4.9 TRANSPORTATION AND CIRCULATION

The following analysis is based on a technical traffic study prepared by Urban Crossroads, titled "Amendment No. 2 to Reclamation Plan 2006-01, Traffic Impact Analysis (Revised), City of Lake Elsinore" and dated June 24, 2015 (revised July 15, 2015). This Traffic Impact Analysis (TIA) report is included as *Technical Appendix J* to this EIR (Urban Crossroads, 2015d). The TIA evaluates the potential traffic impacts that may result from the development of the proposed Project. As directed by City of Lake Elsinore staff, TIA was prepared in accordance with the County of Riverside's Traffic Impact Analysis Preparation Guide (August 2008), the California Department of Transportation (Caltrans) Guide for the Preparation of Traffic Impact Studies (December 2002), and direction provided to Urban Crossroads during their consultation with City of Lake Elsinore staff during the scoping process (Urban Crossroads, 2015d, p. 1).

4.9.1 SCOPE OF REVIEW

The Nichols Canyon Mine, as discussed in Section 2.0, Environmental Setting, is an existing, ongoing surface mining operation operating pursuant to vested mining rights and an approved reclamation plan (RP 2006-01A1), which was analyzed in a prior MND. The Project proposes certain amendments to existing entitlements, as described in Section 3.0, Project Description. Although the City has chosen to prepare an EIR for the Project here, the scope of review addresses those impacts resulting from the Project as described in Section 3.0, Project Description, and not impacts related to existing, approved operations, which form the environmental baseline, as discussed in Section 2.7, Existing Physical Site Condition. Accordingly, this Subsection analyzes traffic impacts related to the Project specifically. This Subsection does not analyze traffic impacts related to existing, approved operations, except as part of the cumulative impacts analysis, where required.

4.9.2 PROJECT EXISTING BASELINE CONDITIONS

As noted previously in EIR Section 2.1, the environmental baseline for this analysis is the Mine's average production level between 2007 and 2014, which was 556,348 tons per year. The Project proposes to reduce the Mine's permitted production level from 4 million tons per year to 856,560 tons per year. This analysis, therefore, analyzes the incremental impacts resulting from a proposed maximum increase in production from 556,348 to 856,560 tons per year. Thus, on an annual basis, the Project-related maximum annual tonnage increase over baseline conditions would be approximately 300,212 tons per year, or 35.05% of the total annual tonnage that would be allowed under the proposed Project. A mine, however, does not produce material uniformly throughout the year; production levels tend instead to vary with market demand on a daily basis. The Project Applicant estimates that a reasonable high-end estimate of daily tonnage at the site is approximately 5,000 tons per day (tpd), with approximately 3,248 tpd associated with the Mine's existing operations (i.e., baseline conditions) while the remaining 1,752 tpd are attributable to the proposed Project. For purposes of the analysis in this section, it is anticipated that the Project will be fully operational by Year 2016. (Urban Crossroads, 2015d, p. 1) Additionally, the Project proposes to increase the hours of operation of the Mine from 7:00 am and 12:00 am (Monday through Friday, excluding Federal Holidays) and between 7:00 am and 7:00 pm (Saturdays only) to between 4:00 am and 12:00 am (Monday through Saturday, excluding Federal Holidays) for mining equipment operation and 24 hours per day (Monday through Saturdays, excluding Federal Holidays) for aggregate export activities. (Urban Crossroads, 2015d, p. 3)

4.9.3 EXISTING CONDITIONS

This subsection describes existing conditions for roadways, traffic counts, truck trips, intersections, traffic signals, freeways, mass transit, and pedestrian/bicycle facilities, each of which is described below. The study area includes intersections where the Project was anticipated to contribute 50 or more peak hour trips (Urban Crossroads, 2015d, p. 5). Intersections that receive less than 50 peak hour trips from a project are considered to be less than significantly impacted on direct and cumulatively considerable bases by the City of Lake Elsinore (using direction provided by the County of Riverside's Traffic Impact Analysis Preparation Guide), and therefore do not require detailed study.

A. Existing Roadways

Within the Project's study area are Project driveway intersections at Nichols Road and the I-15 northbound and southbound ramps at Nichols Road. Under existing conditions, Nichols Road east of I-15 is improved as a two-lane undivided roadway, but is ultimately is planned by the City of Lake Elsinore's General Plan Circulation Element as an Urban Arterial with six lanes and a right-of-way of 120 feet (Lake Elsinore, 2011a, Figure 2.3).

The following four study area intersections, which are depicted on Figure 4.9-1, *Intersection Analysis Locations*, are located in the Project's traffic impact study area, because they would likely receive 50 or more peak hour trips from the proposed Project (Urban Crossroads, 2015d, p. 19):

1) I-15 Southbound Ramps/Nichols Road (Jurisdiction: Caltrans, Lake Elsinore)
2) I-15 Northbound Ramps/Nichols Road (Jurisdiction: Caltrans, Lake Elsinore)
3) Driveway 1/Nichols Road (Jurisdiction: Lake Elsinore)
4) Driveway 2/Nichols Road (Jurisdiction: Lake Elsinore)

B. Existing (2015) Traffic Counts

The intersection level of service (LOS) analysis is based on the traffic volumes observed during the peak hour conditions using traffic count data collected by Urban Crossroads in May 2015. The following peak hours were selected for analysis (Urban Crossroads, 2015d, p. 27):

- Weekday AM Peak Hour (peak hour between 7:00 AM and 9:00 AM)
- Weekday PM Peak Hour (peak hour between 4:00 PM and 6:00 PM)

The weekday AM and weekday PM peak hour count data is representative of typical weekday peak hour traffic conditions in the study area. There were no observations made in the field that would indicate atypical traffic conditions on the count dates, such as construction activity or detour routes, and nearby schools were in session and operating on normal schedules. (Urban Crossroads, 2015d, p. 27) The raw manual peak hour turning movement traffic count data sheets are included in Appendix 3.1 of the Project's Traffic Impact Analysis (*EIR Technical Appendix J*). These raw turning volumes have been flow conserved between intersections with limited access, no access and where there are currently no uses generating traffic (e.g., between ramp-to-arterial intersections, etc.). The traffic counts collected in May 2015 include the following vehicle classifications (Urban Crossroads, 2015d, p. 27):

- Passenger Cars

- 2-Axle Trucks
- 3-Axle Trucks
- 4 or More Axle Trucks

To represent the influence large trucks, buses and recreational vehicles have on traffic flow; all trucks were converted into Passenger Car Equivalents (PCEs). By their size alone, these larger vehicles occupy the same space as more than one passenger car. In addition, the time it takes for them to accelerate and slow-down is also much longer than for passenger cars, and varies depending on the type of vehicle and number of axles. For the purpose of this analysis, a PCE factor of 1.5 has been applied to 2-axle trucks, 2.0 for 3-axle trucks, and 3.0 for 4+-axle trucks to estimate each turning movement. These factors are consistent with the values recommended for use in the San Bernardino County Congestion Management Program (CMP) and exceed the 2.0 factor recommended for use in the County of Riverside Traffic Study Guidelines. (Urban Crossroads, 2015d, p. 27; RCTD, 2008, Exhibit C)

Existing weekday average daily traffic (ADT) volumes on arterial highways throughout the study area are shown on Figure 4.9-2, *Existing (2015) Traffic Volumes (in PCE)*. Existing weekday AM and weekday PM peak hour intersection volumes (in PCE) are also shown in this exhibit.

C. Existing Daily Truck Trips

Table 4.9-1, *Peak Hour Trips as a Percentage of ADT*, illustrates the number of daily truck trips per day for the existing Mine site. This data indicates the typical operational characteristics of mining operation where truck activity is heaviest in the late morning hours (at 10 AM, after the typical morning peak hour of 7-9 AM), then remains relatively steady during the early afternoon hours, and finally tapers off the mid to late afternoon hours. (Urban Crossroads, 2015d, p. 40)

1. Existing Intersection Operations Analysis

Existing peak hour traffic operations were evaluated at existing study area intersections based on the analysis methodologies presented in Section 2.2, *Intersection Capacity Analysis*, of the TIA (*EIR Technical Appendix J*). The Level of Service (LOS) for study area intersections during peak hours are summarized in Table 4.9-2, *Intersection Analysis for Existing (2015) Conditions*. This table also shows that the existing study area intersections currently operate at an acceptable LOS during the morning and evening peak hours (Urban Crossroads, 2015d, p. 29).

D. Existing Traffic Signal Warrants Analysis

Traffic signal warrants for Existing traffic conditions are based on existing peak hour intersection turning volumes. No study area intersections currently warrant a traffic signal for existing traffic conditions. (Urban Crossroads, 2015d, p. 29)

E. Existing Freeway Conditions

1. Existing Freeway Traffic Volumes

I-15 mainline volume data were obtained from the Caltrans Performance Measurement System (PeMS) website for the segments of the I-15 Freeway interchange, north of Nichols Road. The data was obtained from May 2015. To conduct a conservative analysis, the maximum value observed

Table 4.9-1 Peak Hour Trips as a Percentage of ADT

Time	Dates												Average Hourly Trips	Total Trips	Hourly %
	1/13/15	2/25/15	3/10/15	4/15/15	5/20/14	6/26/14	7/11/14	8/28/14	9/2/14	10/7/14	11/18/14	12/11/14			
12:00 AM															
1:00 AM															
2:00 AM															
3:00 AM															
4:00 AM															
5:00 AM															
6:00 AM															
7:00 AM	6	12	11	6	4	5	6	14	12	7	3	6	8	92	11.8%
8:00 AM	6	15	9	10	5	4	8	9	10	4	11	8	8	99	12.7%
9:00 AM	8	14	13	9	10	7	5	8	8	6	6	9	9	103	13.2%
10:00 AM	8	11	13	9	15	3	7	11	11	8	12	11	10	119	15.3%
11:00 AM	7	12	15	9	12	3	4	11	11	5	3	6	8	98	12.6%
12:00 PM	7	10	12	7	9	9	5	13	6	8	6	5	8	97	12.4%
1:00 PM	8	3	11	10	8	2	7	5	2	6	14	3	7	79	10.1%
2:00 PM	6	0	13	10	6	1	7	3	4	4	5	4	5	63	8.1%
3:00 PM	1	1	8	0	4	1	2	1	0	3	0	2	2	23	2.9%
4:00 PM	1	2	1	2	1	0	0	0	0	0	0	0	1	7	0.9%
5:00 PM															
6:00 PM															
7:00 PM															
8:00 PM															
9:00 PM															
10:00 PM															
11:00 PM															
Total Tickets:	58	80	106	72	74	35	51	75	64	51	60	54	65	780	100.0%

*Data supplied by Project Applicant for the existing Nichols Mine site.
Source: (Urban Crossroads, 2015d, Table 4-4) T

Table 4.9-2 Intersection Analysis for Existing (2015) Conditions

#	Intersection	Traffic Control[3]	Intersection Approach Lanes[1]												Delay[2] (secs.)		Level of Service		Acceptable LOS
			Northbound			Southbound			Eastbound			Westbound							
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM	
1	I-15 SB Ramps / Nichols Rd.	AWS	0	0	0	0	1	0	0	1	1	1	1	0	11.7	12.9	B	B	D
2	I-15 NB Ramps / Nichols Rd.	CSS	0	1	0	0	0	0	1	1	0	0	1	0	18.5	21.4	C	C	D
3	Dwy. 1 / Nichols Rd.	CSS	0	0	0	0	0	1	0	1	0	0	1	0	10.1	8.9	B	A	C
4	Dwy. 2 / Nichols Rd.	CSS	0	0	0	0	0	0	1	1	0	0	1	0	7.9	7.5	A	A	C

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.
L = Left; T = Through; R = Right; d = Defacto Right Turn Lane
[2] Per the 2010 Highway Capacity Manual, overall average intersection delay, and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.
[3] CSS = Cross-street Stop; AWS = All-way Stop
Source: (Urban Crossroads, 2015d, Table 3-1)

within the three day period was utilized for the weekday morning (AM) and weekday evening (PM) peak hours. In addition, truck traffic, represented as a percentage of total traffic, is used for the purpose of this analysis to avoid overstating traffic volumes and peak hour deficiencies. As such, actual vehicles (as opposed to PCE volumes) are utilized for the purposes of the basic freeway segment analysis. (Urban Crossroads, 2015d, pp. 15-16)

2. Existing Freeway Mainline Segment Levels of Service

Freeway mainline analysis locations were selected for study based on the Caltrans Guide for the Preparation of Traffic Impact Studies (2002) (Caltrans, 2002). Caltrans recommends that impacts on State highway system (SHS) facilities be studied when a project would add over 100 peak hour trips to a SHS facility, would add between 50 and 100 peak hour trips to a SHS facility experiencing noticeable delay (LOS C or D), or would add any number of peak hour trips to a SHS facility experiencing significant delay (LOS E or F) which Caltrans requests be studied. In the vicinity of the Project site, I-15 operates at LOS B and C (see Table 4.9-3, *Basic Freeway Segment Analysis for Existing (2015) Conditions*). Although the Project is calculated to contribute fewer than 50 peak hour trips to I-15, the northbound and southbound freeway segments north of Nichols Road and south of Nichols Road are evaluated in the Project's TIA for purposes of information disclosure, because these segments would carry the highest volume of Project-related peak hour traffic (Urban Crossroads, 2015d, p. 6).

As shown in Table 4.9-3, the basic freeway segments analyzed for this study were found to operate at an acceptable LOS during the peak hours. (Urban Crossroads, 2015d, p. 34)

Table 4.9-3 Basic Freeway Segment Analysis for Existing (2015) Conditions

Freeway	Direction	Mainline Segment	Lanes[1]	Volume		Truck %	Truck %	Density[2]		LOS	
				AM	PM	AM	PM	AM	PM	AM	PM
I-15 Freeway	SB	North of Nichols Road	3	2,859	4,253	2%	1%	14.9	22.6	B	C
		South of Nichols Road	3	2,919	4,316	2%	1%	15.3	23.0	B	C
	NB	North of Nichols Road	3	3,476	3,261	1%	1%	18.1	17.0	C	B
		South of Nichols Road	3	3,513	3,425	2%	1%	18.4	17.8	C	B

[1] Number of lanes are in the specified direction and is based on existing conditions
[2] Density is measured by passenger cars per mile per lane (pc/mi/ln).
Source: (Urban Crossroads, 2015d, Table 3-3)

3. Existing Freeway Merge/Diverge Levels of Service

The following freeway ramp junctions for each direction of flow as listed below were evaluated in the Project's TIA (Urban Crossroads, 2015d, p. 6):

1. I-15 Freeway- Southbound, Off-Ramp at Nichols Road (Diverge)
2. I-15 Freeway- Southbound, On-Ramp at Nichols Road (Merge)
3. I-15 Freeway- Northbound, On-Ramp at Nichols Road (Merge)
4. I-15 Freeway- Northbound, Off-Ramp at Nichols Road (Diverge)

The Project is anticipated to contribute fewer than 50 peak hour trips to these freeway merge/diverge ramp junction locations (Urban Crossroads, 2015d, p. 6). Nonetheless, an analysis of ramp merge and diverge operations in these locations are presented in Table 4.9-4, *Intersection Analysis for Existing (2015) Conditions*. As shown in Table 4.9-4, the freeway ramp merge and diverge areas currently operate at LOS D or better. (Urban Crossroads, 2015d, p. 34)

Table 4.9-4 Intersection Analysis for Existing (2015) Conditions

Freeway	Direction	Ramp or Segment	Lanes on Freeway[1]	AM Peak Hour		PM Peak Hour	
				Density[2]	LOS	Density[2]	LOS
I-15 Freeway	SB	Off-Ramp at Nichols Road	3	21.1	C	28.3	D
		On-Ramp at Nichols Road	3	19.5	B	26.3	C
	NB	On-Ramp at Nichols Road	3	18.7	B	17.6	B
		Off-Ramp at Nichols Road	3	24.5	C	24.2	C

[1] Number of lanes are in the specified direction and is based on existing conditions
[2] Density is measured by passenger cars per mile per lane (pc/mi/ln).
Source: (Urban Crossroads, 2015d, Table 3-4)

4. Existing Freeway Off-Ramp Queuing Analysis

A queuing analysis was performed for the off-ramps at the I-15 Freeway and Nichols Road interchange to assess vehicle queues for the off ramps that may potentially result in deficient peak hour operations at the ramp-to-arterial intersections and may potentially "spill back" onto the I-15 Freeway mainline. As shown in Table 4.9-5, *Peak Hour Freeway Off-Ramp Queuing Summary for Existing (2015) Conditions*, there are no movements that are currently experiencing queuing issues during the weekday AM or weekday PM peak 95th percentile traffic flows. (Urban Crossroads, 2015d, p. 29)

Table 4.9-5 Peak Hour Freeway Off-Ramp Queuing Summary for Existing (2015) Conditions

Intersection	Movement	Available Stacking Distance (Feet)	95th Percentile Queue (Feet)[2]		Acceptable?[1]	
			AM Peak Hour	PM Peak Hour	AM	PM
I-15 SB Off-Ramp / Nichols Rd.	SBL/T/R	1,600	53	38	Yes	Yes
I-15 NB Off-Ramp / Nichols Rd.	NBL/T/R	1,530	78	110	Yes	Yes

[1] Stacking Distance is acceptable if the required stacking distance is less than or equal to the stacking distance provided. An additional 15 feet of stacking which is assumed to be provided in the transition for turn pockets is reflected in the stacking distance shown on this table, where applicable.
[2] Maximum queue length for the approach reported.
Source: (Urban Crossroads, 2015d, Table 3-2)

F. Existing Mass Transit

The study area is currently served by the Riverside Transit Authority (RTA), a public transit agency serving the unincorporated Riverside County region. There are currently no existing bus routes that serve the roadways within the study area in close proximity to the Project site. Transit service is reviewed and updated by RTA periodically to address ridership, budget, and community demand needs. Changes in land use can affect these periodic adjustments which may lead to either enhanced or reduced service where appropriate. (Urban Crossroads, 2015d, p. 27)

G. Existing Pedestrian and Bicycle Facilities

The trails and bikeway system, shown on Exhibits 3-6 and 3-7 of the Project's TIA (*Technical Appendix J*), depict proposed trails in the area. As shown, a regional trail along the east side of the I-15 Freeway and along Nichols Road is planned within the study area. Class II bike lanes also are proposed for Nichols Road within the study area. Field observations collected by Urban Crossroads in April 2015 indicate nominal pedestrian and bicycle activity within the study area. There are limited pedestrian and bicycle facilities within the study area. The only sidewalk provided is along Nichols Road to the west of the I-15 Freeway. (Urban Crossroads, 2015d, p. 19) Refer to Subsection 3.4 of the Project's TIA (*Technical Appendix J*) for a detailed summary of the planned pedestrian and bicycle facilities in the Project site's vicinity.

H. Existing Airport Facilities

The nearest airport to the Project site is the Skylark Airport, which is a private facility utilized primarily for skydiving and is located approximately 5.5 miles southwest of the Project site. The nearest public airport is the March Air Reserve Base, located approximately 12.4 miles northeast of the Project site. The Project site is not located within the Airport Influence Area for any public airport, and is located more than two miles from any private airstrips. Additionally, there are no heliports in the vicinity of the Project site. (RCIT, 2015; Google Earth, 2015; RCALUC, 2014, Map MA-1)

4.9.4 APPLICABLE REGULATORY REQUIREMENTS

A. SCAG Regional Transportation Plan (RTP)

The Southern California Association of Governments (SCAG) is a regional agency established pursuant to California Government Code §6500, also referred to as the Joint Powers Authority law. SCAG is designated as a Council of Governments (COG), a Regional Transportation Planning Agency (RTPA), and a Metropolitan Planning Organization (MPO). The Project site is within SCAG's regional authority. On April 4, 2012, SCAG adopted a Regional Transportation Plan (RTP) with goals to: 1) maximize mobility and accessibility for all people and goods in the region; 2) ensure travel safety and reliability for all people and goods in the region; 3) preserve and ensure a sustainable transportation system; 4) maximize productivity of the transportation system; 5) protect the environment, improve air quality, and promote energy efficiency; 6) encourage land use and growth patterns that complement the transportation investments and improve the cost-effectiveness of expenditures; and 7) maximize the security of the transportation system (SCAG, 2012a, p. 13). Performance measures and funding strategies also are included to ensure that the adopted goals are achieved through implementation.

As an MPO and public agency, SCAG develops transportation policies that transcend local jurisdictional boundaries and that affect the quality of life for Southern California as a whole. SCAG's *2012-2035 Regional Transportation Plan / Sustainable Communities Strategy* (*RTP/SCS*) includes a chapter titled "Goods Movement" that is applicable to the proposed Project. It states that mining makes up one percent of the goods movement dependent industries, which collectively contribute to 34 percent of the region's gross domestic product of $253 billion in 2010 (SCAG, 2012b, p. 10 and Figure 2). To that end, the Goods Movement section of the RTP/SCS sets forth regional strategies to achieve an efficient movement of goods. It recognizes that the SCAG region will experience dramatic increases in truck traffic on east-west corridors that will cause increased

congestion and longer delays to both trucks and general traffic on existing routes (SCAG, 2012b, p. 20). The Goods Movement section of the RTP/SCS suggests the construction of a regional freight corridor that would increase capacity to accommodate the projected growth in truck activity, but such a corridor is not yet in the planning stages (SCAG, 2012b, p. 13). Other strategies also are presented, such as highway strategies, bottleneck strategies, rail strategies, and capacity enhancements on the existing infrastructure system. (SCAG, 2012b)

B. Riverside County Congestion Management Program (CMP)

The Riverside County CMP was prepared by the Riverside County Transportation Commission (RCTC) in accordance with Proposition 111. Deficiencies along the Congestion Management Program (CMP) system are identified by RCTC when they occur so that improvement measures can be identified. Understanding the reason for these deficiencies and identifying ways to reduce the impact along a critical CMP corridor is intended to conserve scarce funding resources and help target those resources appropriately. In the Project study area I-15 is designated as a Riverside County CMP facility. (RCTC, 2011, p. 2-5)

C. Riverside County Integrated Project (RCIP)

The RCIP is Riverside County's comprehensive, three-part, integrated program to determine future habitat conservation, transportation, and housing and economic needs in Riverside County. The RCIP addresses traffic congestion by addressing future traffic and multi-model circulation issues through the Community & Environmental Transportation Acceptability Process (CETAP). This element of RCIP identifies the locations for new transportation facilities that will help benefit commuters and serve Riverside County's growing economy. Selection of new transportation corridors are intended to be integrated with decisions on land use and environmentally sensitive areas. (Riverside County, 2003b)

D. City of Lake Elsinore General Plan Community Form Element

The City of Lake Elsinore General Plan Community Form Element includes a section that addresses circulation in the City. The Circulation portion of this Element is designed to provide mobility for resents and to facilitate business. To help meet traffic demands and achieve balanced growth, the City has adopted specific goals and policies, which serve as the basis for their Circulation Element. Refer to Subsection 3.2 of *EIR Technical Appendix J* for a detailed summary of the General Plan's circulation policies and requirements. (City of Lake Elsinore, 2011a, p. 2-22)

E. Local and Regional Funding Mechanisms

Transportation improvements throughout the City of Lake Elsinore are funded through a combination of project-specific mitigation, fair-share contributions, and/or development impact fee programs, such as Western Riverside Council of Governments (WRCOG) Transportation Uniform Mitigation Fee Program (TUMF) program or the City's Traffic Infrastructure Fee (TIF) program. Identification and timing of needed improvements is generally determined through local jurisdictions based upon a variety of factors, including but not limited to need and available funding. (Urban Crossroads, 2015d, p. 8)

1. Transportation Uniform Mitigation Fee (TUMF) Program

The Western Riverside Council of Governments (WRCOG) established a consolidated Transportation Uniform Mitigation Fee (TUMF) program for all of western Riverside County, which commenced in 2003. The establishment of TUMF was based on the desire to establish a single, uniform fee program to mitigate the cumulative impacts of new development on the sub-region's arterial highway system rather than having multiple and potentially uncoordinated fee programs across the region. WRCOG is responsible for establishing and updating TUMF payment rates, based on a TUMF Program Nexus Study, which is periodically updated to consider the impact of future development on the subregion's system of highways and arterial roads. Between 2003 when TUMF commenced and June 2014, WRCOG had received $605 million in revenues through the TUMF program of which projects in the City of Lake Elsinore are reported to have contributed $17,190,568 (WRCOG, 2014, p. 13). During this time, 78 TUMF-funded improvements have been completed, which demonstrates that TUMF is an effective program. The City of Lake Elsinore is located the TUMF's Southwest Zone, along with the cities of Canyon Lake, Murrieta, Temecula, and Wildomar, and parts of unincorporated Riverside County. To-date, 10 TUMF-funded projects have been completed in the Southwest Zone and 12 others are in the planning, engineering, or construction phase. (WRCOG, 2014)

Payment of TUMF fees, as well as exemptions, credits, reimbursements, and local administration is deferred to local government agencies. WRCOG serves this function for the City of Lake Elsinore. Regarding credits, the County may grant to developers a credit against the specific components of fees for the dedication of land or the construction of facilities identified in the list of improvements funded by TUMF. Fees submitted to the County are passed on to the WRCOG as the ultimate program administrator. (Urban Crossroads, 2015d, p. 8)

Table 1-4 of the Project's TIA (*Technical Appendix J*), *Summary of Improvements by Analysis Scenario*, provides a summary of improvements that are programmed to be funded by TUMF within the Project's study area.

