall Mode	Max	None	None	None	None	Max	Max	Max	Max	Max
Act Effect Green (s)	27.4	57.9	16.4	46.2	46.2	30.6	30.6	30.6	30.6	30.6
Actuated g/C Ratio	0.23	0.48	0.14	0.38	0.38	0.26	0.26	0.26	0.26	0.26
v/c Ratio	0.93	0.95	0.96	0.77	0.25	0.86	0.48	0.98	0.28	0.22
Control Delay	63.7	39.6	101.1	35.4	4.4	70.8	40.2	84.3	37.9	6.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.7	39.6	101.1	35.4	4.4	70.8	40.2	84.3	37.9	6.7
LOS	E	D	F	D	A	E	D	F	D	A
Approach Delay		45.0		40.1			56.4		62.6	
Approach LOS		D		D			E		E	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Natural Cycle: 110

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.98

Intersection Signal Delay: 46.1

Intersection LOS: D

Intersection Capacity Utilization 109.5%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 20: Cambern Av./Cambern Av & Central Av. (SR-74)

 Ø2	 Ø3	 Ø4
35.3 s	21 s	63.7 s
 Ø6	 Ø7	 Ø8
35.3 s	32 s	52.7 s

HCM 6th Signalized Intersection Summary S. Nichols Mixed-Use Development (JN 10878)
 20: Cambern Av./Cambern Av & Central Av. (SR-74) 06/29/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	681	2306	30	211	1515	161	229	164	40	389	122	97
Future Volume (veh/h)	681	2306	30	211	1515	161	229	164	40	389	122	97
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	748	2534	33	232	1665	135	252	180	43	427	134	63
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	809	2650	34	242	2179	607	292	370	88	463	474	402
Arrive On Green	0.23	0.48	0.48	0.14	0.39	0.39	0.25	0.25	0.25	0.25	0.25	0.25
Sat Flow, veh/h	3563	5526	72	1781	5611	1563	1185	1458	348	2313	1870	1583
Grp Volume(v), veh/h	748	1713	854	232	1665	135	252	0	223	427	134	63
Grp Sat Flow(s),veh/h/ln	1781	1870	1857	1781	1870	1563	1185	0	1807	1156	1870	1583
Q Serve(g_s), s	24.8	53.1	53.5	15.6	31.1	7.0	23.7	0.0	12.7	17.9	6.9	3.7
Cycle Q Clear(g_c), s	24.8	53.1	53.5	15.6	31.1	7.0	30.6	0.0	12.7	30.6	6.9	3.7
Prop In Lane	1.00		0.04	1.00		1.00	1.00		0.19	1.00		1.00
Lane Grp Cap(c), veh/h	809	1794	890	242	2179	607	292	0	458	463	474	402
V/C Ratio(X)	0.92	0.96	0.96	0.96	0.76	0.22	0.86	0.00	0.49	0.92	0.28	0.16
Avail Cap(c_a), veh/h	809	1795	891	242	2179	607	292	0	458	463	474	402
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.6	30.2	30.3	51.8	32.1	24.7	49.4	0.0	38.3	53.1	36.2	35.0
Incr Delay (d2), s/veh	17.9	12.4	20.9	45.8	1.8	0.3	27.0	0.0	3.7	26.4	1.5	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.6	25.0	27.1	9.7	13.4	2.5	9.9	0.0	6.1	8.2	3.4	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.5	42.5	51.1	97.6	33.9	25.0	76.5	0.0	42.0	79.5	37.7	35.8
LnGrp LOS	E	D	D	F	C	C	E	A	D	E	D	D
Approach Vol, veh/h		3315			2032			475			624	
Approach Delay, s/veh		49.5			40.6			60.3			66.1	
Approach LOS		D			D			E			E	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		35.3	21.0	64.3		35.3	32.0	53.3				
Change Period (Y+Rc), s		* 4.7	4.6	* 6.5		* 4.7	4.6	6.5				
Max Green Setting (Gmax), s		* 31	16.4	* 58		* 31	27.4	46.2				
Max Q Clear Time (g_c+I1), s		32.6	17.6	55.5		32.6	26.8	33.1				
Green Ext Time (p_c), s		0.0	0.0	2.4		0.0	0.2	10.2				
Intersection Summary												
HCM 6th Ctrl Delay			49.1									
HCM 6th LOS			D									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