2. City of Lake Elsinore Traffic Infrastructure Fee Program

The City of Lake Elsinore created its own local TIF program to impose and collect fees from new residential, commercial, and industrial development for the purpose of funding roadways and intersections necessary to accommodate City growth as identified in the City's General Plan Circulation Element. The City of Lake Elsinore's TIF program includes facilities that are not part of, or which may exceed improvements identified and covered by, the TUMF program. As a result, the pairing of the regional and local fee programs provides a more comprehensive funding and implementation plan to ensure an adequate and interconnected transportation system. Under the City of Lake Elsinore's TIF program, the City of Lake Elsinore may grant to developers a credit against specific components of fees when those developers construct certain facilities and landscaped medians identified in the list of improvements funded by the TIF program. (Urban Crossroads, 2015d, p. 10)

The timing of the use of TIF fees is established through periodic capital improvement programs which are overseen by the City of Lake Elsinore's Public Works Department. Periodic traffic counts, review of traffic accidents, and a review of traffic trends throughout the City of Lake Elsinore are also periodically performed by City of Lake Elsinore staff and consultants. The City of Lake

Elsinore uses this data to determine the timing of implementing the improvements listed in its TIF facilities list. (Urban Crossroads, 2015d, p. 10)

As shown in Table 1-4 of the Project's TIA (*Technical Appendix J*), a few of the facilities within the Project's study area are planned for improvements through the City of Lake Elsinore's TIF Program. Table 1-4 shows that the study area intersections of I-15 southbound and northbound ramps at Nichols Road are covered by the TIF. The Project would be subject to the City of Lake Elsinore's TIF fee program, and would pay the requisite City of Lake Elsinore TIF fees at the rates then in effect pursuant to the City of Lake Elsinore's ordinance. The TIF network improvement needs were last updated in 2002 with an expected completion date by 2025. Improvements are identified in the Nexus Study by location rather than with specific geometrics. Table E of the Nexus Study identifies TIF improvement locations and eligible program costs but does not provide discrete improvements. (Urban Crossroads, 2015d, p. 10)

4.9.5 METHODOLOGY FOR ESTIMATING PROJECT-RELATED TRAFFIC IMPACTS

A. Level of Service (LOS)

Traffic operations of roadway facilities are described using the term "Level of Service" (LOS). LOS is a qualitative description of traffic flow based on several factors such as speed, travel time, delay, and freedom to maneuver. Six levels are typically defined ranging from LOS A, representing completely free-flow conditions, to LOS F, representing breakdown in flow resulting in stop-and-go conditions. LOS E represents operations at or near capacity, an unstable level where vehicles are operating with the minimum spacing for maintaining uniform flow. (Urban Crossroads, 2015d, p. 11) Table 4.9-6, *Signalized Intersection LOS Thresholds*, Table 4.9-7, *Unsignalized Intersection LOS Thresholds*, Table 4.9-8, *Description of Freeway Mainline LOS* and Table 4.9-9, *Description of Freeway Merge and Diverge LOS*, summarize typical operational conditions at signalized and unsignalized intersections; freeway mainlines; and freeway merge and diverge for each LOS classification, respectively.

LOS has been used as the basis for determining the significance of traffic impacts as standard practice in CEQA documents for decades. In 2013, California Senate Bill (SB) 743 was passed, which is intended to balance the need for LOS for traffic planning with the need to build infill housing and mixed use commercial developments within walking distance of mass transit facilities, downtowns, and town centers and to provide greater flexibility to local governments to balance these sometimes competing needs. At full implementation of SB 743, the California Governor's Office of Planning and Research is expected to replace LOS as the metric against which traffic impacts are evaluated, with a metric based on vehicle miles traveled (VMT). At the time the NOP for this EIR was released (June 25, 2015), a VMT metric was not published by OPR, and the City of Lake Elsinore in its capacity as Lead Agency, as well as surrounding local agencies in which the Project's traffic would circulate, use LOS as the significance criteria for evaluating a Project's traffic impacts. For this reason, a LOS metric and not a VMT metric is appropriately used as the significance criterion in this EIR.

1. Minimum Level of Service (LOS)

The Project's study area for traffic includes facilities that are under the jurisdiction of the City of Lake Elsinore and/or Caltrans. A discussion of the LOS standards utilized by these agencies is provided below.

Table 4.9-6 Signalized Intersection LOS Thresholds

Description	Average Control Delay (Seconds), V/C ≤ 1.0	Level of Service, V/C ≤ 1.0	Level of Service, V/C > 1.0
Operations with very low delay occurring with favorable progression and/or short cycle length.	0 to 10.00	A	F
Operations with low delay occurring with good progression and/or short cycle lengths.	10.01 to 20.00	B	F
Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	20.01 to 35.00	C	F
Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop and individual cycle failures are noticeable.	35.01 to 55.00	D	F
Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences. This is considered to be the limit of acceptable delay.	55.01 to 80.00	E	F
Operation with delays unacceptable to most drivers occurring due to over saturation, poor progression, or very long cycle lengths.	80.01 and up	F	F

Source: (Urban Crossroads, 2015d, Table 2-1)

Table 4.9-7 Unsignalized Intersection LOS Thresholds

Description	Average Control Delay Per Vehicle (Seconds)	Level of Service, V/C ≤ 1.0	Level of Service, V/C > 1.0
Little or no delays.	0 to 10.00	A	F
Short traffic delays.	10.01 to 15.00	B	F
Average traffic delays.	15.01 to 25.00	C	F
Long traffic delays.	25.01 to 35.00	D	F
Very long traffic delays.	35.01 to 50.00	E	F
Extreme traffic delays with intersection capacity exceeded.	> 50.00	F	F

Source: (Urban Crossroads, 2015d, Table 2-2)

Table 4.9-8 Description of Freeway Mainline LOS

Level of Service	Description	Density Range (pc/mi/ln)[1]
A	Free-flow operations in which vehicles are relatively unimpeded in their ability to maneuver within the traffic stream. Effects of incidents are easily absorbed.	0.0 – 11.0
B	Relative free-flow operations in which vehicle maneuvers within the traffic stream are slightly restricted. Effects of minor incidents are easily absorbed.	11.1 – 18.0
C	Travel is still at relative free-flow speeds, but freedom to maneuver within the traffic stream is noticeably restricted. Minor incidents may be absorbed, but local deterioration in service will be substantial. Queues begin to form behind significant blockages.	18.1 – 26.0
D	Speeds begin to decline slightly and flows and densities begin to increase more quickly. Freedom to maneuver is noticeably limited. Minor incidents can be expected to create queuing as the traffic stream has little space to absorb disruptions.	26.1 – 35.0
E	Operation at capacity. Vehicles are closely spaced with little room to maneuver. Any disruption in the traffic stream can establish a disruption wave that propagates throughout the upstream traffic flow. Any incident can be expected to produce a serious disruption in traffic flow and extensive queuing.	35.1 – 45.0
F	Breakdown in vehicle flow.	>45.0

[1] pc/mi/ln = passenger cars per mile per lane.
Source: (Urban Crossroads, 2015d, Table 2-4)

Table 4.9-9 Description of Freeway Merge and Diverge LOS

Level of Service	Density Range (pc/mi/ln)[1]
A	≤10.0
B	10.0 – 20.0
C	20.0 – 28.0
D	28.0 – 35.0
E	>35.0
F	Demand Exceeds Capacity

[1] pc/mi/ln = passenger cars per mile per lane.
Source: (Urban Crossroads, 2015d, Table 2-5)

❑ City of Lake Elsinore

The definition of an intersection deficiency in the City of Lake Elsinore is based on the City of Lake Elsinore General Plan Circulation Element. The City of Lake Elsinore General Plan states that target LOS D be maintained along City roads (including intersections) wherever possible. As an exception, the City's General Plan allows for LOS E operations in the Historic Area of the City within the Main Street overlay and the City's Ballpark District. However, the proposed Project is not located within the Main Street overlay or the City's Ballpark District. As such, LOS D is the minimum LOS at the Project's study area intersections under the City's jurisdiction. (Urban Crossroads, 2015d, p. 17)

- **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 is the target LOS for freeway ramps, freeway segments, and freeway merge/diverge ramp junctions. (Urban Crossroads, 2015d, pp. 17-18)

B. Intersection Capacity Analysis

The definitions of LOS for interrupted traffic flow (flow restrained by the existence of traffic signals and other traffic control devices) differ slightly depending on the type of traffic control. The LOS is typically dependent on the quality of traffic flow at the intersections along a roadway. The Highway Capacity Manual (HCM) methodology expresses the LOS at an intersection in terms of delay time for the various intersection approaches. The HCM uses different procedures depending on the type of intersection control. (Urban Crossroads, 2015d, p. 11)

For signalized intersections, the City of Lake Elsinore requires signalized intersection operations analysis based on the methodology described in the HCM. Intersection LOS operations are based on an intersection's average control delay. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. For signalized intersections LOS is directly related to the average control delay per vehicle and is correlated to a LOS designation as described in Table 4.9-1. Per the *Caltrans Guide for the Preparation of Traffic Impact Studies*, the traffic modeling and signal timing optimization software package Synchro (Version 8 Build 806) was utilized to analyze signalized intersections under Caltrans' jurisdiction, which include interchange to arterial ramps (i.e. I-15 Freeway ramps at Nichols Road) (Urban Crossroads, 2015d, p. 12).

For unsignalized intersections, the City of Lake Elsinore requires the operations of unsignalized intersections be evaluated using the methodology described the HCM. The LOS rating is based on the weighted average control delay expressed in seconds per vehicle (see Table 4.9-7). (Urban Crossroads, 2015d, p. 13)

At two-way or side-street stop-controlled intersections, LOS is calculated for each controlled movement and for the left turn movement from the major street, as well as for the intersection as a whole. For approaches composed of a single lane, the delay is computed as the average of all movements in that lane. For all-way stop controlled intersections, LOS is computed for the intersection as a whole. (Urban Crossroads, 2015d, p. 13)

C. Freeway Off-Ramp Queuing Analysis

The Project's study area includes the freeway-to-arterial interchange of the I-15 Freeway at Nichols Road off-ramps. Consistent with Caltrans requirements, the 95th percentile queuing of vehicles has been assessed at the off-ramps to determine potential queuing deficiencies at the freeway ramp intersections on Nichols Road. Specifically, the queuing analysis is utilized to identify any potential

queuing and "spill back" onto the I-15 Freeway mainline from the off-ramps. (Urban Crossroads, 2015d, p. 13)

The traffic progression analysis tool and HCM intersection analysis program, Synchro, was used to assess the potential impacts/needs of the freeway ramps with traffic added from the proposed Project. Storage (turn-pocket) length recommendations at the ramps are based upon the 95th percentile queue resulting from the Synchro progression analysis. The 95th percentile queue is the maximum back of queue with 95th percentile traffic volumes. The queue length reported is for the lane with the highest queue in the lane group. (Urban Crossroads, 2015d, p. 13) For more information on the freeway ramp queuing and freeway mainline segment analysis methodology, refer to *Technical Appendix J*.

D. Traffic Signal Warrant Analysis

The term "signal warrants" refers to the list of established criteria used by Caltrans and other public agencies to quantitatively justify or ascertain the potential need for installation of a traffic signal at an otherwise unsignalized intersection. The signal warrant criteria presented in the latest edition of the Federal Highway Administration's (FHWA) Manual on Uniform Traffic Control Devices (MUTCD), as amended by the MUTCD 2014 California Supplement, is used for all study area intersections (Urban Crossroads, 2015d, p. 14). For more information on signal warrant methodology, refer to Subsection 2.4 of *Technical Appendix J*.

Traffic signal warrant analyses were performed for the following unsignalized study area intersections during the peak weekday conditions wherein the Project is anticipated to contribute the highest trips (Urban Crossroads, 2015d, pp. 14-15):

1) I-15 Southbound Ramps/Nichols Road (Jurisdiction: Caltrans, Lake Elsinore)
2) I-15 Northbound Ramps/Nichols Road (Jurisdiction: Caltrans, Lake Elsinore)
3) Driveway 1/Nichols Road (Jurisdiction: Lake Elsinore)
4) Driveway 2/Nichols Road (Jurisdiction: Lake Elsinore)

A signal warrant defines the minimum condition under which the installation of a traffic signal might be warranted. Meeting this threshold condition does not require that a traffic control signal be installed at a particular location, but rather, that other traffic factors and conditions be evaluated in order to determine whether the signal is truly justified. It should also be noted that signal warrants do not necessarily correlate with LOS. An intersection may satisfy a signal warrant condition and operate at or above acceptable LOS or operate below acceptable LOS and not meet a signal warrant (Urban Crossroads, 2015d, p. 15)

E. Freeway Mainline Segment Analysis

Pursuant to the Caltrans Guide for the Preparation of Traffic Impact Studies (2002), Caltrans recommends that impacts on State highway system (SHS) facilities be studied when a project would add over 100 peak hour trips to a SHS facility, would add between 50 and 100 peak hour trips to a SHS facility experiencing noticeable delay (LOS C or D), or would add any number of peak hour trips to a SHS facility experiencing significant delay (LOS E or F) which Caltrans requests be studied. In the vicinity of the Project site, I-15 operates at LOS B and C (see Table 4.9-3), so impacts only require study if the Project would add more than 50 peak hour trips, which it would not. Also, deficiencies to freeway segments caused by a project's traffic dissipate with distance from the

point that the project's traffic enters the SHS, which for the proposed Project are the Nichols Road ramps at I-15. Even though the Project's impacts to the SHS would be less than significant (because the Project would contribute less than 50 peak hour trips), the Project's TIA evaluates the I-15 freeway segments on both sides of the Nichols Road ramps for information disclosure purposes. (Urban Crossroads, 2015d, p. 15; Caltrans, 2002)

The freeway system in the study area has been broken into segments defined by the freeway-to-arterial interchange locations. The freeway segments evaluated in the Project's TIA (*EIR Technical Appendix J*) are based upon peak hour directional volumes, and the freeway segment analysis is based on the methodology described in the HCM and performed using HCS2010 software. The performance measure preferred by Caltrans to calculate LOS is density. Density is expressed in terms of passenger cars per mile per lane. Table 4.9-8 summarizes the freeway segment LOS thresholds for each density range utilized for the analysis. (Urban Crossroads, 2015d, p. 15) For a more detailed discussion of freeway mainline segment analysis methodology, refer to *EIR Technical Appendix J*.

F. Freeway Merge/Diverge Ramp Junction Analysis

For analysis purposes, the freeway system in the study area has been broken into segments defined by freeway-to-arterial interchange locations resulting in two existing on and off ramp locations. Although the HCM indicates the influence area for a merge/diverge junction is 1,500 feet, the Project's analysis has been performed at all ramp locations with respect to the nearest on- or off-ramp at each interchange in an effort to be consistent with Caltrans guidance/comments on other projects in the region. (Urban Crossroads, 2015d, p. 16)

The merge/diverge analysis is based on the HCM Ramps and Ramp Junctions analysis method and performed using HCS+ software. The results (reported in passenger car per mile per lane) are calculated based on the existing number of travel lanes, number of lanes at the on- and off-ramps both at the analysis junction and at upstream and downstream locations (if applicable), and acceleration/deceleration lengths at each merge/diverge point. (Urban Crossroads, 2015d, p. 16) Table 4.9-9 summarizes the freeway merge/diverge ramp junction LOS thresholds utilized in the analysis. For more information on the freeway merge/diverge ramp junction analysis methodology, refer to Section 2.6 of *Technical Appendix J*.

G. Study Scenarios

Potential impacts to traffic and circulation are assessed herein and in *EIR Technical Appendix J* for each of the following conditions:

- Existing (2015): Existing information represents the baseline traffic conditions as they existed at the approximate time the NOP for this EIR was released for public review. Issuance of the NOP sets the baseline condition for purposes of analysis under CEQA.
- Existing plus Project (E+P): The Existing plus Project (E+P) analysis determines circulation system deficiencies that would occur on the existing roadway system in the scenario of the Project being placed upon Existing conditions.
- Existing plus Ambient Growth plus Project (EAP) (2016): The Existing plus Ambient Growth plus Project (EAP) (2016) conditions analysis determines the traffic impacts based on a comparison of the EAP traffic conditions to Existing conditions (i.e., baseline

conditions). To account for background traffic growth, an ambient growth from Existing conditions of 2% is included for EAP traffic conditions.

- Existing plus Ambient Growth plus Project plus Cumulative (EAPC) (2016): The Existing plus Ambient Growth plus Project plus Cumulative (2016) (EAPC) conditions determines if improvements funded through local and regional transportation mitigation fee programs, such as the WRCOG TUMF Program and City of Lake Elsinore's TIF Program, or other approved funding mechanism can accommodate the near-term cumulative traffic at the target LOS identified in the City of Lake Elsinore General Plan.
- Horizon Year (2035), Without and With Project (2 scenarios): The Horizon Year Without and With Project traffic conditions analyses is utilized to determine if improvements funded through regional transportation mitigation fee programs, such as the TUMF or TIF programs, or other approved funding mechanism can accommodate the long-range cumulative traffic at the target LOS identified in the City of Lake Elsinore General Plan.

H. Projected Future Traffic

1. Project Trip Generation

Vehicle trip generation represents the amount of traffic that is both attracted to and produced by a development. Determining traffic generation for a specific project is therefore based upon forecasting the amount of traffic that is expected to be both attracted to and produced by the specific land uses being proposed by a given project. The traffic generating potential of the proposed Project has been estimated based on the increase in permitted annual production above the Project's historical baseline. (Urban Crossroads, 2015d, p. 39) As discussed in EIR Section 2.1, under historic baseline conditions (i.e., between 2007 and 2014), the Mine produced an average of 556,348 tons per year (tpy) of aggregate materials. Under the Project, the maximum daily tonnage would theoretically increase to 856,560 tpy, or an increase of 300,212 tpy as compared to baseline conditions. Thus, increased tonnage associated with the Project represents 35.05% of the total annual tonnage that would be allowed under the revised Reclamation Plan. Based on information provided by the Project Applicant, due to the operational characteristics of the Mine and customer demand, a high-end estimate of daily tonnage is 5,000 tons per day (tpd). Because the Project represents 35.05% of the total allowed annual tonnage, it can reasonably be assumed that the Project also would represent approximately 35.05% of the maximum daily tonnage, or approximately 1,752.5 tpd. (Urban Crossroads, 2015d, pp. 39-40) Table 4.9-10, *Total and Project Daily Truck Trips*, illustrates the breakdown of truck trips associated with the existing mining operations and the net increase proposed by the Project using a conservative estimate of 5,000 tpd. As indicated in Table 4.9-10, the proposed Project is estimated to generate 140 net new daily truck trips above the historical baseline (e.g., 400 truck trips x 35.05% = 140 new truck trips). (Urban Crossroads, 2015d, p. 40)

2. Project Trip Distribution

Trip distribution is the process of identifying the probable destinations, directions, or traffic routes that will be utilized by Project traffic. The potential interaction between the planned land uses and surrounding regional access routes are considered, to identify the route where the Project traffic would distribute. (Urban Crossroads, 2015d, p. 40)

Table 4.9-11, *Average Daily and Peak Hour Project Trip Generation Summary*, illustrates the daily and peak hour trip generation of the proposed Project. As noted previously (refer to Subsection 4.9.3.B), a PCE factor has been applied to the trip generation rates for heavy trucks. As shown in

Table 4.9-11, the Project is anticipated to generate a net total of approximately 425 PCE trip-ends per day with 65 PCE AM peak hour and 53 PCE PM peak hour trips. (Urban Crossroads, 2015d, p. 40)

Table 4.9-10 Total and Project Daily Truck Trips

A. Proposed Daily Tonnage for Traffic Study (TPD):	5,000 TPD
B. Average Tons Per Truck:	25 Tons
C. One-Way Trucks Per Day (A. / B.):	200 Trucks
D. Total Two-Way Total Trucks Per Day Based on 5,000 TPD (C. X 2-trips)[1]:	400 Trucks[1]
E. Total New Project Trucks Trips Per Day (D. X D. from Table 4-1 or 35.05% of 400)[2]:	140 Trucks[2]

[1] Total trucks based on 5,000 tons per day. Total trucks per day multiplied by 2.0 to represent two-way trip ends (one inbound trip and one outbound trip).
[2] Truck trips associated with proposed Project, or net increase of 1,752 tons per day (e.g., 35.05% of 5,000 tons per day) from the existing 3,248 tons per day.
Source: (Urban Crossroads, 2015d, Table 4-3)

Table 4.9-11 Average Daily and Peak Hour Project Trip Generation Summary

Baseline Traffic Summary									
			AM Peak Hour			PM Peak Hour			
Land Use	Quantity	Units[1]	In	Out	Total	In	Out	Total	Daily
Existing Mine	0.556	MTPY							
Passenger Cars			2	2	4	2	2	4	16
Truck Trips[2]			20	20	40	16	16	32	260
Baseline			**22**	**22**	**44**	**18**	**18**	**36**	**276**
Baseline (PCE)[3]			**62**	**62**	**124**	**51**	**51**	**101**	**795**

Proposed Project Trip Generation Summary									
			AM Peak Hour			PM Peak Hour			
Land Use	Quantity	Units[1]	In	Out	Total	In	Out	Total	Daily
Amendment No. 2 to Reclamation Plan 2006-01	0.857	MTPY							
Passenger Cars			3	2	5	2	3	5	20
Truck Trips[2]			31	30	61	25	25	50	400
Project Trips (PCE)[3]			96	92	188	77	78	155	1,220
Net New Project Trips (Passenger Cars)			**1**	**0**	**1**	**0**	**1**	**1**	**4**
Net New Project Trips (Trucks)			**11**	**10**	**21**	**9**	**9**	**17**	**140**
Net New Project Trips (PCE)[3]			**34**	**30**	**65**	**26**	**27**	**53**	**425**

[1] MTPY = Million Tons Per Year
[2] Total Project truck trips based on typical peak operating day of 5,000 tons per day.
[3] Based on passenger car equivalent (PCE) factor of 3.0 PCE per truck.
Source: (Urban Crossroads, 2015d, Table 4-5)

The Project trip distribution was developed based on anticipated travel patterns to and from the Project site for both passenger cars and truck traffic. The Project trip distribution patterns for both passenger cars and trucks were developed based on an understanding of existing travel patterns in the area, the geographical location of the site, market demand distribution, and the site's proximity to the regional arterial and state highway system. The Project passenger car trip distribution patterns is graphically depicted on *Figure 4.9-3, Project (Passenger Car) Trip Distribution*, and the Project truck trip distribution patterns is graphically depicted on Figure 4.9-4, *Project (Truck) Trip Distribution*. Project truck traffic would be restricted by the Project's proposed SMP No. 2015-01 from heading eastbound on Nichols Road except in rare circumstances requiring delivery of aggregate or asphalt material to customers located east of the Project site. It is anticipated that truck traffic would primarily access the I-15 Freeway to the west or head westbound on Nichols Road. (Urban Crossroads, 2015d, p. 46)

The assignment of traffic from the Project area to the adjoining roadway system is based upon the Project trip generation, trip distribution, and the arterial highway and local street system improvements that would be in place by the time of operations occur under the revised reclamation plan and SMP No. 2015-01. Based on the identified Project traffic generation and trip distribution patterns, Project ADT and peak hour intersection turning movement volumes are shown on Figure 4.9-5, *Project Only Traffic Volumes (in PCE). (Urban Crossroads, 2015d, p. 46)*

3. Background Traffic

Future year traffic forecasts are based upon background (ambient) growth at 2% per year for 2016 traffic conditions. The ambient growth factor is intended to approximate regional traffic growth. This ambient growth rate is added to existing traffic volumes to account for area-wide growth not reflected by cumulative development projects. Ambient growth has been added to daily and peak hour traffic volumes on surrounding roadways, in addition to traffic generated by the development of future projects that have been approved but not yet built and/or for which development applications have been filed and are under consideration by governing agencies. (Urban Crossroads, 2015d, p. 46)

The currently adopted SCAG 2012 RTP (April 2012) growth forecasts for the unincorporated areas of the City of Lake Elsinore identifies projected growth in population of 50,200 in 2008 to 93,800 in 2035, or a 86.9 percent increase over the 27 year period. The change in population equates to roughly a 2.34 percent growth rate compounded annually. Similarly, growth over the same 27 year period in households is projected to increase by 96.6 percent, or 2.54 percent annual growth rate. Finally, growth in employment over the same 27 year period is projected to increase by 95.1 percent, or a 2.51 percent annual growth rate. (Urban Crossroads, 2015d, p. 46)

Based on a comparison of Existing traffic volumes to the Horizon Year (2035) forecasts, the average growth rate is estimated at approximately 10.22 percent compounded annually between Existing and Horizon Year (2035) traffic conditions. The annual growth rate at each individual intersection is not lower than 9.12 percent compounded annually to as high as 11.76 percent compounded annually over the same time period. Therefore, the annual growth rate utilized for the purposes of this analysis would appear to conservatively approximate the anticipated regional growth in traffic volumes in the City of Lake Elsinore for both EAPC and Horizon Year (2035) traffic conditions, especially when considered along with the addition of Project-related traffic. As such, the growth in traffic volumes

assumed in this TIA would tend to overstate as opposed to understate the potential deficiencies to traffic and circulation. (Urban Crossroads, 2015d, p. 50)

4. Cumulative Impact Analysis

CEQA Guidelines §15130 requires that an EIR disclose the impact from the Project along with the incremental impacts from closely related past, present, and reasonably foreseeable future projects (i.e., cumulative impact analysis). A cumulative project list was developed by the Project's traffic consultant (Urban Crossroads) through consultation with planning and engineering staff from the City of Lake Elsinore. The cumulative project list includes known and foreseeable projects that are anticipated to contribute traffic to the study area intersections. In addition, the County of Riverside was also contacted to obtain near-by cumulative projects that could potentially contribute traffic at the study area intersections. (Urban Crossroads, 2015d, p. 50)

The cumulative projects provided by the City of Lake Elsinore and County of Riverside are provided in Appendix 4.1 to the Project's TIA (*EIR Appendix J*). The list of cumulative development projects was reviewed by Urban Crossroads to determine which projects would likely contribute measurable traffic (i.e. 50 or more peak hour trips) through the study area intersections (e.g., those cumulative projects in close proximity to the proposed Project). For the purposes of this analysis, the cumulative projects that were determined to affect one or more of the study area intersections are shown on Figure 4.9-6, *Cumulative Development Projects Location Map*, and listed on Table 4.9-12, *Summary of Cumulative Development Projects.* (Urban Crossroads, 2015d, p. 50)

Any other cumulative projects that are not expected to contribute measurable traffic to study area intersections have not been considered in the analysis because the traffic from those projects would have dissipated in volume (due to the distance from the Project site and study area intersections) to the point that any nominal traffic would be captured by the 2% annual ambient growth rate applied in the analysis calculations. Similarly, any additional traffic generated by other projects not on the cumulative projects list is accounted for through background ambient growth factors that have been applied to the peak hour volumes at study area intersections. (Urban Crossroads, 2015d, p. 50)

5. Near-Term Traffic Forecasts

To provide a comprehensive assessment of potential transportation network deficiencies, two types of analyses, "buildup" and "buildout," were performed as part of the TIA. The "buildup" method was used to approximate the EAP traffic forecasts includes background traffic, and is intended to identify the peak hour LOS deficiencies on both the existing and planned near-term circulation system. The "buildup" method was also utilized to approximate the EAPC traffic forecasts, and is intended to identify the LOS deficiencies on both the existing and planned near-term circulation system. The EAPC traffic forecasts include background traffic, traffic generated by other cumulative development projects within the study area, and the traffic generated by the proposed Project. The "buildout" approach is used to forecast the Horizon Year Without and With Project conditions of the study area. (Urban Crossroads, 2015d, pp. 50, 55)

The "buildup" approach combines existing traffic counts with a background ambient growth factor to forecast the near-term 2016 traffic conditions. An ambient growth factor of 2% (2016) accounts for background (area-wide) traffic increases that occur over time, up to the year 2016 from the year 2015

Table 4.9-12 Summary of Cumulative Development Projects

No.	Project Name	Location	Land Use	Quantity[1]	
City of Lake Elsinore					
LE1	Greenwald[2]	Lake Elsinore	Shopping Center	104.450	TSF
LE2	Ramsgate	Lake Elsinore	Single Family Residential	1,012	DU
			Condo/Townhomes	120	DU
LE3	Trieste Residential (Tract 36624)	Lake Elsinore	Single Family Residential	75	DU
LE4					
LE5	1400 Minthorn Street[3]	Lake Elsinore	Single Family Residential	84	DU
LE6	Spyglass Ranch[4]	Lake Elsinore	Single Family Residential	523	DU
			Condo/Townhomes	171	DU
			Shopping Center	145.00	TSF
LE7	South Shore I (Tract 31593)[5]	Lake Elsinore	Single Family Residential	521	DU
	South Shore II (Tract 36567)[5]	Lake Elsinore	Single Family Residential	147	DU
LE8	La Strada (Tract 32077)	Lake Elsinore	Single Family Residential	134	DU
LE9	Tuscany West (Tract 25473)[5]	Lake Elsinore	Single Family Residential	164	DU
LE10	Marina Village Condos (Tract 33820)[6]	Lake Elsinore	Condo/Townhomes	94	DU
LE11	Watersedge[5]	Lake Elsinore	Single Family Residential	170	DU
			Condo/Townhomes	250	DU
			Apartments	110	DU
			Office	54.600	TSF
			Hotel	150	RM
			Boat/Watercraft Dealers & Service	50.000	TSF
			Mini-Warehouse (Boat & Watercraft Stora	76.000	TSF
			Shopping Center	86.600	TSF
	Cottages by the Lake	Lake Elsinore	Condo/Townhomes	169	DU
LE12	Tessera[5]	Lake Elsinore	Single Family Residential	90	DU
LE13	TAG Property[6]	Lake Elsinore	New Car Sales	50.000	TSF
LE14	City Center Condos[6]	Lake Elsinore	Condo/Townhomes	144	DU
LE15	Lake View Villas	Lake Elsinore	Condo/Townhomes	155	DU
LE16	Diamond Specific Plan[7]	Lake Elsinore	Condo/Townhomes	600	DU
			Hotel	150	RM
			General Office	425.000	TSF
			Shopping Center	472.000	TSF
LE17	The Colony[6]	Lake Elsinore	Apartments	211	DU
	Back Basin Specific Plan & East Lake Specific Plan	Lake Elsinore	Single Family Residential	2,407	DU
			Condo/Townhomes	324	DU
	John Laing Homes (Phase 2)	Lake Elsinore	Single Family Residential	506	DU
			Condo/Townhomes	1,141	DU
			Apartments	308	DU
			Shopping Center	117.000	TSF
LE18	Canyon Hills Estates (Tract 34249)	Lake Elsinore	Single Family Residential	302	DU
	Canyon Hills (Multiple Tracts)	Lake Elsinore	Single Family Residential	2,700	DU
			Apartments	1,575	DU
	Audie Murphy (Tract 36484)	Lake Elsinore	Single Family Residential	109	DU
	Audie Murphy (Tract 36485)	Lake Elsinore	Single Family Residential	1,003	DU

Source: (Urban Crossroads, 2015d, Table 4-6)

Table 4.9-12 Summary of Cumulative Development Projects (Continued)

No.	Project Name	Location	Land Use	Quantity[1]	
LE19	Gruneto Hills	Lake Elsinore	Single Family Residential	191	DU
LE20	Hotel at 17584 Lawrence Way	Lake Elsinore	Hotel	57	RM
LE21	Alberhill Ridge (Tract 35001)	Lake Elsinore	Single Family Residential	1,056	DU
			Apartments	345	DU
			Shopping Center	679.000	TSF
			General Office	679.000	TSF
LE22	Alberhill Ranch	Lake Elsinore	Single Family Residential	1,986	DU
LE23	Lake Elsinore Walmart	Lake Elsinore	Free-Standing Discount Superstore	154.487	TSF
			Specialty Retail	4.600	TSF
			Fast Food w/Drive Thru	6.800	TSF
			Fast Food w/o Drive Thru	4.600	TSF
LE24	Circle K	Lake Elsinore	Gas Station	4.500	TSF
LE25	Alberhill Villages	Lake Elsinore	Single Family Residential	9,536	DU
LE26	Terracina	Lake Elsinore	Single Family Residential	365	DU
LE27	Encore at Cambria Hills	Lake Elsinore	Single Family Residential	214	DU
LE28	Family Dollar Store	Lake Elsinore	Discount Store	8.320	TSF
LE29	Fisherman's Wharf	Lake Elsinore	Fisherman's Wharf	12.748	TSF
LE30	Wake Rider Beach Resort	Lake Elsinore	Beach Resort	11.350	TSF
LE31	Lakeshore Town Center	Lake Elsinore	Town Center	237.400	TSF
LE32	Ortega	Lake Elsinore	Single Family Residential	105	DU
LE33	Summerly	Lake Elsinore	Single Family Residential	142	DU
LE34	Beazer, KB Homes, McMillin Homes, Richmond American	Lake Elsinore	Single Family Residential	395	DU
LE35	Village at Lake Elsinore SPA #1	Lake Elsinore	Single Family Residential	163	DU
LE36	Lake Shore Pointe Phase I	Lake Elsinore	Single Family Residential	43	DU
			Apartments	161	DU
LE37	Golden Corral Restaurant	Lake Elsinore	Restaurant	7.798	TSF
County of Riverside					
RC1	Lennar (Tract 31792)	County of Riverside	Single Family Residential	191	DU
RC2	PM33840	County of Riverside	Single Family Residential	4	DU
RC3	PP20158R1	County of Riverside	Storage Facility	103.727	TSF
RC4	CUP03651	County of Riverside	Recycling Facility	0.504	TSF
City of Wildomar					
W1	Rancon Monte Vista Residential (TTM No. 31409, APN: 367-110-007, 367-110-008)	Wildomar	SFDR	126	DU
W2	Wildomar Walmart	Wildomar	Free-Standing Discount Superstore	200.000	TSF
			Specialty Retail	3.900	TSF
			Fast-food with Drive-Through	126.000	TSF
W3	Cornerstone Church Pre-School Expansion (PUP No. 778)[4]	Wildomar	Pre-School/Day Care	180	STU
W4	Sehremelis PAR (TTM 29426, APN:367-250-007)	Lake Elsinore	SFDR	80	DU
W5	Subway (Case No. 10-0222, APN:366-390-026, 366-390-027)	Wildomar	Specialty Retail	10.500	TSF

Source: (Urban Crossroads, 2015d, Table 4-6)

Table 4.9-12 Summary of Cumulative Development Projects (Continued)

No.	Project Name	Location	Land Use	Quantity[1]	
W6	Orange Bundy (TPM 30522, APN: 367-100-024, 367-100-026)	Wildomar	Retail	79.497	TSF
			Fast Food w/Drive Thru	1.500	TSF
			Gas Station w/ Market	6	VFP
W7	Bundy Canyon Plaza (Case No. 08-0179, TPM 32257, APN:367-100-019)	Wildomar	Retail	33.800	TSF
			Fast Food w/Drive Thru	6.200	TSF
			Gas Station w/ Market	12	VFP

[1] TSF = Thousand Square Feet; DU = Dwelling Unit; AC = Acres; STU = Students;
VFP = Vehicle Fueling Positions
[2] Source: Greenwald Avenue Commercial Center TIA, Urban Crossroads, Inc., May 2008.
[3] Source: 1400 Minthorn Street Traffic Study Report, ASM Consulting, August 2007.
[4] Source: Spyglass Ranch TIA (Revised), Kunzman Associates, February 2007.
[5] Source: Porto Romano SP TIA (Revised), Urban Crossroads, Inc., May 2007.
[6] Source: Lake Elsinore TAG Property TIA (Revised), Urban Crossroads, Inc., August 2008.
[7] Source: The Diamond Specific Plan TIA, Urban Crossroads, Inc., April 2009.
Source: (Urban Crossroads, 2015d, Table 4-6)

(two percent per year growth over a one year period). Traffic volumes generated by the Project are then added to assess the EAP and EAPC traffic conditions. The 2016 roadway network is similar to the existing conditions roadway network with the exception of future roadways and intersections proposed to be developed by the Project.

6. Horizon Year (2035) Volume Development

The Horizon Year (2035) With Project traffic conditions were derived from the Riverside County Transportation Analysis Model (RivTAM) using accepted procedures for model forecast refinement and smoothing. The traffic forecasts reflect the area-wide growth anticipated between Existing conditions and Horizon Year conditions. In most instances the traffic model zone structure is not designed to provide accurate turning movements along arterial roadways unless refinement and reasonableness checking is performed. Therefore, the Horizon Year With Project peak hour forecasts were refined using the model derived long-range forecasts, along with existing peak hour traffic count data collected at each analysis location in May 2015. Future estimated peak hour traffic data was used for new intersections and intersections with an anticipated change in travel patterns to further refine the Horizon Year With Project peak hour forecasts. Refer Section 4.8 in *Technical Appendix J* for additional details regarding how horizon year calculations were conducted. (Urban Crossroads, 2015d, p. 55)

4.9.6 BASIS FOR DETERMINING SIGNIFICANCE

The proposed Project would result in a significant impact to the transportation and circulation system if the Project or any Project-related component would:

a. *Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?*

b. Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?

c. Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?

d. Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

e. Result in inadequate emergency access?

f. Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities)?

The above-listed thresholds are derived directly from Section XVI of Appendix G to the CEQA Guidelines and address typical adverse effects associated with transportation and traffic. (OPR, 2009).

A. Determining Significance of Impacts

This section outlines the methodology used in this analysis related to identifying circulation system deficiencies.

Intersections

The following types of traffic deficiencies are considered to be significant under CEQA (Urban Crossroads, 2015d, p. 18):

- A "Direct Impact" would occur if Project traffic, when added to existing traffic, deteriorates the LOS from LOS D or better to LOS E or F.
- A "Cumulatively Considerable Impact" would occur if cumulative traffic exceeds the target LOS D, and the Project contributes 50 or more peak hour trips to the affected intersection.

Caltrans Facilities

To determine whether the addition of Project traffic to the SHS freeway segments would result in a deficiency, the following is utilized (Urban Crossroads, 2015d, p. 18):

- A "Direct Impact" would occur if Project-related traffic were to cause a freeway segment to degrade from LOS D or better to LOS E or F.
- A "Cumulatively Considerable Impact" also would occur if the Project would exacerbate an already deficient condition by contributing 50 or more peak hour trips ("Cumulatively Considerable Impact"). A segment that is currently or projected to operate at or near capacity is deemed to be deficient.

4.9.7 IMPACT ANALYSIS

Threshold a: Would the Project conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant

components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?

The proposed Project has the potential to result in or contribute to the degradation of roadway intersections and off-ramps to below the target LOS D. Provided below is an assessment of LOS within the study area under E+P, EAP (2016), EAPC (2016), and horizon year (2035) conditions.

A. Existing plus Project Traffic Impact Analysis (E+P)

This subsection presents an analysis of existing traffic volumes plus traffic generated by Project (Existing plus Project, or E+P). The E+P analysis includes an evaluation of the intersection operations, off-ramp queuing, traffic signal warrants, basic freeway segment analysis, and freeway merge/diverge analysis. Figure 4.9-7, *E+P Traffic Volumes (in PCE)*, shows the ADT and peak hour intersection turning movement volumes, which can be expected for E+P traffic conditions. (Urban Crossroads, 2015d, p. 57)

1. Intersection Operations Analysis

E+P peak hour traffic operations have been evaluated for the study area intersections. The intersection analysis results are summarized in Table 4.9-13, *Intersection Analysis for E+*, which indicates that the study area intersections are anticipated to continue to operate at acceptable LOS under E+P traffic conditions, consistent with Existing traffic conditions. A summary of the peak hour intersection LOS for E+P conditions are shown on Exhibit 5-2 of *EIR Technical Appendix J*. As such, the Project's impacts to study area intersections under E+P conditions would be less than significant. (Urban Crossroads, 2015d, p. 57) A summary of the peak hour intersection LOS for E+P conditions are shown on Figure 4.9-8, *Summary of Peak Hour Intersection LOS for E+P Conditions.*

Table 4.9-13 Intersection Analysis for E+ P Conditions

#	Intersection	Traffic Control[2]	Existing (2015)				Existing Plus Project				Acceptable LOS	Significant Impact?
			Delay[1] (secs.)		Level of Service		Delay[1] (secs.)		Level of Service			
			AM	PM	AM	PM	AM	PM	AM	PM		
1	I-15 SB Ramps / Nichols Rd. I-15	AWS	11.7	12.9	B	B	12.2	13.2	B	B	D	No
2	NB Ramps / Nichols Rd.	CSS	18.5	21.4	C	C	20.5	23.4	C	C	D	No
3	Dwy. 1 / Nichols Rd.	CSS	10.1	8.9	B	A	10.5	9.0	B	A	C	No
4	Dwy. 2 / Nichols Rd.	CSS	7.9	7.5	A	A	8.1	7.5	A	A	C	No

[1] Per the 2010 Highway Capacity Manual, overall average intersection delay, and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay, and level of service for the worst individual movement (or movements sharing a single lane) are shown.
[2] CSS = Cross-street Stop; AWS = All-way Stop
Source: (Urban Crossroads, 2015d, Table 5-1)

2. Basic Freeway Segment Analysis

As previously noted, the Project would generate fewer than 50 peak hour trips to nearby segments of I-15. Nonetheless, a basic freeway segment operations analysis was conducted for E+P conditions and the results are presented in Table 4.9-14, *Basic Freeway Segment Analysis for E+P Conditions*,

under E+P conditions the I-15 freeway segments immediately north and south of Nichols Road are anticipated to operate at an acceptable LOS during the peak hours with the addition of Project traffic. As such, the Project's impacts to freeway segments would be less than significant under E+P conditions. (Urban Crossroads, 2015d, p. 62)

3. Off-Ramp Queuing

A queuing analysis was performed for the off-ramps at the I-15 Freeway and Nichols Road interchange to assess vehicle queues for the off ramps that may potentially result in deficient peak hour operations at the ramp-to-arterial intersections and may potentially "spill back" onto the I-15 Freeway mainline. Off-ramp lengths are consistent with the measured distance between the intersection and the freeway mainline. Queuing analysis findings are presented in Table 4.9-15, *Peak Hour Freeway Off-Ramp Queuing Summary for E+P Conditions*, for E+P traffic conditions. As shown on Table 4.9-15, there are no movements that are anticipated to experience queuing issues during the weekday AM or weekday PM peak 95th percentile traffic flows for E+P traffic conditions. As such, the Project's impacts to the I-15 Freeway and Nichols Road interchange would be less than significant under E+P conditions. (Urban Crossroads, 2015d, p. 57)

Table 4.9-14 Basic Freeway Segment Analysis for E+P Conditions

Freeway	Direction	Mainline Segment	Lanes[1]	Existing (2015)				Existing plus Project				Significant Impact?
				Density[2]		LOS		Density[2]		LOS		
				AM	PM	AM	PM	AM	PM	AM	PM	
I-15 Freeway	SB	North of Nichols Road	3	14.9	22.6	B	C	15.0	22.6	B	C	No
		South of Nichols Road	3	15.3	23.0	B	C	15.3	23.0	B	C	No
	NB	North of Nichols Road	3	18.1	17.0	C	B	18.1	17.0	C	B	No
		South of Nichols Road	3	18.4	17.8	C	B	18.4	17.8	C	B	No

[1] Number of lanes are in the specified direction and is based on existing conditions.
[2] Density is measured by passenger cars per mile per lane (pc/mi/ln).
(Urban Crossroads, 2015d, Table 5-3)

Table 4.9-15 Peak Hour Freeway Off-Ramp Queuing Summary for E+P Conditions

Intersection	Movement	Available Stacking Distance (Feet)	Existing (2015)				Existing plus Project			
			95th Percentile Queue (Feet)[2]		Acceptable?[1]		95th Percentile Queue (Feet)[2]		Acceptable?[1]	
			AM Peak	PM Peak	AM	PM	AM Peak	PM Peak	AM	PM
I-15 SB Off-Ramp / Nichols Rd.	SBL/T/R	1,600	53	38	Yes	Yes	60	40	Yes	Yes
I-15 NB Off-Ramp / Nichols Rd.	NBL/T/R	1,530	78	110	Yes	Yes	93	125	Yes	Yes

[1] Stacking Distance is acceptable if the required stacking distance is less than or equal to the stacking distance provided. An additional 15 feet of stacking which is assumed to be provided in the transition for turn pockets is reflected in the stacking distance shown on this table, where applicable.
[2] Maximum queue length for the approach reported.
(Urban Crossroads, 2015d, Table 5-2)

4. Freeway Merge/Diverge Analysis

Ramp merge and diverge operations were also evaluated for E+P traffic conditions and the results of this analysis are presented in Table 4.9-16, *Freeway Ramp Junction Merge/Diverge Analysis for E+P Conditions*. As shown in Table 4.9-16, the freeway ramp merge and diverge areas are anticipated to operate at LOS D or better. As such, the Project's impacts due to merge and diverge operations under E+P conditions would be less than significant. (Urban Crossroads, 2015d, p. 62)

5. Traffic Signal Warrant Analysis

There are no intersections anticipated to meet traffic signal warrants for E+P traffic conditions (Urban Crossroads, 2015d, p. 62). As such, no impact associated with traffic signal warrants would occur under E+P conditions.

B. Existing Plus Ambient Growth plus Project (EAP) 2016 Traffic Conditions

This subsection discusses the methods used to develop Existing plus Ambient Growth plus Project (EAP) (2016) traffic forecasts, and the resulting intersection operations, off-ramp queuing, and traffic signal warrants.