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APPENDIX 9.19:

**EAPC (2024) CONDITIONS OFF-RAMP QUEUING ANALYSIS WORKSHEETS WITH
IMPROVEMENTS**

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Queues
9: I-15 SB Ramps & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

07/02/2018

	→	↘	↙	←	↘	↓	↙
Lane Group	EBT	EBR	WBL	WBT	SBL	SBT	SBR
Lane Group Flow (vph)	705	629	175	607	343	86	84
v/c Ratio	0.62	0.67	0.63	0.30	0.73	0.20	0.19
Control Delay	28.9	6.5	46.8	10.5	39.3	9.3	7.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.9	6.5	46.8	10.5	39.3	9.3	7.5
Queue Length 50th (ft)	161	0	85	78	162	3	0
Queue Length 95th (ft)	242	6	161	123	259	29	23
Internal Link Dist (ft)	364			541		1371	
Turn Bay Length (ft)			230		200		
Base Capacity (vph)	1734	1093	460	2872	818	684	707
Starvation Cap Reductn	77	15	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.43	0.58	0.38	0.21	0.42	0.13	0.12
Intersection Summary							

Queues
9: I-15 SB Ramps & Nichols Rd.

S. Nichols Mixed-Use Development (JN 10878)

07/02/2018

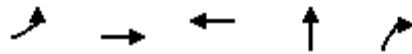
							
Lane Group	EBT	EBR	WBL	WBT	SBL	SBT	SBR
Lane Group Flow (vph)	659	615	117	952	207	191	188
v/c Ratio	0.52	0.64	0.45	0.49	0.51	0.43	0.42
Control Delay	19.6	5.3	34.7	9.2	30.1	10.8	10.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.6	5.3	34.7	9.2	30.1	10.8	10.5
Queue Length 50th (ft)	107	0	42	97	72	11	10
Queue Length 95th (ft)	167	13	95	144	141	46	45
Internal Link Dist (ft)	364			541		1371	
Turn Bay Length (ft)			230		200		
Base Capacity (vph)	2752	1363	528	3372	892	793	797
Starvation Cap Reductn	64	9	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.45	0.22	0.28	0.23	0.24	0.24
Intersection Summary							

Queues

S. Nichols Mixed-Use Development (JN 10878)

10: I-15 NB Ramps & Nichols Rd.

07/02/2018



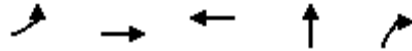
Lane Group	EBL	EBT	WBT	NBT	NBR
Lane Group Flow (vph)	305	963	821	394	324
v/c Ratio	0.58	0.52	0.77	0.74	0.64
Control Delay	36.5	13.6	30.2	33.2	24.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	36.5	13.6	30.2	33.2	24.6
Queue Length 50th (ft)	71	144	173	169	105
Queue Length 95th (ft)	82	153	180	169	110
Internal Link Dist (ft)		541	958	1472	
Turn Bay Length (ft)	230				200
Base Capacity (vph)	707	2053	1060	1400	1212
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.43	0.47	0.77	0.28	0.27
Intersection Summary					

Queues

S. Nichols Mixed-Use Development (JN 10878)

10: I-15 NB Ramps & Nichols Rd.

07/02/2018



Lane Group	EBL	EBT	WBT	NBT	NBR
Lane Group Flow (vph)	413	635	647	808	169
v/c Ratio	0.87	0.46	0.92	0.94	0.21
Control Delay	68.3	27.3	60.8	45.7	6.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	68.3	27.3	60.8	45.7	6.0
Queue Length 50th (ft)	164	193	249	543	19
Queue Length 95th (ft)	145	156	198	383	22
Internal Link Dist (ft)		541	958	1472	
Turn Bay Length (ft)	230				200
Base Capacity (vph)	488	1418	737	966	880
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.85	0.45	0.88	0.84	0.19
Intersection Summary					