Table 4.9-16 Freeway Ramp Junction Merge/Diverge Analysis for E+P Conditions

Freeway	Direction	Ramp or Segment	Lanes on Freeway[1]	Existing (2015)				Existing Plus Project				Significant Impact?
				AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		
				Density[2]	LOS	Density[2]	LOS	Density[2]	LOS	Density[2]	LOS	
I-15 Freeway	SB	Off-Ramp at Nichols Road	3	21.1	C	28.3	D	21.1	C	28.3	D	No
		On-Ramp at Nichols Road	3	19.5	B	26.3	C	19.6	B	26.4	C	No
	NB	On-Ramp at Nichols Road	3	18.7	B	17.6	B	18.7	B	17.7	B	No
		Off-Ramp at Nichols Road	3	24.5	C	24.2	C	24.6	C	24.2	C	No

[1] Number of lanes are in the specified direction and is based on existing conditions.
[2] Density is measured by passenger cars per mile per lane (pc/mi/ln).
(Urban Crossroads, 2015d, Table 5-4)

To account for background traffic growth, an ambient growth from Existing conditions of 2% (2 percent per year over 1 year) is included for EAP traffic conditions. Cumulative development projects are not included as part of the EAP analysis. The weekday ADT and weekday AM and PM peak hour volumes which can be expected for EAP traffic conditions are shown on Figure 4.9-9, *EAP (2016) Traffic Volumes (in PCE)*. (Urban Crossroads, 2015d, p. 67)

2. Intersection Operations Analysis

LOS calculations were conducted for the study intersections to evaluate their operations under EAP conditions. As shown in Table 4.9-17, *Intersection Analysis for EAP (2016) Conditions*, the study area intersections are anticipated to operate at acceptable LOS under EAP traffic conditions, consistent with existing traffic conditions. As such, the Project's impacts to study area intersections under EAP conditions would be less than significant. (Urban Crossroads, 2015d, p. 67) A summary of the peak hour intersection LOS for EAP traffic conditions are shown on Figure 4.9-10, *Summary of Peak Hour Intersection LOS for EAP (2016) Conditions*.

Table 4.9-17 Intersection Analysis for EAP (2016) Conditions

#	Intersection	Traffic Control[2]	Existing (2015) Delay[1] (secs.) AM	Existing (2015) Delay[1] (secs.) PM	Existing (2015) Level of Service AM	Existing (2015) Level of Service PM	EAP (2016) Delay[1] (secs.) AM	EAP (2016) Delay[1] (secs.) PM	EAP (2016) Level of Service AM	EAP (2016) Level of Service PM	Acceptable LOS	Significant Impact?
1	I-15 SB Ramps / Nichols Rd.	AWS	11.7	12.9	B	B	12.4	13.5	B	B	D	No
2	I-15 NB Ramps / Nichols Rd.	CSS	18.5	21.4	C	C	21.2	25.0	C	D	D	No
3	Dwy. 1 / Nichols Rd.	CSS	10.1	8.9	B	A	10.5	9.0	B	A	C	No
4	Dwy. 2 / Nichols Rd.	CSS	7.9	7.5	A	A	8.1	7.5	A	A	C	No

[1] Per the 2010 Highway Capacity Manual, overall average intersection delay, and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.
[2] CSS = Cross-street Stop; AWS = All-way Stop
(Urban Crossroads, 2015d, Table 6-1)

3. *Basic Freeway Segment Analysis*

As previously noted, the Project would generate fewer than 50 peak hour trips to nearby segments of I-15. Nonetheless, a basic freeway segment operations analysis was conducted for EAP (2016) conditions and the results are presented in Table 4.9-18, *Basic Freeway Segment Analysis for EAP (2016) Conditions*. As shown, under EAP conditions the I-15 freeway segments immediately north and south of Nichols Road are anticipated to operate at an acceptable LOS during the peak hours with the addition of Project traffic. As such, the Project's impacts to freeway segments would be less than significant under EAP (2016) conditions. (Urban Crossroads, 2015d, p. 72)

Table 4.9-18 Basic Freeway Segment Analysis for EAP (2016) Conditions

Freeway	Direction	Mainline Segment	Lanes[1]	Existing (2015) Density[2] AM	Existing (2015) Density[2] PM	Existing (2015) LOS AM	Existing (2015) LOS PM	EAP (2016) Density[2] AM	EAP (2016) Density[2] PM	EAP (2016) LOS AM	EAP (2016) LOS PM	Significant Impact?
I-15 Freeway	SB	North of Nichols Road	3	14.9	22.6	B	C	15.3	23.1	B	C	No
		South of Nichols Road	3	15.3	23.0	B	C	15.6	23.6	B	C	No
	NB	North of Nichols Road	3	18.1	17.0	C	B	18.5	17.3	C	B	No
		South of Nichols Road	3	18.4	17.8	C	B	18.8	18.2	C	B	No

[1] Number of lanes are in the specified direction and is based on existing conditions.
[2] Density is measured by passenger cars per mile per lane (pc/mi/ln).
(Urban Crossroads, 2015d, Table 6-3)

4. *Off-Ramp Queuing*

A queuing analysis was performed for the off-ramps at the I-15 Freeway and Nichols Road interchange to assess vehicle queues for the off ramps that may potentially result in deficient peak hour operations at the ramp-to-arterial intersections and may potentially "spill back" onto the I-15 Freeway mainline. Queuing analysis findings are presented in Table 4.9-19, *Peak Hour Freeway Off-Ramp Queuing Summary for EAP (2016) Conditions*. Off-ramp lengths are consistent with the measured distance between the intersection and the freeway mainline. As shown on Table 4.9-19, there are no movements that are anticipated to experience queuing issues during the weekday AM or weekday PM peak 95th percentile traffic flows for EAP traffic conditions. As such, the Project's

impacts to the I-15 Freeway and Nichols Road interchange would be less than significant under EAP conditions. (Urban Crossroads, 2015d, p. 67)

Table 4.9-19 Peak Hour Freeway Off-Ramp Queuing Summary for EAP (2016) Conditions

Intersection	Movement	Available Stacking Distance (Feet)	Existing (2015) 95th Percentile Queue (Feet)[2] AM Peak	Existing (2015) 95th Percentile Queue (Feet)[2] PM Peak	Existing (2015) Acceptable?[1] AM	Existing (2015) Acceptable?[1] PM	EAP (2016) 95th Percentile Queue (Feet)[2] AM Peak	EAP (2016) 95th Percentile Queue (Feet)[2] PM Peak	EAP (2016) Acceptable?[1] AM	EAP (2016) Acceptable?[1] PM
I-15 SB Off-Ramp / Nichols Rd.	SBL/T/R	1,600	53	38	Yes	Yes	63	43	Yes	Yes
I-15 NB Off-Ramp / Nichols Rd.	NBL/T/R	1,530	78	110	Yes	Yes	98	135	Yes	Yes

[1] Stacking Distance is acceptable if the required stacking distance is less than or equal to the stacking distance provided. An additional 15 feet of stacking which is assumed to be provided in the transition for turn pockets is reflected in the stacking distance shown on this table, where applicable.
[2] Maximum queue length for the approach reported.
(Urban Crossroads, 2015d, Table 6-2)

5. Freeway Merge/Diverge Analysis

Ramp merge and diverge operations were also evaluated for EAP traffic conditions and the results of this analysis are presented in Table 4.9-20, *Freeway Ramp Junction Merge/Diverge Analysis for EAP (2016) Conditions*. As shown in Table 4.9-20, the freeway ramp merge and diverge areas are anticipated to operate at LOS D or better. As such, the Project's impacts due to merge and diverge operations under EAP conditions would be less than significant. (Urban Crossroads, 2015d, p. 72)

Table 4.9-20 Freeway Ramp Junction Merge/Diverge Analysis for EAP (2016) Conditions

Freeway	Direction	Ramp or Segment	Lanes on Freeway[1]	Existing (2015) AM Peak Hour Density[2]	Existing (2015) AM Peak Hour LOS	Existing (2015) PM Peak Hour Density[2]	Existing (2015) PM Peak Hour LOS	EAP (2016) AM Peak Hour Density[2]	EAP (2016) AM Peak Hour LOS	EAP (2016) PM Peak Hour Density[2]	EAP (2016) PM Peak Hour LOS	Significant Impact?
I-15 Freeway	SB	Off-Ramp at Nichols Road	3	21.1	C	28.3	D	21.5	C	28.7	D	No
		On-Ramp at Nichols Road	3	19.5	B	26.3	C	19.9	B	26.8	C	No
	NB	On-Ramp at Nichols Road	3	18.7	B	17.6	B	19.1	B	18.0	B	No
		Off-Ramp at Nichols Road	3	24.5	C	24.2	C	25.0	C	24.6	C	No

[1] Number of lanes are in the specified direction and is based on existing conditions.
[2] Density is measured by passenger cars per mile per lane (pc/mi/ln).
(Urban Crossroads, 2015d, Table 6-4)

6. Traffic Signal Warrant Analysis

No study area intersections are calculated to meet traffic signal warrants for EAP traffic Conditions (Urban Crossroads, 2015d, p. 72). As such, no impact associated with traffic signal warrants would occur under E+P conditions.

C. Existing plus Ambient Growth plus Project plus Cumulative (EAPC) 2016 Traffic Conditions

This section discusses the methods used to develop Existing plus Ambient Growth plus Project plus Cumulative (EAPC) (2016) traffic forecasts, and the resulting intersection operations, off-ramp queuing, and traffic signal warrants.

To account for background traffic, other known cumulative development projects in the study area were included in addition to 2 percent of ambient growth for EAPC traffic conditions in conjunction with traffic associated with the proposed Project. The weekday ADT and weekday AM and PM peak hour volumes which can be expected for EAPC (2016) traffic conditions are shown on *Figure 4.9-11, EAPC (2016) Traffic Volumes (in PCE)*. (Urban Crossroads, 2015d, p. 77)

1. Intersection Operations Analysis

LOS calculations were conducted for the study intersections to evaluate their operations under EAPC conditions. As shown in Table 4.9-21, *Intersection Analysis for EAPC (2016) Conditions*, the study area intersections are anticipated to operate at acceptable levels of service, with the exception of the following locations (Urban Crossroads, 2015d, p. 77):

- I-15 Southbound Ramps / Nichols Road – LOS F AM and PM peak hours
- I-15 Northbound Ramps / Nichols Road – LOS F AM peak hour; LOS E PM peak hour

Table 4.9-21 Intersection Analysis for EAPC (2016) Conditions

#	Intersection	Traffic Control [2]	Existing (2015)				EAPC (2016)				Acceptable LOS	Significant Impact?
			Delay[1] (secs.)		Level of Service		Delay[1] (secs.)		Level of Service			
			AM	PM	AM	PM	AM	PM	AM	PM		
1	I-15 SB Ramps / Nichols Rd.	AWS	11.7	12.9	B	B	**62.7**	**61.0**	**F**	**F**	D	No
2	I-15 NB Ramps / Nichols Rd.	CSS	18.5	21.4	C	C	**>100.0**	**>100.0**	**F**	**F**	D	**Yes**
3	Dwy. 1 / Nichols Rd.	CSS	10.1	8.9	B	A	15.3	10.0	C	B	C	No
4	Dwy. 2 / Nichols Rd.	CSS	7.9	7.5	A	A	9.5	7.9	A	A	C	No

BOLD = LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).
[1] Per the 2010 Highway Capacity Manual, overall average intersection delay, and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.
[2] CSS = Cross-street Stop; AWS = All-way Stop
Source: (Urban Crossroads, 2015d, Table 7-1)

A summary of the peak hour intersection LOS for EAPC conditions are shown on *Figure 4.9-12, Summary of Peak Hour Intersection LOS for EAPC (2016) Conditions*. Project traffic would contribute more than 50 peak hour trips to the I-15 Northbound Ramps at Nichols Road during both the AM and PM peak hour. Because Project-related traffic would contribute to, but would not cause, the projected deficiency at the intersection of I-15 Northbound Ramps at Nichols Road, Project-related impacts under EAPC (2016) conditions would be cumulatively considerable. The Project would contribute fewer than 50 peak hour trips to the intersections of I-15 Southbound Ramps at Nichols Road; accordingly, the Project's impacts to the intersection of I-15 Southbound Ramps at Nichols Road would be less-than-cumulatively considerable. (Urban Crossroads, 2015d, p. 77, and Exhibit 4-3)

2. Basic Freeway Segment Analysis

As previously noted, the Project would generate fewer than 50 peak hour trips to nearby segments of I-15. Nonetheless, a basic freeway segment operations analysis was conducted for EAPC (2016) conditions and the results are presented in Table 4.9-22, *Basic Freeway Segment Analysis for EAPC*

(2016) Conditions. As shown, under EAPC (2016) conditions the I-15 freeway segments immediately north and south of Nichols Road are anticipated to operate at an acceptable LOS during the peak hours with the addition of Project traffic. As such, the Project's impacts to freeway segments would be less than significant under EAPC (2016) conditions. (Urban Crossroads, 2015d, p. 82)

Table 4.9-22 Basic Freeway Segment Analysis for EAPC (2016) Conditions

Freeway	Direction	Mainline Segment	Lanes[1]	Existing (2015)				EAPC (2016)				Significant Impact?
				Density[2]		LOS		Density[2]		LOS		
				AM	PM	AM	PM	AM	PM	AM	PM	
I-15 Freeway	SB	North of Nichols Road	3	14.9	22.6	B	C	16.6	25.3	B	C	No
		South of Nichols Road	3	15.3	23.0	B	C	17.2	26.3	B	D	No
	NB	North of Nichols Road	3	18.1	17.0	C	B	27.5	28.8	D	D	No
		South of Nichols Road	3	18.4	17.8	C	B	28.5	30.8	D	D	No

[1] Number of lanes are in the specified direction and is based on existing conditions.
[2] Density is measured by passenger cars per mile per lane (pc/mi/ln).
(Urban Crossroads, 2015d, Table 7-3)

3. Off-Ramp Queuing

A queuing analysis was performed for the off-ramps at the I-15 Freeway and Nichols Road interchange to assess vehicle queues for the off ramps that may potentially result in deficient peak hour operations at the ramp-to-arterial intersections and may potentially "spill back" onto the I-15 Freeway mainline. Queuing analysis findings are presented in Table 4.9-23, *Peak Hour Freeway Off-Ramp Queuing Summary for EAPC (2016) Conditions*. Off-ramp lengths are consistent with the measured distance between the intersection and the freeway mainline. As shown on Table 4.9-23, there are no movements that are anticipated to experience queuing issues during the weekday AM or weekday PM peak 95th percentile traffic flows for EAPC traffic conditions. As such, the Project would have a less-than-significant impact on study area freeway off-ramps under EAPC (2016) conditions. (Urban Crossroads, 2015d, p. 77)

4. Freeway Merge/Diverge Analysis

Ramp merge and diverge operations were also evaluated for EAPC traffic conditions and the results of this analysis are presented in Table 4.9-24, *Freeway Ramp Junction Merge/Diverge Analysis for EAPC (2016) Conditions*. As shown in Table 4.9-24, the freeway ramp merge and diverge areas are anticipated to operate at LOS D or better. As such, the Project's impacts due to merge and diverge operations under EAP conditions would be less than significant. (Urban Crossroads, 2015d, p. 82)

5. Traffic Signal Warrant Analysis

The following study area intersections are anticipated to warrant a traffic signal for EAPC traffic Conditions (Urban Crossroads, 2015d, p. 82):

- I-15 Southbound Ramps/Nichols Road
- I-15 Northbound Ramps/Nichols Road

Table 4.9-23 Peak Hour Freeway Off-Ramp Queuing Summary for EAPC (2016) Conditions

Intersection	Movement	Available Stacking Distance (Feet)	Existing (2015)				EAPC (2016)			
			95th Percentile Queue (Feet)[2]		Acceptable?[1]		95th Percentile Queue (Feet)[2]		Acceptable?[1]	
			AM Peak	PM Peak	AM	PM	AM Peak	PM Peak	AM	PM
I-15 SB Off-Ramp / Nichols Rd.	SBL/T/R	1,600	53	38	Yes	Yes	350	268	Yes	Yes
I-15 NB Off-Ramp / Nichols Rd.	NBL/T/R	1,530	78	110	Yes	Yes	1,028	1,173	Yes	Yes

[1] Stacking Distance is acceptable if the required stacking distance is less than or equal to the stacking distance provided. An additional 15 feet of stacking which is assumed to be provided in the transition for turn pockets is reflected in the stacking distance shown on this table, where applicable.
[2] Maximum queue length for the approach reported.
[3] 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.
Source: (Urban Crossroads, 2015d, Table 7-2)

Table 4.9-24 Freeway Ramp Junction Merge/Diverge Analysis for EAPC (2016) Conditions

Freeway	Direction	Ramp or Segment	Lanes on Freeway[1]	Existing (2015)				EAPC (2016)				Significant Impact?
				AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		
				Density[2]	LOS	Density[2]	LOS	Density[2]	LOS	Density[2]	LOS	
I-15 Freeway	SB	Off-Ramp at Nichols Road	3	21.1	C	28.3	D	23.4	C	30.7	D	No
		On-Ramp at Nichols Road	3	19.5	B	26.3	C	22.4	C	29.8	D	No
	NB	On-Ramp at Nichols Road	3	18.7	B	17.6	B	26.9	C	27.8	C	No
		Off-Ramp at Nichols Road	3	24.5	C	24.2	C	32.7	D	34.1	D	No

[1] Number of lanes are in the specified direction and is based on existing conditions.
[2] Density is measured by passenger cars per mile per lane (pc/mi/ln).
Source: (Urban Crossroads, 2015d, Table 7-4)

Project traffic would contribute more than 50 peak hour trips to the I-15 Northbound Ramps at Nichols Road during both the AM and PM peak hour. Because Project-related traffic would contribute to, but would not cause, the need for signalization of the I-15 Northbound Ramps at Nichols Road, Project-related impacts under EAPC (2016) conditions would be cumulatively considerable. The Project would contribute fewer than 50 peak hour trips to the intersections of I-15 Southbound Ramps at Nichols Road; accordingly, the Project's impacts to the need for signalization of the intersection of I-15 Southbound Ramps at Nichols Road would be less-than-cumulatively considerable under EAPC (2016) conditions. (Urban Crossroads, 2015d, Exhibit 4-3)

D. Horizon Year (2035) Traffic Conditions

This section discusses the methods used to develop Horizon Year (2035) Without and With Project traffic forecasts, and the resulting intersection operations, off-ramp queuing, and traffic signal warrants. (Urban Crossroads, 2015d, p. 87)

1. Intersection Operations Analysis

❑ Horizon Year Without Project Traffic Conditions

LOS calculations were conducted for the study intersections to evaluate their operations under Horizon Year Without Project conditions. As shown in Table 4.9-25, *Intersection Analysis for Horizon Year (2035) Conditions*, the intersections of I-15 Southbound and Northbound at Nichols Road would continue to operate at a deficient LOS F during both AM and PM peak hours without the addition of Project-related traffic. (Urban Crossroads, 2015d, p. 87)

Table 4.9-25 Intersection Analysis for Horizon Year (2035) Conditions

#	Inter`section	Traffic Control[2]	2035 Without Project				2035 With Project				Acceptable LOS	Significant Impact?
			Delay[1] (secs.)		Level of Service		Delay[1] (secs.)		Level of Service			
			AM	PM	AM	PM	AM	PM	AM	PM		
1	I-15 SB Ramps / Nichols Rd.	AWS	**68.5**	**68.6**	**F**	**F**	**68.5**	**68.6**	**F**	**F**	D	No
2	I-15 NB Ramps / Nichols Rd.	CSS	**>100.0**	**>100.0**	**F**	**F**	**>100.0**	**>100.0**	**F**	**F**	D	**Yes**
3	Dwy. 1 / Nichols Rd.	CSS	20.7	16.9	C	C	24.4	18.2	C	C	C	No
4	Dwy. 2 / Nichols Rd.	CSS	15.6	17.5	C	C	17.4	19.5	C	C	C	No

Notes: **BOLD** = LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).
[1] Per the 2010 Highway Capacity Manual, overall average intersection delay, and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.
[2] CSS = Cross-street Stop; AWS = All-way Stop
Source: (Urban Crossroads, 2015d, Table 8-1)

❑ Horizon Year With Project Traffic Conditions

As shown in Table 4.9-25, and as with EAPC (2016) conditions, the Project would contribute to, but would not directly cause, the deficient LOS at the intersections of I-15 Southbound and Northbound Ramps at Nichols Road (a deficient LOS F during both AM and PM peak hours with or without the addition of Project-related traffic). Because Project-related traffic would contribute to, but would not cause, the projected deficiency at the intersection of I-15 Northbound Ramps at Nichols Road, Project-related impacts under Horizon (Year 2035) conditions would be cumulatively considerable. The Project would contribute fewer than 50 peak hour trips to the intersections of I-15 Southbound Ramps at Nichols Road; accordingly, the Project's impacts to the intersection of I-15 Southbound Ramps at Nichols Road would be less-than-cumulatively considerable. (Urban Crossroads, 2015d, p. 92, and Exhibit 4-3) The weekday ADT and weekday AM and PM peak hour volumes which can be expected for Horizon Year With Project traffic conditions are shown on Figure 4.9-13, *Horizon Year (2035) With Project Traffic Volumes (in PCE).* As illustrated on Figure 4.9-14, *Summary of Peak Hour Intersection LOS for Horizon Year (2035) With Project Conditions*, there are no additional study area intersections anticipated to experience unacceptable LOS (LOS E or worse) with the addition of Project traffic during one or more peak hours in addition to those previously identified under Horizon Year Without Project conditions.

2. Basic Freeway Segment Analysis

❑ Horizon Year Without Project Traffic Conditions

Horizon Year Without Project mainline directional volumes for the weekday AM and PM peak hours are shown in Table 4.9-26, *Basic Freeway Segment Analysis for Horizon Year (2035) Conditions*. As shown on Table 4.9-26, both the northbound and southbound freeway segments immediately north and south of Nichols Road are anticipated to operate at an unacceptable LOS (i.e., LOS E or worse) during the peak hours. (Urban Crossroads, 2015d, p. 95)

Table 4.9-26 Basic Freeway Segment Analysis for Horizon Year (2035) Conditions

Freeway	Direction	Mainline Segment	Lanes[1]	2035 Without Project				2035 With Project				Significant Impact?
				Density[2]		LOS		Density[2]		LOS		
				AM	PM	AM	PM	AM	PM	AM	PM	
I-15 Freeway	SB	Off-Ramp at Nichols Road	3	24.3	**49.6**	C	**F**	24.3	**49.7**	C	**F**	No
		On-Ramp at Nichols Road	3	23.7	**46.5**	C	**F**	23.8	**46.6**	C	**F**	No
	NB	On-Ramp at Nichols Road	3	**45.3**	**38.1**	**F**	**E**	**45.4**	**38.2**	**F**	**E**	No
		Off-Ramp at Nichols Road	3	**47.2**	**36.6**	**F**	**E**	**47.3**	**36.6**	**F**	**E**	No

Notes: **BOLD** = Unacceptable Level of Service
[1] Number of lanes are in the specified direction and is based on existing conditions.
[2] Density is measured by passenger cars per mile per lane (pc/mi/ln).
Source: (Urban Crossroads, 2015d, Table 8-3)

❑ Horizon Year With Project Traffic Conditions

As previously noted, the Project would generate fewer than 50 peak hour trips to nearby segments of I-15. Nonetheless, a basic freeway segment operations analysis was conducted for Horizon Year With Project conditions for mainline directional volumes for the weekday AM and PM peak hours for the I-15 freeway segments located immediately north and south of Nichols Road. As shown in Table 4.9-26, both the northbound and southbound freeway segments immediately north and south of Nichols Road would continue to operate at an unacceptable LOS (i.e., LOS E or worse) during the peak hours. Although the Project would contribute traffic to these freeway segments, the Project would only contribute 12 trips in the AM peak hour and 11 trips in the PM peak hour to the northbound segment of I-15 south of Nichols Road, and only 15 trips in the AM peak hour and 13 trips in the PM peak hour to the southbound segment of I-15. The Project's contribution of traffic is well below the 50 peak hour trip threshold utilized by Caltrans for impacts to its facilities. Accordingly, the Project's impacts to freeway mainline segments under Horizon Year With Project conditions would be less-than-cumulatively considerable. (Urban Crossroads, 2015d, p. 95)

3. Off-Ramp Queuing

❑ Horizon Year Without Project Traffic Conditions

A queuing analysis was performed for the off-ramps at the I-15 Freeway and Nichols Road interchange to assess vehicle queues for the off ramps that may potentially result in deficient peak hour operations at the ramp-to-arterial intersections and may potentially "spill back" onto the I-15 Freeway mainline. Queuing analysis findings are presented in Table 4.9-27, *Peak Hour Freeway*

Off-Ramp Queuing Summary for Horizon Year (2035) Conditions. As shown on Table 4.9-27, the I-15 Freeway off-ramps at Nichols Road would experience queuing issues during the weekday peak 95th percentile traffic flows for Horizon Year (2035) Without Project traffic conditions. (Urban Crossroads, 2015d, p. 92)

Table 4.9-27 Peak Hour Freeway Off-Ramp Queuing Summary for Horizon Year (2035) Conditions

Intersection	Movement	Available Stacking Distance (Feet)	2035 Without Project				2035 With Project			
			95th Percentile Queue (Feet)[2]		Acceptable?[1]		95th Percentile Queue (Feet)[2]		Acceptable?[1]	
			AM Peak	PM Peak	AM	PM	AM Peak	PM Peak	AM	PM
I-15 SB Off-Ramp / Nichols Rd.	SBL/T/R	1,600	355	353	Yes	Yes	355	353	Yes	Yes
I-15 NB Off-Ramp / Nichols Rd.	NBL/T/R	1,530	**2,755**	**3,475**	**No**	**No**	**2,838**	**3,520**	**No**	**No**

[1] Stacking Distance is acceptable if the required stacking distance is less than or equal to the stacking distance provided. An additional 15 feet of stacking which is assumed to be provided in the transition for turn pockets is reflected in the stacking distance shown on this table, where applicable.
[2] Maximum queue length for the approach reported.
Source: (Urban Crossroads, 2015d, Table 8-2)

❑ Horizon Year With Project Traffic Conditions

As shown on Table 4.9-27, there are no additional movements that are anticipated to experience queuing issues during the weekday AM or weekday PM peak 95th percentile traffic flows for Horizon Year With Project traffic conditions beyond those that would already occur in the absence of the proposed Project. Nonetheless, the Project's contribution to the projected off-ramp queueing issue at the I-15 northbound off-ramp to Nichols Road represents a cumulatively considerable impact because the Project would contribute more than 50 AM and PM peak hour trips to this intersection. (Urban Crossroads, 2015d, p. 92)

4. Freeway Merge/Diverge Analysis

❑ Horizon Year Without Project Traffic Conditions

Ramp merge and diverge operations were also evaluated for Horizon Year Without Project conditions and the results of this analysis are presented in Table 4.9-28, *Freeway Ramp Junction Merge/Diverge Analysis for Horizon Year (2035) Conditions*. As shown in Table 4.9-28, both of the study area freeway merge and diverge ramp junctions are anticipated to operate at deficient LOS (i.e., LOS E or worse) under Horizon Year conditions. (Urban Crossroads, 2015d, p. 95)

❑ Horizon Year With Project Traffic Conditions

As shown in Table 4.9-28, under Horizon Year With Project traffic conditions, both of the study area freeway merge/diverge junctions would continue to operate at a deficient LOS (i.e., LOS E or worse). Because Project-related traffic would contribute to, but would not cause, the projected deficiency at the freeway merge/diverge junctions of I-15 Northbound Ramps at Nichols Road, Project-related impacts under Horizon Year (2035) conditions would be cumulatively considerable. The Project would contribute fewer than 50 peak hour trips to the freeway merge/diverge junctions of I-15 Southbound Ramps at Nichols Road; accordingly, the Project's impacts to the freeway

merge/diverge junctions of I-15 Southbound Ramps at Nichols Road would be less-than-cumulatively considerable. (Urban Crossroads, 2015d, p. 95)

Table 4.9-28 Freeway Ramp Junction Merge/Diverge Analysis for Horizon Year (2035) Conditions

Freeway	Direction	Ramp or Segment	Lanes on Freeway[1]	2035 Without Project				2035 With Project				Significant Impact?
				AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		
				Density[2]	LOS	Density[2]	LOS	Density[2]	LOS	Density[2]	LOS	
I-15 Freeway	SB	Off-Ramp at Nichols Road	3	31.6	D	**43.5**	**F**	31.6	D	**43.6**	**F**	**No**
		On-Ramp at Nichols Road	3	29.5	D	**41.5**	**F**	29.5	D	**41.5**	**F**	**No**
	NB	On-Ramp at Nichols Road	3	**37.6**	**F**	**35.3**	**E**	**37.7**	**F**	**35.4**	**E**	**Yes**
		Off-Ramp at Nichols Road	3	**42.2**	**F**	**37.4**	**E**	**42.2**	**F**	**37.5**	**E**	**Yes**

Notes: **BOLD** = Unacceptable Level of Service
[1] Number of lanes are in the specified direction and is based on existing conditions.
[2] Density is measured by passenger cars per mile per lane (pc/mi/ln).
Source: (Urban Crossroads, 2015d, Table 8-4)

5. Traffic Signal Warrant Analysis

No additional study area intersections are anticipated to meet traffic signal warrants for Horizon Year Without or With Project traffic conditions beyond those that were previously warranted under EAPC traffic conditions. Because Project-related traffic would contribute to, but would not cause, the need for signalization of the I-15 Northbound Ramps at Nichols Road, Project-related impacts under Horizon Year (2035) conditions would be cumulatively considerable. The Project would contribute fewer than 50 peak hour trips to the intersections of I-15 Southbound Ramps at Nichols Road; accordingly, the Project's impacts to the need for signalization of the intersection of I-15 Southbound Ramps at Nichols Road would be less-than-cumulatively considerable under Horizon Year (2035) conditions. (Urban Crossroads, 2015d, p. 92).

Threshold b: Would the Project exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?

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 is used as the target LOS for freeway ramps, freeway segments, and freeway merge/diverge ramp junctions (Urban Crossroads, 2015d, p. 18). In the Project's study area, Interstate I5 (I-15) is the only designated Riverside County CMP facility (RCTC, 2011, p. 2-5).

As described under Threshold 4.9.a), above, the Project would result in the following cumulatively considerable impacts to nearby freeway ramps and freeway merge/diverge ramp junctions:

- EAPC (2016) Conditions:
    - Cumulatively considerable impact to the I-15 Northbound Ramps/Nichols Road intersection (LOS F AM peak hour; LOS E PM peak hour); and

- Cumulatively considerable impact due to the need to signalize the I-15 Northbound Ramps/Nichols Road intersection.

- Horizon Year (2035) Conditions:
  - Cumulatively considerable impact to the I-15 Northbound Ramp/Nichols Road intersection (LOS F during both AM and PM peak hours);
  - Cumulatively considerable impact due to the projected off-ramp queueing issue at the I-15 northbound off-ramps to Nichols Road; and
  - Cumulatively considerable impact due to deficiencies at the I-15 Northbound Ramps/Nichols Road merge/diverge junction (LOS F AM Peak Hour; LOS E PM Peak Hour).

The Project's contribution to the above-listed CMP roadway deficiencies are all cumulatively considerable impacts of the proposed Project.

Threshold c: Would the Project result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?

The nearest airport to the Project site is the Skylark Airport, which is a private facility utilized primarily for skydiving and is located approximately 5.5 miles southwest of the Project site. The nearest public airport is the March Air Reserve Base, located approximately 12.4 miles northeast of the Project site. The proposed Project does not contain an air travel component (e.g., runways, helipads); thus, air traffic volumes would not be changed as a result of the Project. The proposed on-site mining and reclamation activities would not include any component that would obstruct the flight path or change air traffic patterns at Skylark Airport, particularly given the distance between the Project site and this airport (i.e., 5.5 miles). The Project also is not located in the AIA of the March Air Reserve Base (RCALUC, 2014, Map MA-1), and the proposed Project does not include any components that would extend into Federal Aviation Administration (FAA) protected air space. Accordingly, the Project would not have the potential to affect air traffic patterns, including an increase in traffic levels or a change in flight path location that results in substantial safety risks. No impact would occur.

Threshold d: Would the Project substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

The Project site is an existing mining site. The proposed Project would expand the area permitted to be mined by 24 acres; reduce the Mine's permitted annual tonnage of exported materials from 4,000,000 tons per year (tpy) to 856,560 tpy (inclusive of aggregate materials); and lengthen the hours of operation for mining, processing, and export activities from between 7:00 am and 12:00 am (Monday through Friday, excluding Federal Holidays) and between 7:00 am and 7:00 pm (Saturdays only) to between 4:00 am and 12:00 am (Monday through Saturday, excluding Federal Holidays) for mining equipment operation and 24 hours per day (Monday through Saturdays, excluding Federal Holidays) for aggregate export activities. (Urban Crossroads, 2015d, p. 3) The Project's proposed expanded hours for aggregate export activities would have the effect of reducing the potential for conflict with traffic compared to existing baseline conditions because export activities would be occur over an extended period of time, including during the late evening/early morning hours when there is little traffic on nearby roadways. Nonetheless, it should be noted that the Project's TIA evaluates the existing hourly restrictions at the Mine, and not the proposed hourly restrictions; as

such, the analysis in the Project's TIA reflects a "worst case" analysis of Project impacts because it assumes reduced working hours. As indicated under the discussion of Threshold 4.9.a), although implementation of the proposed Project would contribute to several deficiencies under 2016 cumulative (i.e., EAPC) and Horizon Year (2035) conditions, these deficiencies would occur even in the absence of Project-related traffic. Thus, the Project would not substantially contribute to the projected deficiencies and would have a less-than-significant impact due to design hazards. Moreover, the proposed Project would be compatible with existing mining activities on site, and given the relatively short distance between the Project's driveways and nearby on- and off-ramps at the I-15/Nichols Road interchange, Project-related truck traffic would not represent a safety hazard for passenger cars, pedestrians, or bicyclists. The Project does not propose, nor does it require, any new circulation improvements. The City of Lake Elsinore Public Works Department reviewed the Project's application materials and determined that no hazardous transportation design features would be introduced by the Project. Accordingly, the proposed Project would not create or substantially increase safety hazards due to a design feature or incompatible use. Therefore, the Project would result in less-than-significant impacts.

Threshold e: Would the Project result in inadequate emergency access?

No changes are being proposed to the Project site's access, and the existing driveway access points provide for adequate emergency access; thus, emergency access would continue to be provided as it is under existing conditions. There are no components of the proposed Project that would substantially interfere with traffic along Nichols Road, including traffic that may occur during emergency conditions. Thus, the Project would result in no impacts related to inadequate emergency access.

Threshold f: Would the Project conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities)?

The Project involves mining and reclamation and as such, is not likely to attract large volumes of pedestrian, bicycle, or transit traffic. Under the proposed Project, two new workers would be employed on-site. Due to the nature of the proposed Project and the limited number of new workers on-site, the Project would not result in the need for any new or expanded public transit service, bicycle paths, or pedestrian facilities.

According to bus route maps available from the Riverside Transit Agency (RTA), there are currently no existing bus routes in the vicinity of the proposed Project. The RTA periodically evaluates its bus routes and may make changes based on need. However, due to the rural nature of areas east of the Project site, and the fact that the Project's increase of two new employees at the Project site would not result in a substantial increase in demand bus transit services, no accommodations for bus stops appear necessary along the Project's frontage with Nichols Road. (Urban Crossroads, 2015d, p. 27) Furthermore, there are no policies within the Lake Elsinore General Plan related to bus service (Lake Elsinore, 2011a, Chapter 2.0). Accordingly, the Project has no potential to conflict with any planned local public transit service routes or policies related to bus service.

According to the City of Lake Elsinore General Plan Figure 2.6, a regional trail is planned along Nichols Road, east of the I-15 Freeway and north along Collier Avenue. Class II bike lanes also are proposed for Nichols Road. (Lake Elsinore, 2011a, Figures 2.5 and 2.6) However, the Project would

not result in or require any improvements along Nichols Road, as the Project comprises the continuation and expansion of an existing mining operation that is adequately served by the existing Nichols Road configuration. Ultimate development of the site following reclamation would require improvements to Nichols Road along the Project's frontage, although no such future development is proposed as part of the Project. The General Plan includes one policy related to bicycle and pedestrian facilities; this policy is provided below, followed by a discussion of how the Project would comply with, or otherwise not conflict with, the applicable General Plan Policies:

- *Policy 6.4: Maintain the system of bike lanes and multi-use trails throughout the City. Encourage the implementation of the network of Class I, II, and III bike lanes on all development projects through construction of the facility as described in the Bike Lane Master Plan and/or the Trails Master Plan.* (Lake Elsinore, 2011a, p. 2-40)

  Project Consistency: The proposed Project would have no impact on existing or planned bike lanes or multi use trails throughout the City. Accordingly, the Project would not conflict with Policy 6.4.

There are no additional General Plan policies related to public transit, bicycle, or pedestrian facilities. Accordingly, the proposed Project would not conflict with any General Plan policies related to pedestrian or bicycle mobility. Additionally there are no applicable policies in the Alberhill District portion of the City's General Plan that relate to public transit, bicycle, or pedestrian facilities (Lake Elsinore, 2011a, pp. AH-12 to AH-13). As such, the Project would not conflict with any General Plan policies or standards related to public transit, bicycle, or pedestrian facilities.

Additionally, the proposed Project would not conflict with the policies of the SCAG RTP, Riverside County CMP, or the Riverside County Integrated Project. There are no other adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities that are applicable in the Project area. Based on the foregoing analysis, the proposed Project would not conflict with adopted policies, plans, or programs related to alternative transportation, nor would the Project otherwise substantially decrease the performance or safety of such facilities. Therefore, a less-than-significant impact would occur.

4.9.8 CUMULATIVE IMPACT ANALYSIS

The analysis under Thresholds a. and b. discloses the Project's potential to affect the transportation network on a direct and cumulatively considerable basis. The addition of Project traffic to the existing and planned circulation network would contribute to cumulatively considerable impacts at the following intersections during the listed traffic scenarios:

Existing plus Ambient Growth plus Project plus Cumulative (EAPC) 2016 Conditions

The following study area intersections are anticipated to operate at unacceptable LOS during the peak hours under EAPC (2016) traffic conditions (Urban Crossroads, 2015d, p. 7):

- I-15 Southbound Ramps /Nichols Road– LOS F AM and PM peak hours
- I-15 Northbound Ramps/Nichols Road– LOS F AM peak hour; LOS E PM peak hour

The Project would contribute fewer than 50 AM and PM peak hour trips to the I-15 Southbound Raps/Nichols Road intersection; accordingly, Project impacts to this intersection would be less-than-cumulatively considerable. The Project would, however, contribute more than 50 AM and PM trips at the I-15 Northbound Ramps/Nichols Road intersection. Because Project-related traffic would contribute to, but would not cause, the projected deficiency at the I-15 Northbound Ramps/Nichols Road intersection, Project-related impacts under EAPC (2016) conditions would be cumulatively considerable.

The following study area intersections are anticipated to warrant a traffic signal for EAPC traffic Conditions (Urban Crossroads, 2015d, p. 82):

- I-15 Southbound Ramps/Nichols Road
- I-15 Northbound Ramps/Nichols Road

The Project would contribute fewer than 50 AM and PM peak hour trips to the I-15 Southbound Raps/Nichols Road intersection; accordingly, Project impacts due to the need to signalize this intersection would be less-than-cumulatively considerable. The Project would, however, contribute more than 50 AM and PM trips at the I-15 Northbound Ramps/Nichols Road intersection. Because Project-related traffic would contribute to, but would not directly cause, the need for signalization of the I-15 Northbound off-ramp at Nichols Road, the Project's impacts under EAPC (2016) conditions would be cumulatively considerable.

Horizon Year (2035) Conditions

Based on the assessment of Horizon Year Without and With Project traffic conditions, there were no additional intersections found to operate at a deficient LOS, beyond those previously identified under EAPC traffic conditions (Urban Crossroads, 2015d, p. 7).

The I-15 Freeway mainline segments immediately north and south of Nichols Road and the merge/diverge ramp junctions at Nichols Road are anticipated to operate at unacceptable LOS under Horizon Year Without and With Project traffic conditions. Planned improvements (i.e., long-range plans for 2 tolled Express Lanes) for the I-15 Freeway, to be funded by Caltrans, are anticipated to improve the peak hour LOS; however, the following I-15 Freeway mainline segments and ramp junctions are anticipated to continue to operate at unacceptable LOS even with planned improvements (Urban Crossroads, 2015d, p. 7):

- I-15 Freeway Mainline Segment – Southbound, North of Nichols Road – LOS "E" PM peak hour only;
- I-15 Freeway Mainline Segment – Northbound, South of Nichols Road – LOS "E" AM peak hour only;
- I-15 Freeway Southbound Off-Ramp at Nichols Road – LOS "E" PM peak hour only;
- I-15 Freeway Southbound Off-Ramp On-Ramp at Nichols Road – LOS "E" PM peak hour only; and
- I-15 Freeway Northbound Off-Ramp at Nichols Road – LOS "E" AM peak hour only.

There are no additional improvements planned along the I-15 Freeway in addition to the Express Lanes discussed above. The Project would contribute to, but would not directly cause, the deficient

LOS at the I-15 segments north and south of Nichols Road. Additionally, the Project would contribute fewer than 50 peak hour trips to these freeway segments, which is the threshold utilized by Caltrans for impacts to its facilities. Accordingly, the Project's impacts to freeway mainline segments would be less-than-cumulatively considerable.

The Project would contribute fewer than 50 peak hour trips at the merge/diverge ramp junction of I-15 Southbound at Nichols Road under Horizon Year (2035) conditions; accordingly, the Project's impacts to this ramp junction would be less-than-cumulatively considerable. The Project would contribute more than 50 peak hour trips to the merge/diverge ramp junction of I-15 Northbound at Nichols Road under Horizon Year (2035) conditions. Project-related traffic would contribute to, but would not directly cause, the deficient LOS at the merge/diverge ramp junction of I-15 Northbound at Nichols Road under Horizon Year (2035); accordingly, the Project's impacts to this merge/diverge ramp junction under Horizon Year (2035) conditions would be cumulatively considerable.

Under Horizon Year (2035) conditions, the Project would contribute to, but would not directly cause queuing issues during the weekday peak 95th percentile traffic flows at the I-15 Freeway Northbound Off-Ramp. The Project's contribution to this projected deficiency is a cumulatively considerable impact. Impacts to the I-15 Freeway Southbound Off-Ramp would be less-than-cumulatively considerable because the Project would contribute fewer than 50 AM and PM peak hour trips at this off-ramp.

The proposed Project has no potential to contribute to a significant cumulative impact under the topics discussed under Thresholds c) and e), because the Project has no potential to result in significant changes to air traffic patterns or to adversely affect emergency access on a direct or cumulative basis. Thus, the Project would have no cumulatively considerable impacts for thresholds c) and e). Additionally, the Project would have less-than-significant impacts due to inadequate emergency access; however, there are no cumulative developments in the Project area, the impacts of which, when combined with those of the Project, would result in cumulatively considerable effects due to inadequate emergency access; therefore, the Project's impacts due to inadequate emergency access would be less than significant on a cumulative basis.

As presented under Threshold f), the proposed Project would not conflict with adopted policies or programs regarding public transit, bicycle, or pedestrian facilities and thus has no potential to contribute to a cumulative impact. The Project would have a less-than-significant cumulatively considerable impact to adopted policies and programs regarding public transit, bicycle, and pedestrian facilities, as well as a less-than-significant cumulatively considerable impact to the performance of such facilities.

4.9.9 SIGNIFICANCE OF IMPACTS BEFORE MITIGATION

Threshold a: Significant Cumulatively Considerable Impact. As discussed under Threshold a), the addition of Project-related traffic under EAPC (2016) conditions and Horizon Year (2035) conditions would contribute to intersection operational LOS deficiency at the intersection of Nichols Road and the I-15 Northbound Ramp, and also would contribute to a need to signalize the intersection. Because the projected LOS deficiency would occur both with and without the addition of Project traffic, the Project's contributions to the projected LOS deficiency at the Nichols Road and I-15 Northbound Ramp is a cumulatively considerable impact. Impacts to the intersection of Nichols

Road and the I-15 Southbound Ramp would be less-than-cumulatively considerable because the Project would contribute fewer than 50 AM and PM peak hour trips to this intersection.

Under Horizon Year (2035) conditions, the Project would contribute to, but would not directly cause queuing issues during the weekday peak 95th percentile traffic flows at the I-15 Freeway Northbound Off-Ramp. The Project's contribution to this projected deficiency is a cumulatively considerable impact. Impacts to the I-15 Freeway Southbound Off-Ramp would be less-than-cumulatively considerable because the Project would contribute fewer than 50 AM and PM peak hour trips at this off-ramp.

Under Horizon Year With Project traffic conditions, the freeway merge/diverge junctions of I-15 Northbound Ramps at Nichols Road would continue to operate at a deficient LOS (i.e., LOS E or worse). Because Project-related traffic would contribute to, but would not cause, the projected deficiency at the freeway merge/diverge junctions of I-15 Northbound Ramps at Nichols Road, Project-related impacts under Horizon Year (2035) conditions would be cumulatively considerable. The Project would contribute fewer than 50 peak hour trips to the freeway merge/diverge junctions of I-15 Southbound Ramps at Nichols Road; accordingly, the Project's impacts to the freeway merge/diverge junctions of I-15 Southbound Ramps at Nichols Road would be less-than-cumulatively considerable.

Project-related traffic would contribute to the need to signalize the intersection of I-15 Northbound Ramp at Nichols Road under both EAPC (2016) and Horizon Year (2035) conditions. Because the need for this traffic signal would occur both with and without the addition of Project traffic, Project-related impacts are cumulatively considerable. Although the intersection of I-15 Southbound Ramp at Nichols Road also would warrant signalization under both EAPC (2016) and Horizon Year (2035) conditions, the Project contributes fewer than 50 peak hour trips to this intersection; thus, impacts would be less-than-cumulatively considerable.

Project-related traffic would contribute to, but would not directly cause, LOS deficiencies at nearby segments of the I-15. Because these deficiencies would occur either with or without Project traffic, and because the Project would contribute less than 50 AM and PM peak hour trips to these mainline segments, impacts are considered to be less-than-cumulatively considerable under Horizon Year (2035) conditions.

Project-related traffic would contribute to, but would not directly cause, deficient LOS (i.e., LOS E or worse) at the Nichols Road northbound on- and off-ramps for the I-15 under Horizon Year (2035) With Project Conditions. Because the projected deficiency would occur either with or without the proposed Project, impacts would be cumulatively considerable. Although the on- and off-ramps for the I-15 under Horizon Year conditions also would be impacted, the Project would contribute fewer than 50 AM and PM peak hour trips to these ramps; accordingly, Project-related impacts would be less-than-cumulatively considerable.

Threshold b: Significant Cumulatively Considerable Impact. I-15 is the only CMP designated facility in the Project area. As described above under Threshold 4.9.a), the Project would contribute to, but would not directly cause, a deficient LOS at the following I-15 freeway ramps, freeway segments, and freeway merge/diverge ramp junctions:

- EAPC (2016) Conditions:
    - Cumulatively considerable impact to the I-15 Northbound Ramp/Nichols Road intersection (LOS F AM peak hour; LOS E PM peak hour); and
    - Cumulatively considerable impact due to the need to signalize the I-15 Northbound Ramps/Nichols Road intersection.

- Horizon Year (2035) Conditions:
    - Cumulatively considerable impact to the I-15 Northbound Ramp/Nichols Road intersection (LOS F during both AM and PM peak hours);
    - Cumulatively considerable impact due to the projected off-ramp queueing issue at the I-15 northbound off-ramps to Nichols Road; and
    - Cumulatively considerable impact due to deficiencies at the I-15 Northbound Ramps/Nichols Road merge/diverge junction (LOS F AM Peak Hour; LOS E PM Peak Hour).

Because the above-listed LOS deficiencies would occur both with and without Project-related traffic, and because the Project would contribute more than 50 AM and PM peak hour trips to the affected facilities, the Project's contribution to the above-listed CMP roadway deficiencies represent cumulatively considerable impacts of the proposed Project.

Threshold c: No Impact. There is no potential for the Project to change air traffic patterns or create substantial air traffic safety risks.

Threshold d: Less-than-Significant Impact. No significant transportation safety hazards would be introduced as a result of the proposed Project.

Threshold e: Less-than-Significant Impact. Adequate emergency access is currently and will continue to be provided at the Project site. The Project would not result in inadequate emergency access to the site or surrounding properties.

Threshold f: Less-than-Significant Impact. Potential impacts to the performance or safety of transit, bicycle, and pedestrian systems would be less than significant.

4.9.10 MITIGATION

MM TR-1 Within 60 days of approval of SMP 2015-01 and the revised Reclamation Plan No. 2006-01A2, the Project Applicant shall pay appropriate Development Impact Fees/Traffic Impact Fees at the rates then in effect pursuant to Chapter 16.74.040 of the City of Lake Elsinore Municipal Code.

MM TR-2 Within 60 days of approval of SMP 2015-01 and the revised Reclamation Plan No. 2006-01A2, the Project Applicant shall pay applicable Transportation Uniform Mitigation Fee (TUMF) fees at the rates then in effect in accordance with Chapter 16.83 of the City of Lake Elsinore Municipal Code.

4.9.11 SIGNIFICANCE OF IMPACTS AFTER MITIGATION

Threshold a: Cumulatively Significant and Unavoidable Impact. Table 4.9-29, *Summary of Improvements by Analysis Scenario*, lists the physical improvements necessary to reduce the identified intersection LOS deficiencies by study scenario. All recommended improvements, including the projected warrant for traffic signals, are included as part of the TUMF and/or TIF programs. Fees from these programs are collected as part of a funding mechanism aimed at ensuring that regional highways and arterial expansions keep pace with the projected vehicle trip increases. The TUMF 2009 Nexus Study (WRCOG, 2009), which is herein incorporated by reference and available for public review at the location indicated in EIR Section 7.0, *References*, establishes a nexus or reasonable relationship between the TUMF fee's use and the type of project for which the fee is required. CEQA allows for the assessment of a fee as an appropriate form of mitigation when it is linked to a specific mitigation program. In this case, the TUMF is an established mitigation program.

As shown in Table 4.9-30, *Intersection Analysis for EAPC (2016) Conditions with Improvements*, with implementation of the improvements programmed as part of TUMF and/or TIF, the intersection of I-15 Northbound Ramps at Nichols Road would improve to LOS D under both AM and PM peak hours under EAPC (2016) conditions; accordingly, implementation of Mitigation Measures MM TR-1 and MM TR-2 would reduce the Project's cumulatively considerable impact to the intersection of I-15 Northbound Ramps at Nichols Road to a level below significant under EAPC (2016) conditions. However, no schedule is prescribed by the TUMF program for these improvements, and it is not practical to assume that the improvements would be installed by 2016. Improvement schedules for these improvements are partially dependent on the pace of new development and associated pace of fee collection that occurs under the TUMF and the TIF. Under CEQA, a fair share monetary contribution to a mitigation fund is adequate mitigation if the funds are part of a reasonable plan that the relevant agency (in this case WRCOG and the City of Lake Elsinore) is committed to implementing. As such, the proposed Project can mitigate its cumulatively considerable contribution to these impacts. Regardless, because the improvements would likely not be in place at their time of need (before the deficiency occurs), this EIR recognizes a short-term and unavoidable cumulatively considerable impact at the I-15 Northbound Ramp/Nichols Road intersection.

As detailed in Table 4.9-31, *Intersection Analysis for Horizon Year (2035) Conditions With Improvements*, with implementation of Mitigation Measures MM TR-1 and MM TR-2, the I-15 Northbound ramps at Nichols Road would remain LOS D under with Project conditions. Thus, with improvements, the Project's cumulatively considerable impacts to the intersection of the I-15 Northbound On- and Off-Ramps at Nichols Road would be reduced to less-than-significant levels. However, no schedule is prescribed by the TUMF or TIF program for these improvements, and it is not practical to assume that the improvements would be installed by 2016. Improvement schedules for these improvements are partially dependent on the pace of new development and associated pace of fee collection that occurs under the TUMF and the TIF. Under CEQA, a fair share monetary contribution to a mitigation fund is adequate mitigation if the funds are part of a reasonable plan that the relevant agency (in this case WRCOG and the City of Lake Elsinore) is committed to implementing. As such, the proposed Project can mitigate its cumulatively considerable contribution to these impacts. Regardless, because the improvements would likely not be in place at their time of need (before the deficiency occurs), this EIR recognizes a short-term and unavoidable cumulatively considerable impact at the I-15 Northbound Ramp/Nichols Road intersection.

Table 4.9-29 Summary of Improvements by Analysis Scenario

#	Intersection Location	Jurisdiction	E+P Recommended Improvements	EAP (2016) Recommended Improvements	EAPC (2016) Recommended Improvements	2035 Without Project Recommended Improvements	2035 With Project Recommended Improvements	Improvements in TUMF or TIF?[1]	Fair Share %[2]
1	I-15 SB Ramps / Nichols Rd.	Caltrans, Lake Elsinore	None	None	Install a traffic signal	Same	Same	TIF Interchange	N/A
						2 SB left turn lanes	Same		
						SB right turn lane	Same		
						2nd and 3rd EB through lanes	Same		
						2nd WB left turn lane	Same		
						2nd and 3rd WB through lanes	Same		
2	I-15 NB Ramps / Nichols Rd.	Caltrans, Lake Elsinore	None	None	Install a traffic signal	Same	Same	TIF Interchange	N/A
						NB left turn lane	Same		
						2 NB right turn lanes	Same		
						2nd EB left turn lane	Same		
						2nd and 3rd EB through lanes	Same		
						2nd and 3rd WB through lanes	Same		
						WB right turn lane	Same		

[1] Improvements are included wholly or partially in one or more of the following: County of Riverside TUMF or City of Lake Elsinore TIF for local, regional, and specific plan components. Final determination on extent of the improvements included and covered by these fee programs is to be established by the governing lead agency.
[2] Fair share percentage is not shown as the recommended improvements at this location are included in a pre-existing fee program.
Source: (Urban Crossroads, 2015d, Table 1-4)

Table 4.9-30 Intersection Analysis for EAPC (2016) Conditions with Improvements

#	Intersection	Traffic Control[3]	Intersection Approach Lanes[1]												Delay[2] (secs.)		Level of Service	
			Northbound			Southbound			Eastbound			Westbound						
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
1	I-15 SB Ramps / Nichols Rd.																	
	- Without Improvements	AWS	0	0	0	0	1	0	0	1	1	1	1	0	62.7	61.0	F	F
	- With Improvements	TS	0	0	0	0	1	0	0	1	1	1	1	0	38.4	38.3	D	D
2	I-15 NB Ramps / Nichols Rd.																	
	- Without Improvements	CSS	0	1	0	0	0	0	1	1	0	0	1	0	>100.0	>100.0	F	F
	- With Improvements	TS	0	1	0	0	0	0	1	1	0	0	1	0	52.9	54.9	D	D

Notes: **BOLD**=LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).
[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.
[2] Per the 2010 Highway Capacity Manual, overall average intersection delay, and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.
[3] AWS = All Way Stop; TS = Traffic Signal
Source: (Urban Crossroads, 2015d, Table 7-5)

Table 4.9-31 Intersection Analysis for Horizon Year (2035) Conditions With Improvements

#	Intersection	Traffic Control[3]	Intersection Approach Lanes[1]												Delay[2] (secs.)		Level of Service	
			Northbound			Southbound			Eastbound			Westbound						
			L	T	R	L	T	R	L	T	R	L	T	R	AM	PM	AM	PM
1	I-15 SB Ramps / Nichols Rd.																	
	- Without Project	TS	0	0	0	**2**	1	**1**	0	**3**	1	**2**	**3**	0	33.3	49.4	C	D
	- With Project	TS	0	0	0	**2**	1	**1**	0	**3**	1	**2**	**3**	0	33.5	50.9	C	D
2	I-15 NB Ramps / Nichols Rd.																	
	- Without Project	TS	**1**	1	**2**	0	0	0	**2**	**3**	0	0	**3**	**1**	44.7	39.7	D	D
	- With Project	TS	**1**	1	**2**	0	0	0	**2**	**3**	0	0	**3**	**1**	46.9	40.9	D	D

[1] When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.
L = Left; T = Through; R = Right; d= Defacto Right Turn Lane; **1** = Improvement
[2] Per the 2010 Highway Capacity Manual, overall average intersection delay, and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.
[3] AWS = All Way Stop; TS = Traffic Signal
Source: (Urban Crossroads, 2015d, Table 8-5)

As shown on Table 4.9-27, the proposed Project would contribute to queuing issues during the weekday peak 95th percentile traffic flows at the I-15 Freeway off-ramps under Horizon Year (2035) With and Without Project traffic conditions. Long-range plans by Caltrans for the I-15 Freeway include the construction of two tolled Express Lanes from Cajalco Road to Central Avenue (SR-74), which are improvements that are subject to available funding (Urban Crossroads, 2015d, p. 102). As shown in Table 4.9-31, with construction of the planned improvements, the queuing issues at the I-15 Northbound Off-Ramp at Nichols Road would be reduced to acceptable levels. However, it is possible that queuing deficiencies may still be experienced in the interim period prior to the completion of the improvements to I-15. As such, the Project's impacts to the I-15 Freeway northbound off-ramp under Horizon Year (2035) represents a near-term significant and unavoidable impact of the proposed Project for which no feasible mitigation is available.

Signalization of the intersection of the I-15 Northbound on- and off-ramps at Nichols Road is planned as part of the City's TIF. Therefore, with implementation of Mitigation Measure MM TR-1, requiring the payment of TIF fees, the Project's cumulatively considerable contribution to the need for signalization of this intersection would be reduced to less-than-significant levels. However, no schedule is prescribed by the TUMF or TIF program for this improvement, and it is not practical to assume that the improvements would be installed by 2016. Improvement schedules for this improvement are partially dependent on the pace of new development and associated pace of fee collection that occurs under the TUMF and the TIF. Under CEQA, a fair share monetary contribution to a mitigation fund is adequate mitigation if the funds are part of a reasonable plan that the relevant agency (in this case WRCOG and the City of Lake Elsinore) is committed to implementing. As such, the proposed Project can mitigate its cumulatively considerable contribution to these impacts. Regardless, because the improvements would likely not be in place at their time of need (before the deficiency occurs), this EIR recognizes a short-term and unavoidable cumulatively considerable impact at these locations.

As noted above, long-range plans by Caltrans for the I-15 Freeway include the construction of two tolled Express Lanes from Cajalco Road to Central Avenue (SR-74), which are improvements that are subject to available funding (Urban Crossroads, 2015d, p. 102). As shown in Table 4.9-32, *Basic Freeway Segment Analysis for Horizon Year (2035) Conditions with Improvements*, even with the planned Express Lanes, the I-15 northbound segment at the off-ramp with Nichols Road would experience a deficient LOS E during the AM peak hour, and the southbound freeway off-ramp at Nichols Road would experience a deficient LOS E during the PM peak hour. There are no additional improvements planned along these segments of the I-15, nor are there any funding mechanisms identified by Caltrans for such cumulatively considerable impacts. However, and as noted previously, the Project would contribute fewer than 50 peak hour trips to these freeway mainline segments. As such, the Project's contribution to the projected freeway mainline deficiencies under Horizon Year (2035) conditions represents a less-than-cumulatively considerable impact of the proposed Project.

Table 4.9-32 Basic Freeway Segment Analysis for Horizon Year (2035) Conditions with Improvements

Freeway	Direction	Mainline Segment	Lanes[1]	2035 Without Project				2035 With Project			
				Density[2]		LOS		Density[2]		LOS	
				AM	PM	AM	PM	AM	PM	AM	PM
I-15 Freeway	SB	Off-Ramp at Nichols Road	3	20.6	**36.4**	C	**E**	20.6	**36.5**	C	**E**
		On-Ramp at Nichols Road	3	20.0	34.5	C	D	20.0	34.8	C	D
	NB	On-Ramp at Nichols Road	3	34.3	29.8	D	D	34.4	30.1	D	D
		Off-Ramp at Nichols Road	3	**35.2**	28.9	**E**	D	**35.3**	29.0	**E**	D

Notes: **BOLD** = Unacceptable Level of Service
[1] Number of mixed-flow lanes are in the specified direction and is based on existing conditions, plus two tolled Express Lanes.
[2] Density is measured by passenger cars per mile per lane (pc/mi/ln).
Source: (Urban Crossroads, 2015d, Table 8-7)

As shown in Table 4.9-33, *Freeway Ramp Junction Merge/Diverge Analysis for Horizon Year (2035) Conditions with Improvements*, even with the construction of planned improvements to the I-15 and the intersections of the I-15 on- and off-ramps at Nichols Road, the northbound off-ramp at Nichols Road would experience a deficient LOS E. Although the Project is required to contribute TIF and TUMF fees pursuant to Mitigation Measures MM TR-1 and MM TR-2, the identified mitigation is not adequate to fully reduce this cumulative impact to a level below significant. There are no additional improvements planned at this off-ramp location, nor are there any funding mechanisms identified by Caltrans for such cumulatively considerable impacts. Accordingly, the Project's contribution to the deficient northbound junction merge/diverge LOS under Horizon Year (2035) conditions represents a cumulatively significant and unavoidable impact of the proposed Project.

Table 4.9-33 Freeway Ramp Junction Merge/Diverge Analysis for Horizon Year (2035) Conditions with Improvements

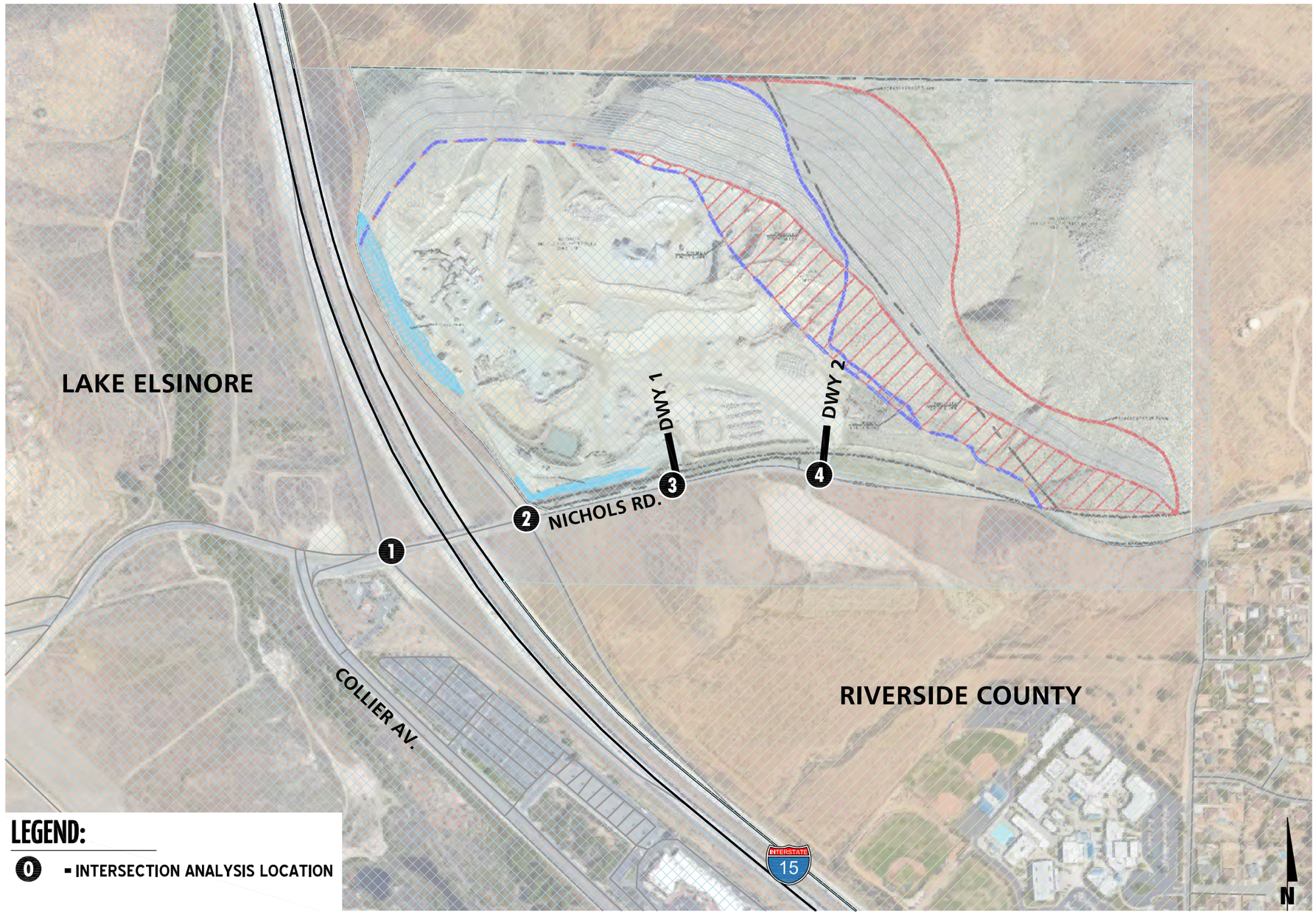
Freeway	Direction	Ramp or Segment	Lanes on Freeway[1]	2035 Without Project				2035 With Project			
				AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
				Density[2]	LOS	Density[2]	LOS	Density[2]	LOS	Density[2]	LOS
I-15 Freeway	SB	Off-Ramp at Nichols Road	3	28.8	D	**38.2**	E	28.8	D	**38.3**	E
		On-Ramp at Nichols Road	3	26.5	C	**36.9**	E	26.6	C	**36.9**	E
	NB	On-Ramp at Nichols Road	3	33.2	D	31.2	D	33.3	D	31.3	D
		Off-Ramp at Nichols Road	3	**37.1**	E	34.2	D	**37.1**	E	34.2	D

Notes: **BOLD** = Unacceptable Level of Service
[1] Number of mixed-flow lanes are in the specified direction and is based on existing conditions, plus two tolled Express Lanes.
[2] Density is measured by passenger cars per mile per lane (pc/mi/ln).
Source: (Urban Crossroads, 2015d, Table 8-8)

Threshold b: Cumulatively Significant and Unavoidable Impact. As discussed above, the Project's contribution to the following facilities represents cumulatively considerable impacts for which additional mitigation is not available:

- EAPC (2016) Conditions:
  - Cumulatively considerable impact to the I-15 Northbound Ramps/Nichols Road intersection (LOS F AM peak hour; LOS E PM peak hour); and
  - Cumulatively considerable impact due to the need to signalize the I-15 Northbound Ramps/Nichols Road intersection.

- Horizon Year (2035) Conditions:
  - Cumulatively considerable impact to the I-15 Northbound Ramp/Nichols Road intersection;
  - Cumulatively considerable impact due to the need to signalize the I-15 Northbound Ramps/Nichols Road intersection.
  - Cumulatively considerable impact due to the projected off-ramp queueing issue at the I-15 northbound off-ramps to Nichols Road; and
  - Cumulatively considerable impact due to deficiencies at the I-15 Northbound Ramps/Nichols Road merge/diverge junction.

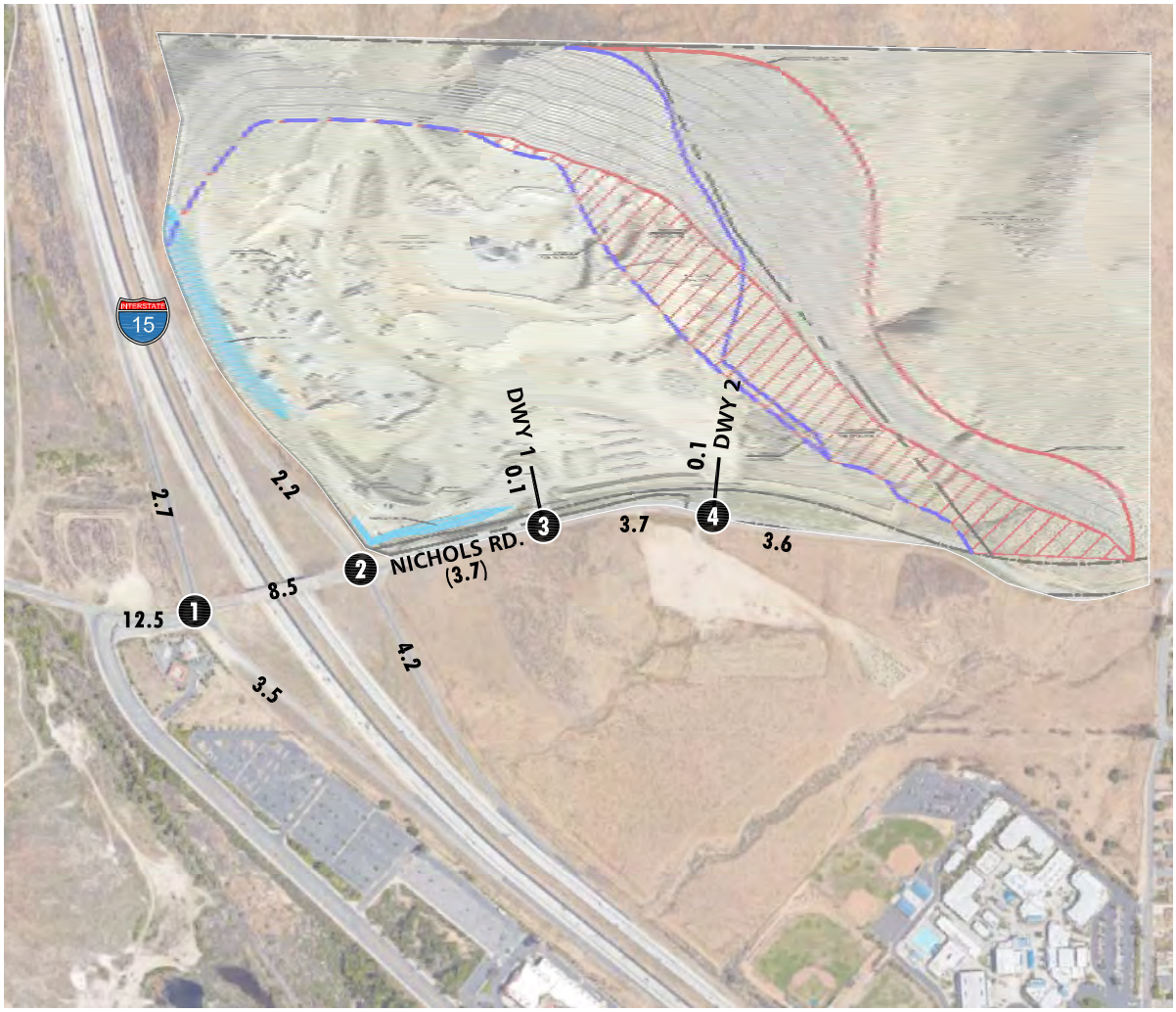


Source(s): Urban Crossroads (08-17-2015)

NOT TO SCALE

Figure 4.9-1

INTERSECTION ANALYSIS LOCATIONS



1 I-15 SB Ramps & Nichols Rd.	2 I-15 NB Ramps & Nichols Rd.	3 Driveway 1 & Nichols Rd.	4 Driveway 2 & Nichols Rd.
68(139), 8(3), 165(65) ← 165(357), 68(16)	92(28) ← 138(84)	42(5) ← 187(107)	0(0), 0(0) ← 0(0) ← 187(107)
228(213) → 247(249) →	65(135) → 328(142) →	455(175) →	47(4) → 408(171) →
	95(288), 1(3), 127(33) ↑		

LEGEND:

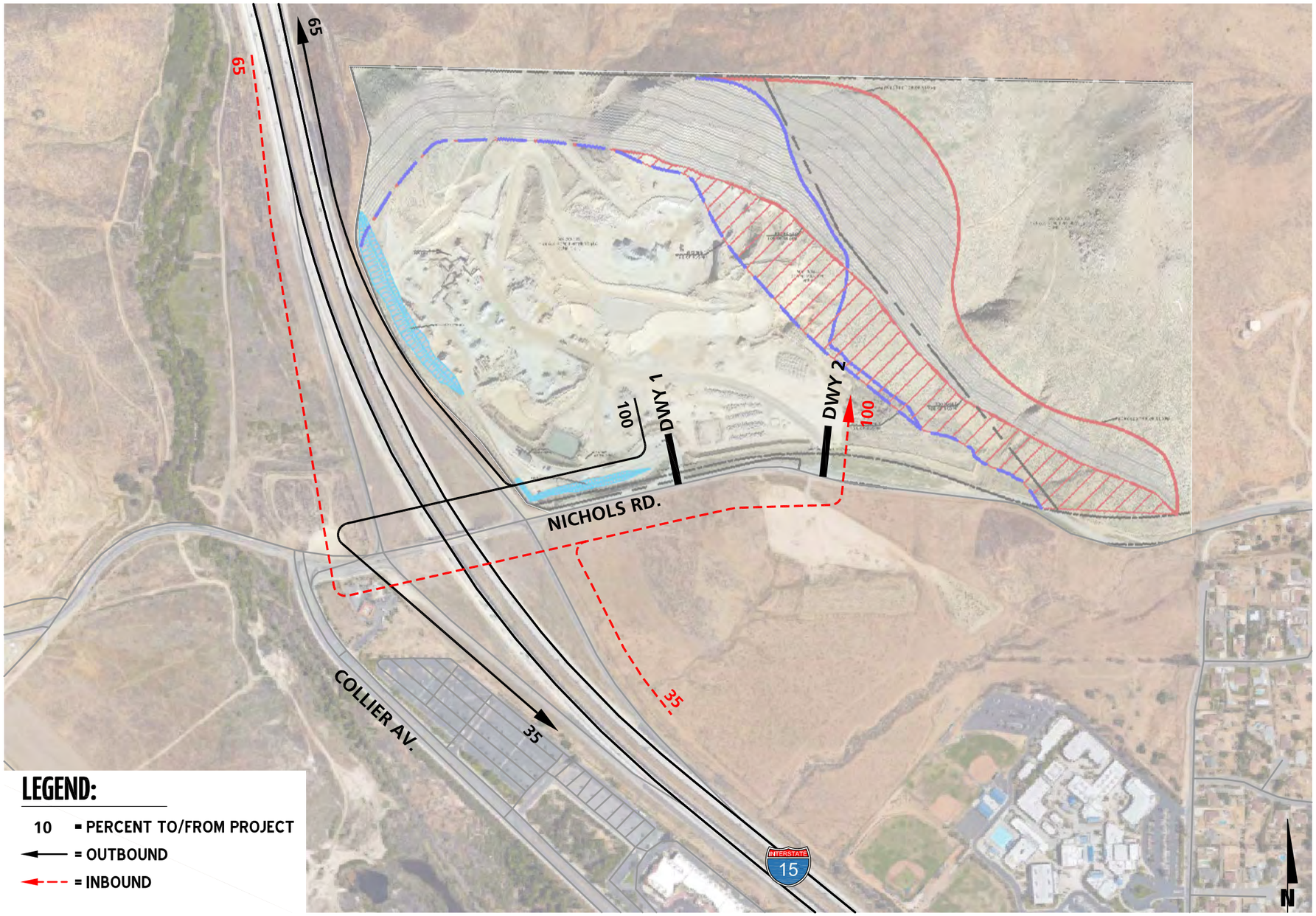
10(10) = AM(PM) PEAK HOUR INTERSECTION VOLUMES
10.0 = ESTIMATED VEHICLES PER DAY (1000'S)
(10.0) = COUNT-BASED VEHICLES PER DAY (1000'S)

Source(s): Urban Crossroads (08-17-2015)

Figure 4.9-2

NOT TO SCALE

EXISTING (2015) TRAFFIC VOLUMES (IN PCE)

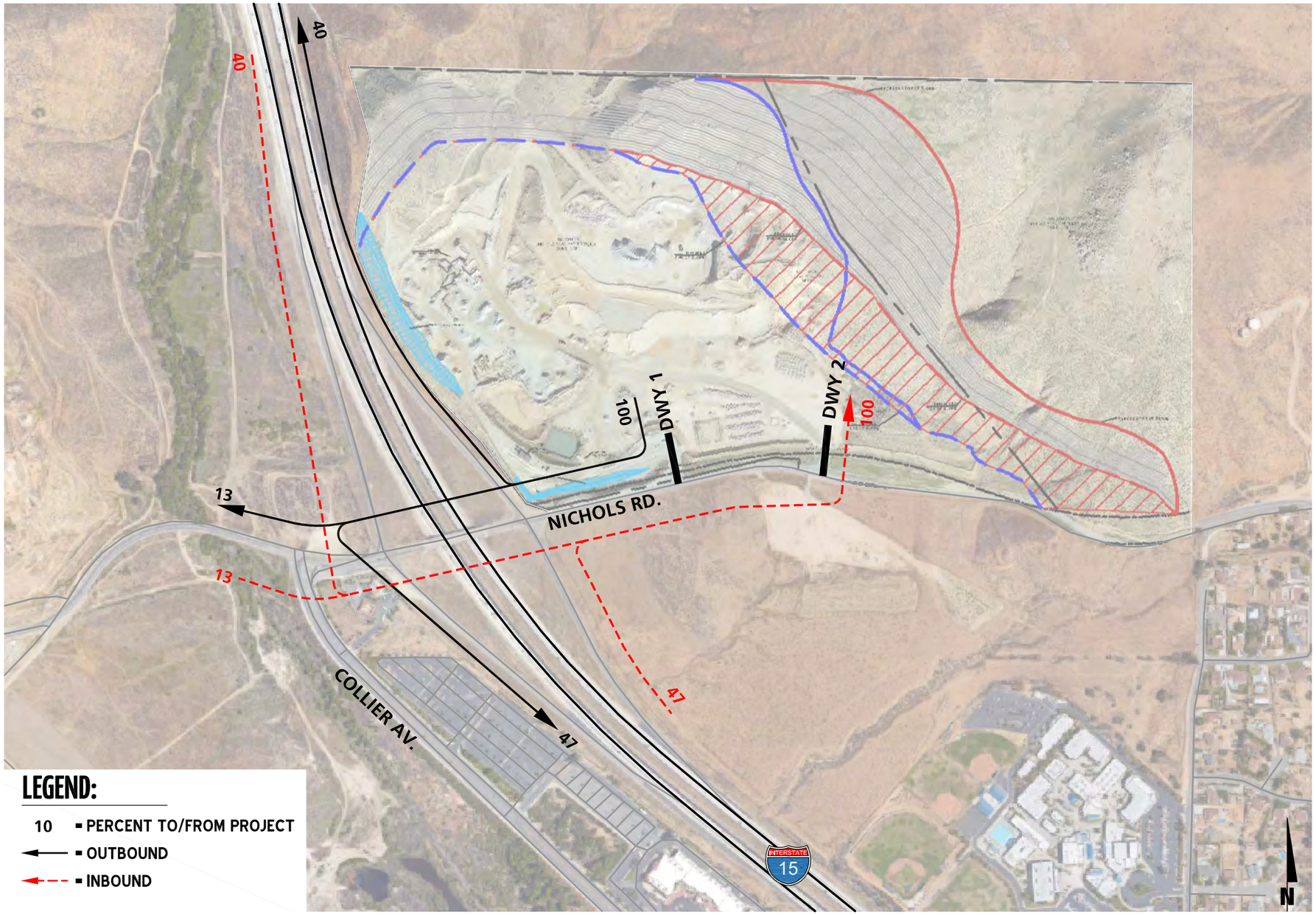


Source(s): Urban Crossroads (08-17-2015)

NOT TO SCALE

Figure 4.9-3

PROJECT (PASSENGER CAR) TRIP DISTRIBUTION

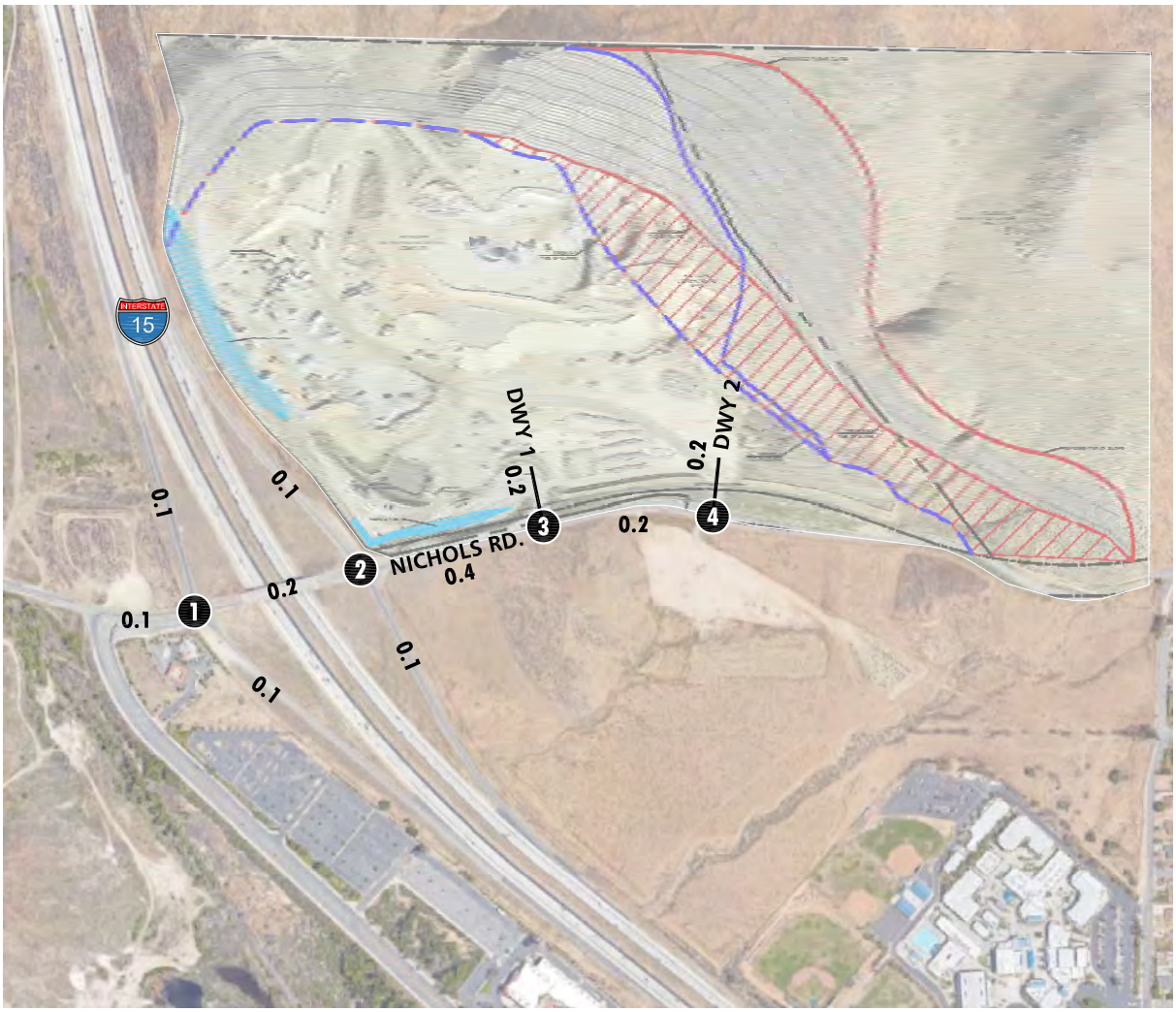


Source(s): Urban Crossroads (08-17-2015)

NOT TO SCALE

Figure 4.9-4

PROJECT (TRUCK) TRIP DISTRIBUTION



1 I-15 SB Ramps & Nichols Rd.	2 I-15 NB Ramps & Nichols Rd.	3 Driveway 1 & Nichols Rd.	4 Driveway 2 & Nichols Rd.
0(0) 0(0) 14(10) ←4(3) ←14(13)	→12(11) →18(16)	30(27) ←0(0)	0(0) 0(0) ←0(0) ←0(0)
4(3)→ 0(0)→	0(0)→ 18(14)→	34(26)→	34(26)→ 0(0)→
	0(0) 0(0) 16(12)		

LEGEND:

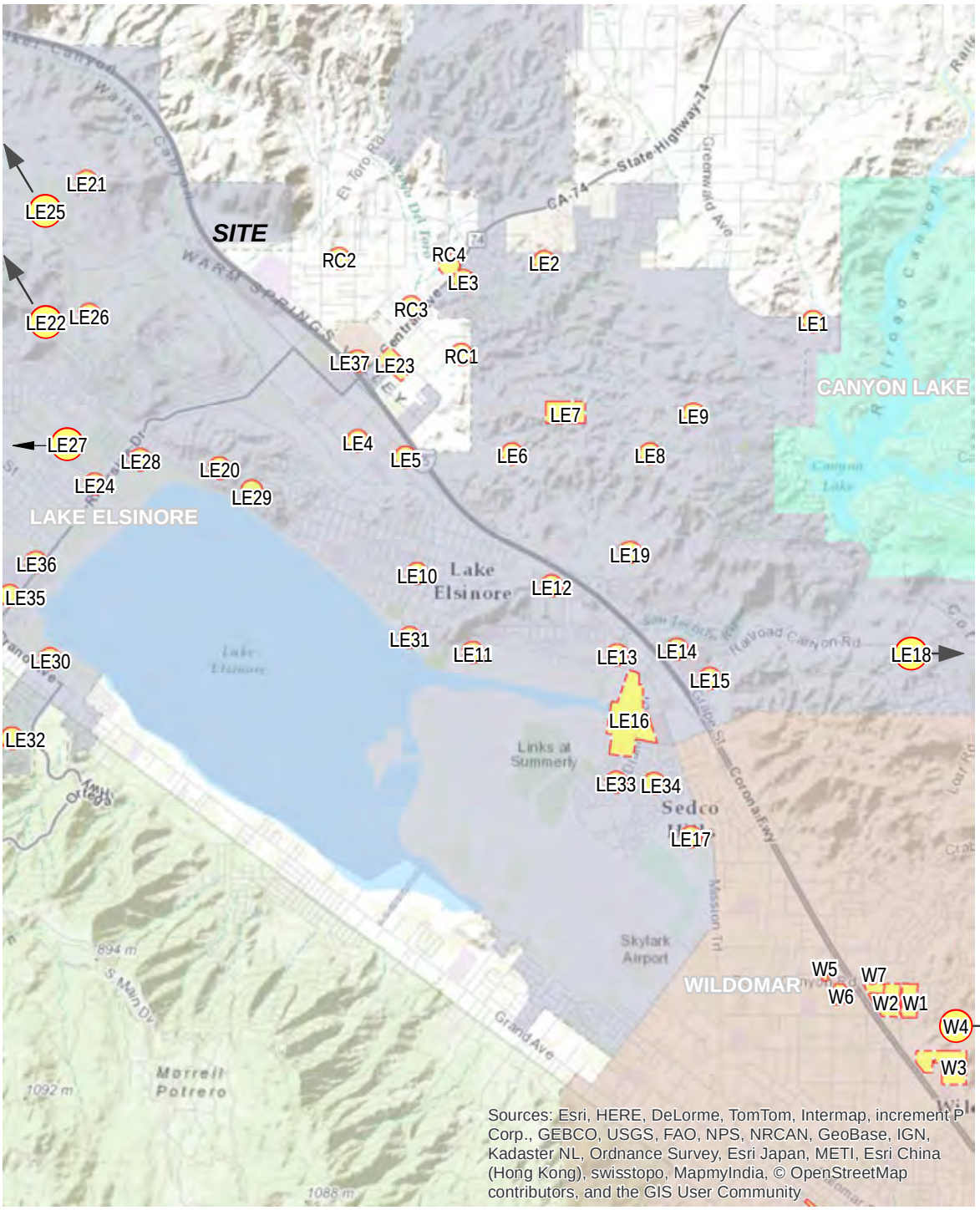
10(10) = AM(PM) PEAK HOUR INTERSECTION VOLUMES
10.0 = VEHICLES PER DAY (1000'S)

Source(s): Urban Crossroads (08-17-2015)

Figure 4.9-5

NOT TO SCALE

PROJECT ONLY TRAFFIC VOLUMES (IN PCE)

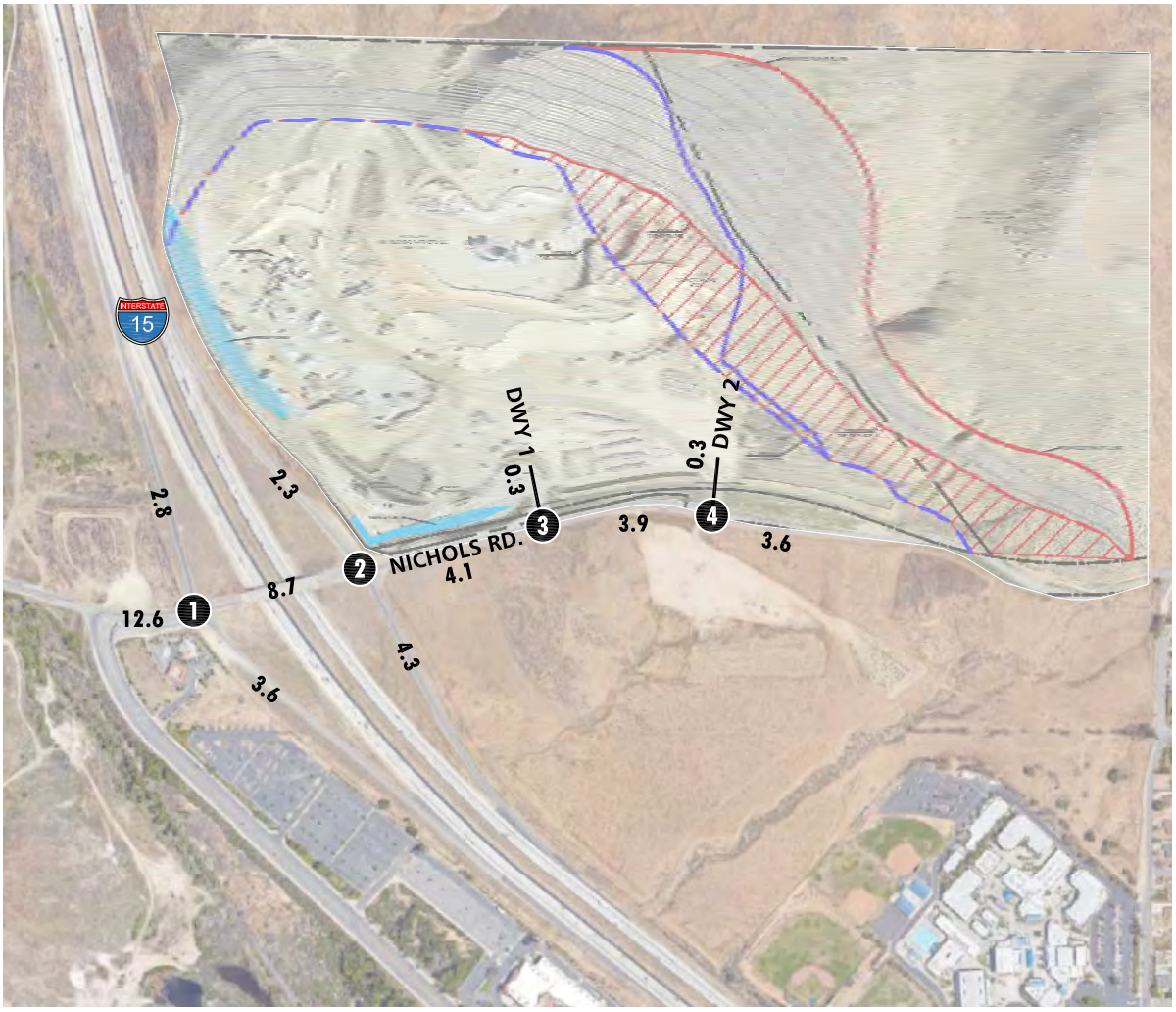


Source(s): Urban Crossroads (08-17-2015)

Figure 4.9-6

NOT TO SCALE

CUMULATIVE DEVELOPMENT PROJECTS LOCATION MAP



1 I-15 SB Ramps & Nichols Rd.	2 I-15 NB Ramps & Nichols Rd.	3 Driveway 1 & Nichols Rd.	4 Driveway 2 & Nichols Rd.
68(139) 8(3) 179(75) ← 169(360) ← 82(29)	→ 104(39) ← 156(100)	72(32) ← 187(107)	0(0) 0(0) → 0(0) ← 187(107)
232(216) → 247(249) ←	65(135) → 346(156) → 95(288) 1(3) 143(45) ←	489(201) →	81(30) → 408(171) →

LEGEND:

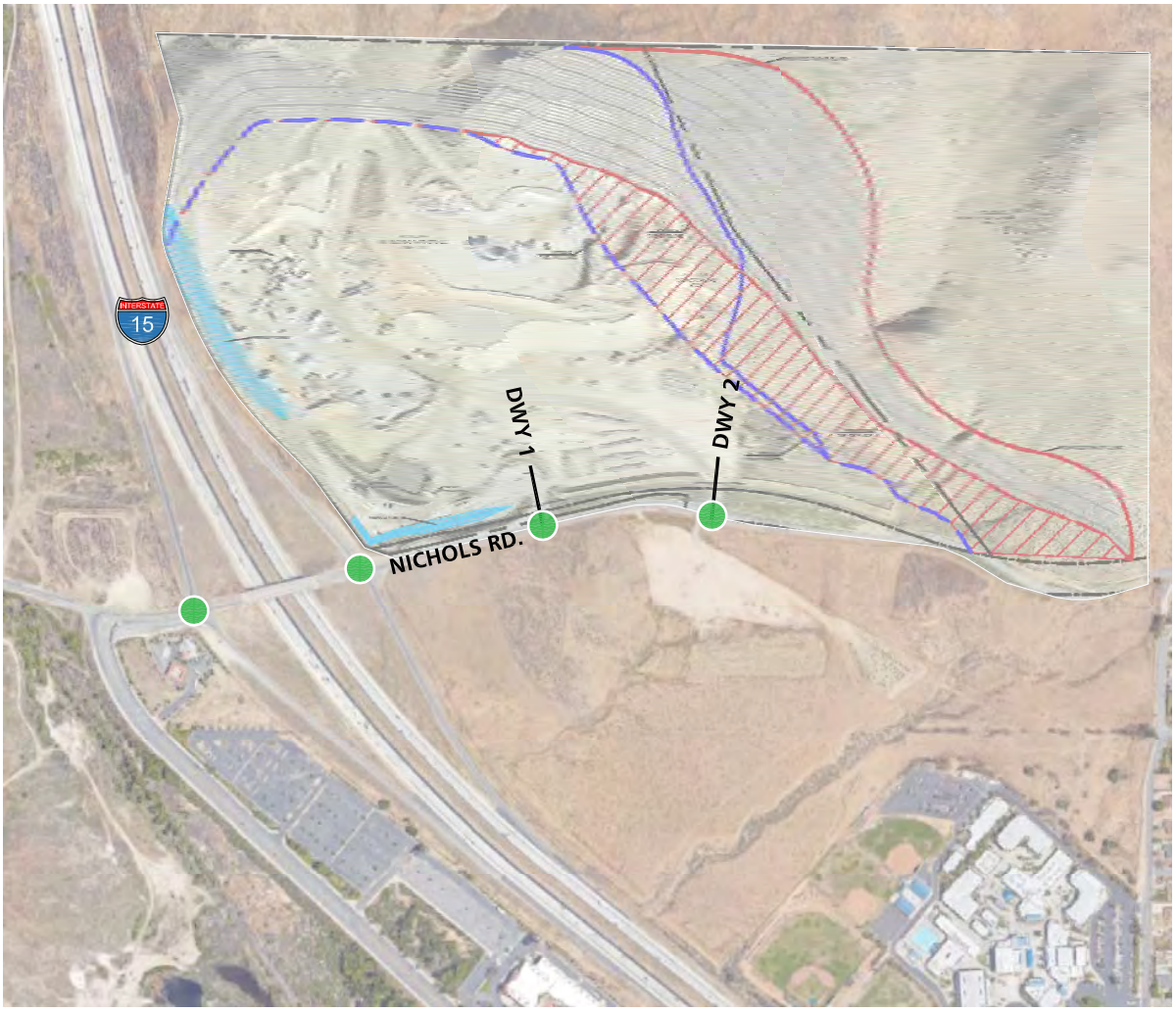
10(10) = **AM(PM) PEAK HOUR INTERSECTION VOLUMES**
10.0 = **VEHICLES PER DAY (1000'S)**

Source(s): Urban Crossroads (08-17-2015)

Figure 4.9-7

NOT TO SCALE

E+P TRAFFIC VOLUMES (IN PCE)



LEGEND:

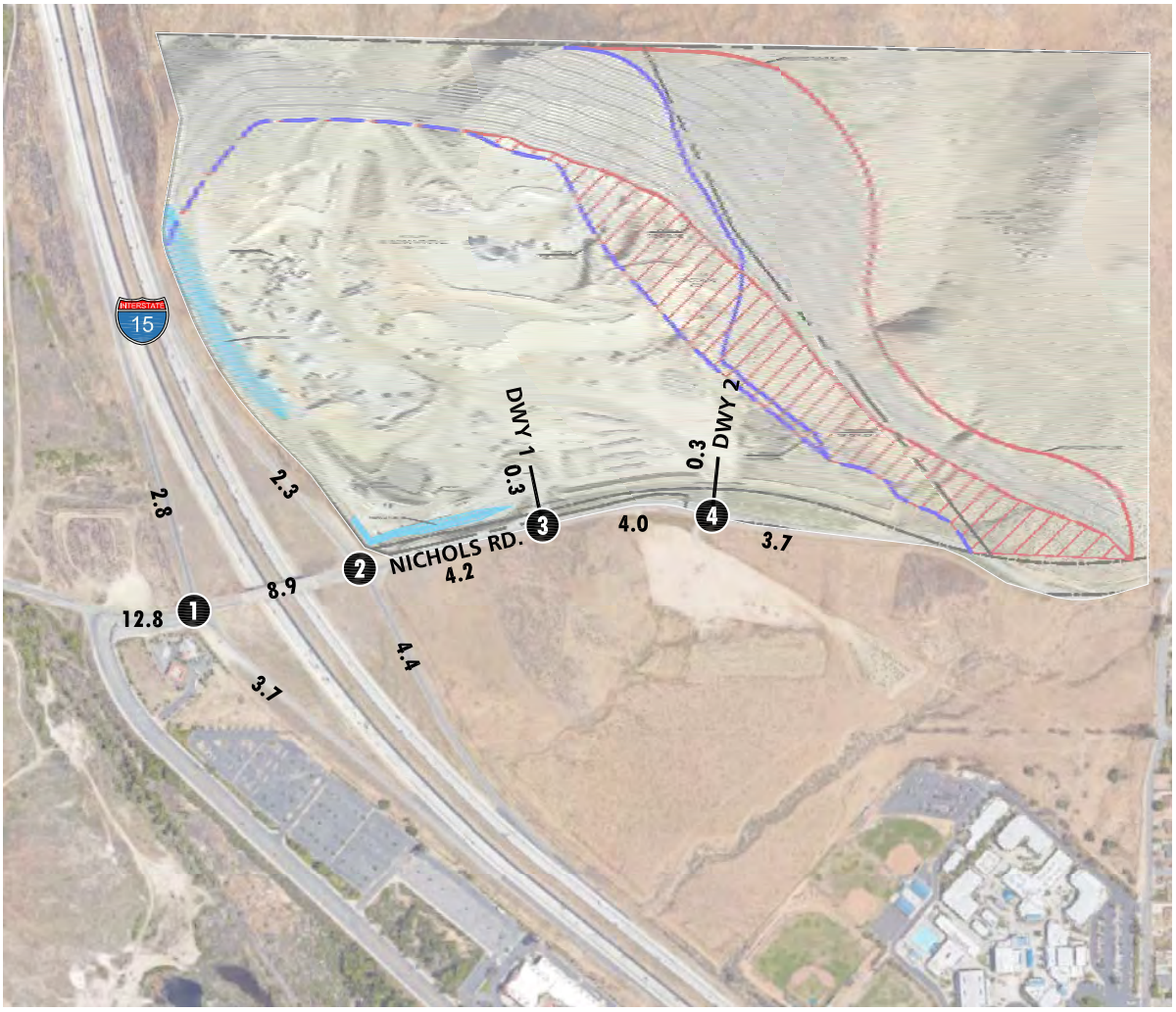
- = AM PEAK HOUR ACCEPTABLE LOS
- = AM PEAK HOUR DEFICIENT LOS
- = PM PEAK HOUR ACCEPTABLE LOS
- = PM PEAK HOUR DEFICIENT LOS

Source(s): Urban Crossroads (08-17-2015)

NOT TO SCALE

Figure 4.9-8

SUMMARY OF PEAK HOUR INTERSECTION LOS FOR E+P CONDITIONS



1 I-15 SB Ramps & Nichols Rd.		2 I-15 NB Ramps & Nichols Rd.		3 Driveway 1 & Nichols Rd.		4 Driveway 2 & Nichols Rd.	
69(141) 8(3) 182(76)	←172(367) ←83(29)		→105(40) ←158(102)	→73(32)	←191(109)	→0(0) →0(0)	←0(0) ←191(109)
236(220)→ 252(253)→		66(138)→ 352(159)→	96(294)→ 1(3)→ 146(45)→	498(204)→		82(30)→ 416(174)→	

LEGEND:

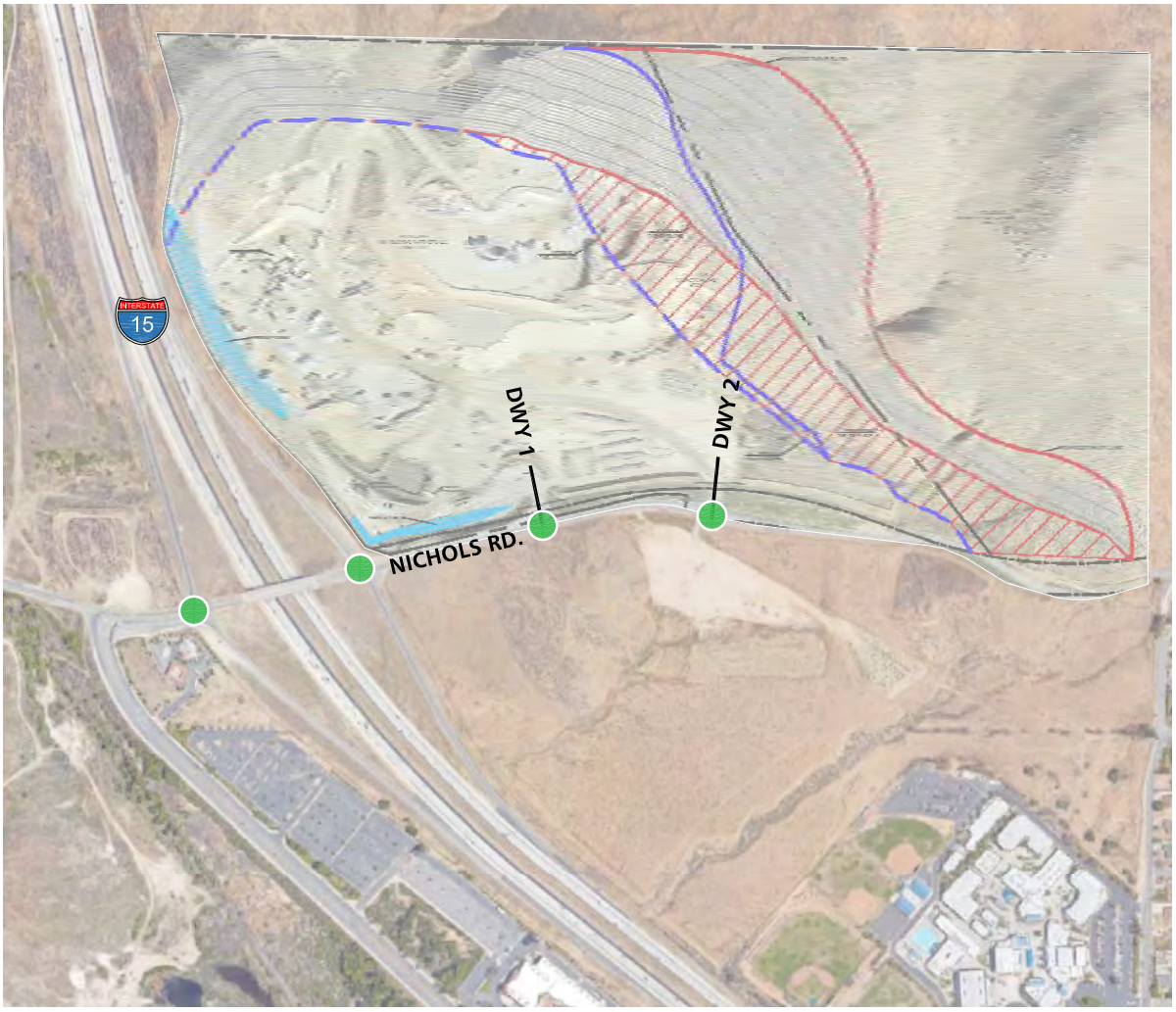
10(10) = AM(PM) PEAK HOUR INTERSECTION VOLUMES
10.0 = VEHICLES PER DAY (1000'S)

Source(s): Urban Crossroads (08-17-2015)

Figure 4.9-9

NOT TO SCALE

EAP (2016) TRAFFIC VOLUMES (IN PCE)



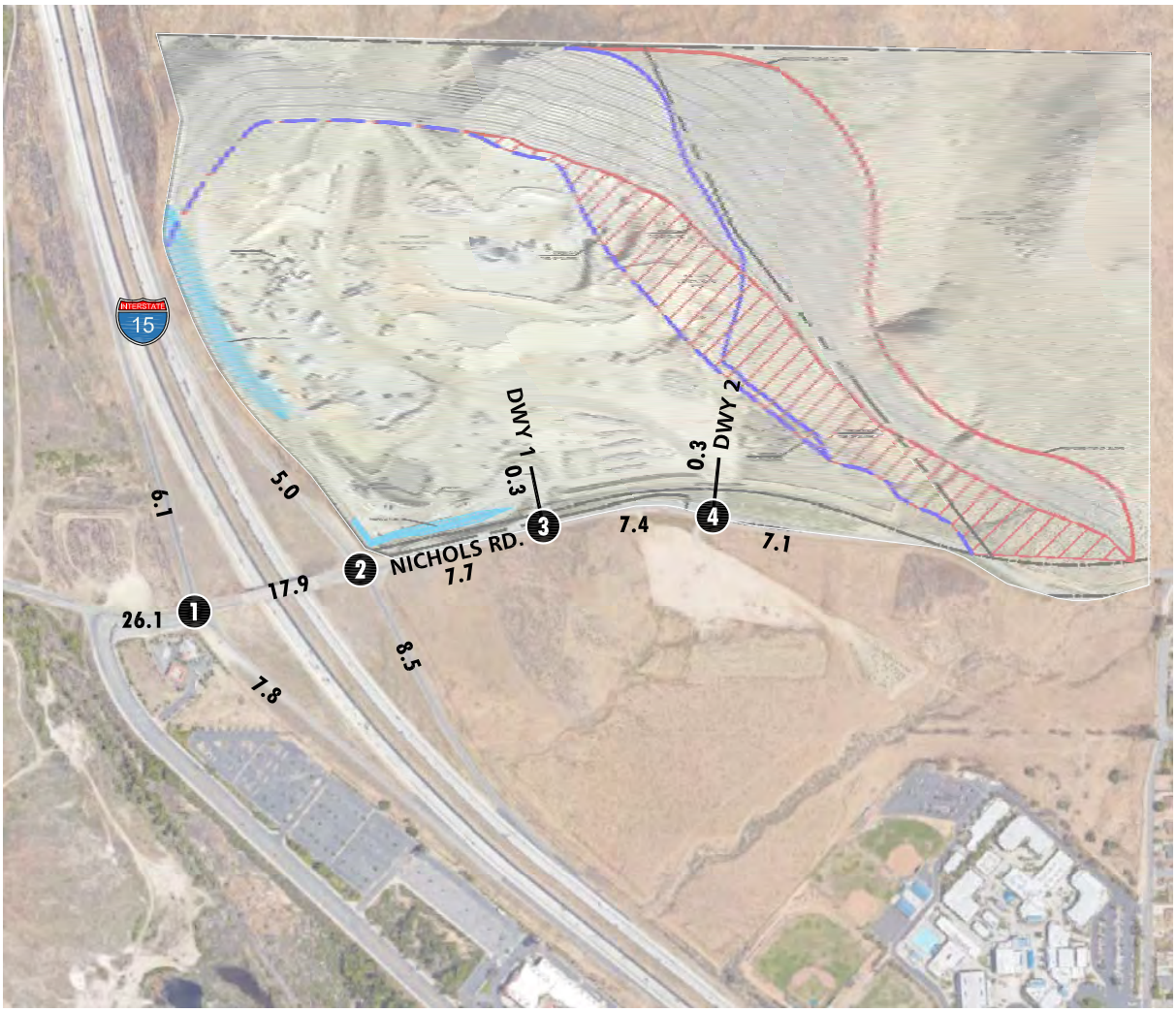
LEGEND:

- = AM PEAK HOUR ACCEPTABLE LOS
- = AM PEAK HOUR DEFICIENT LOS
- = PM PEAK HOUR ACCEPTABLE LOS
- = PM PEAK HOUR DEFICIENT LOS

Source(s): Urban Crossroads (08-17-2015)

NOT TO SCALE

Figure 4.9-10
SUMMARY OF PEAK HOUR INTERSECTION LOS FOR EAP (2016) CONDITIONS



1 I-15 SB Ramps & Nichols Rd.	2 I-15 NB Ramps & Nichols Rd.	3 Driveway 1 & Nichols Rd.	4 Driveway 2 & Nichols Rd.
173(343) 8(3) 339(124) ← 402(720) ← 127(66)	→ 214(65) ← 309(225)	73(32) ← 450(259)	0(0) 0(0) → 0(0) ← 450(259)
546(499) → 479(534) ←	165(324) → 721(301) ← 220(561) 1(3) 282(79)	1003(380) →	82(30) → 921(349) ←

LEGEND:

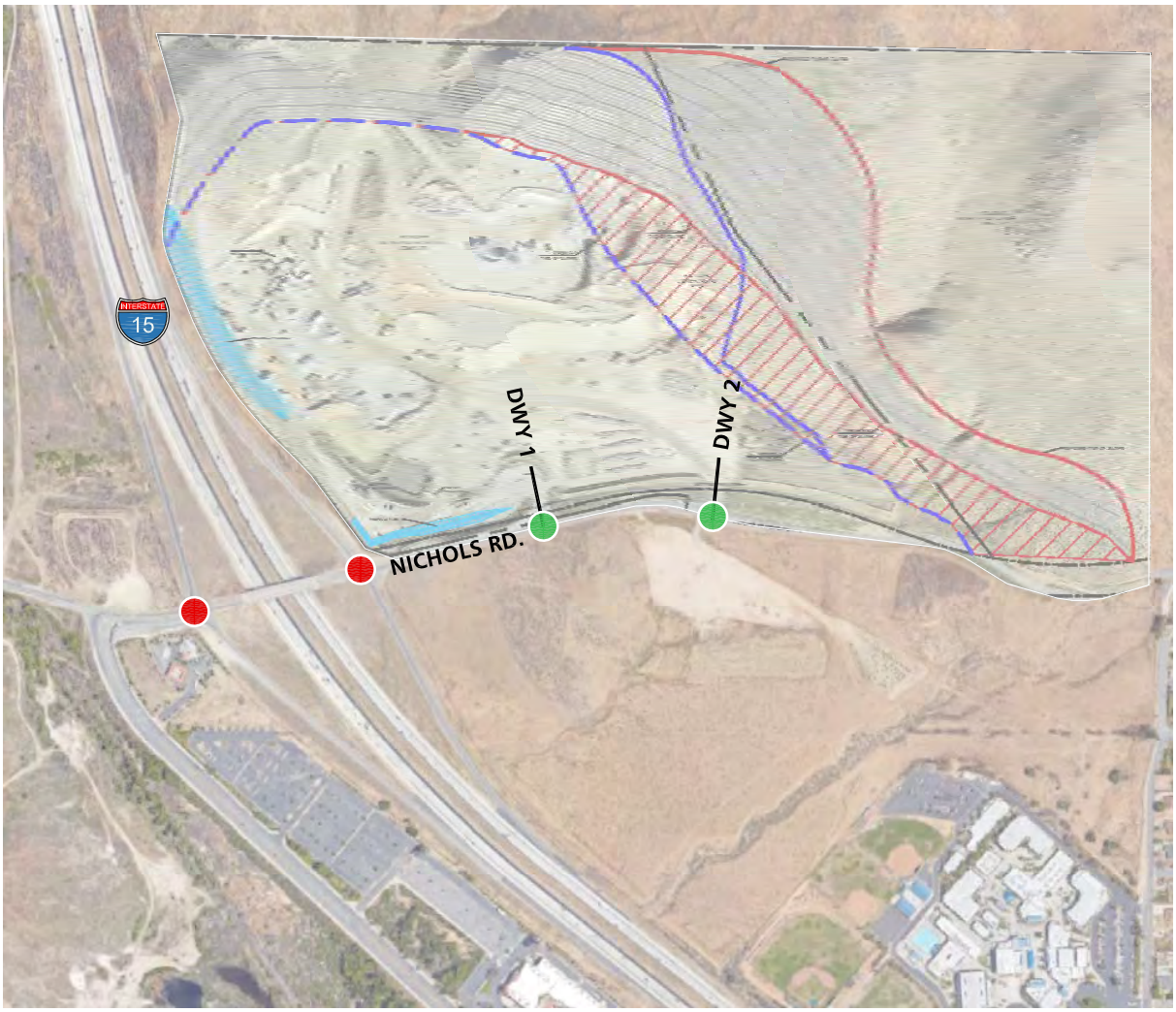
10(10) = AM(PM) PEAK HOUR INTERSECTION VOLUMES
10.0 = VEHICLES PER DAY (1000'S)

Source(s): Urban Crossroads (08-17-2015)

NOT TO SCALE

Figure 4.9-11

EAPC (2016) TRAFFIC VOLUMES (IN PCE)



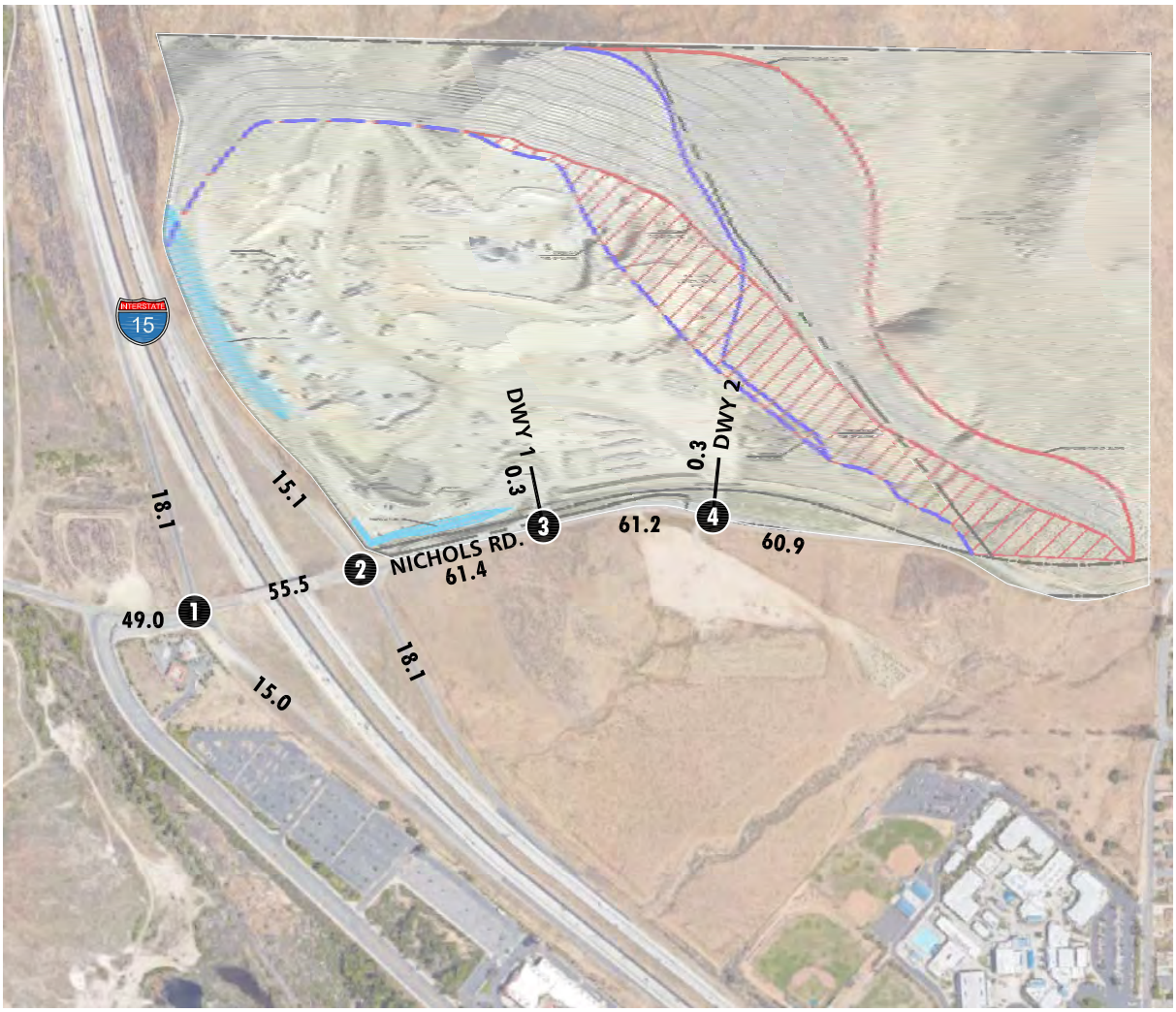
LEGEND:

- AM PEAK HOUR ACCEPTABLE LOS
- AM PEAK HOUR DEFICIENT LOS
- PM PEAK HOUR ACCEPTABLE LOS
- PM PEAK HOUR DEFICIENT LOS

Source(s): Urban Crossroads (08-17-2015)

NOT TO SCALE

Figure 4.9-12
SUMMARY OF PEAK HOUR INTERSECTION LOS FOR EAPC (2016) CONDITIONS



1 I-15 SB Ramps & Nichols Rd.	2 I-15 NB Ramps & Nichols Rd.	3 Driveway 1 & Nichols Rd.	4 Driveway 2 & Nichols Rd.
748(710) 0(0) 480(849) ← 1143(1632) ← 639(780)	566(562) ← 1489(1963)	72(32) ← 1983(2493)	0(0) 0(0) ← 0(0) ← 1983(2493)
1608(1899) → 489(608) →	607(770) → 1481(1979) → 293(449) 0(0) 966(757)	2447(2736) →	81(30) → 2366(2706) →

LEGEND:

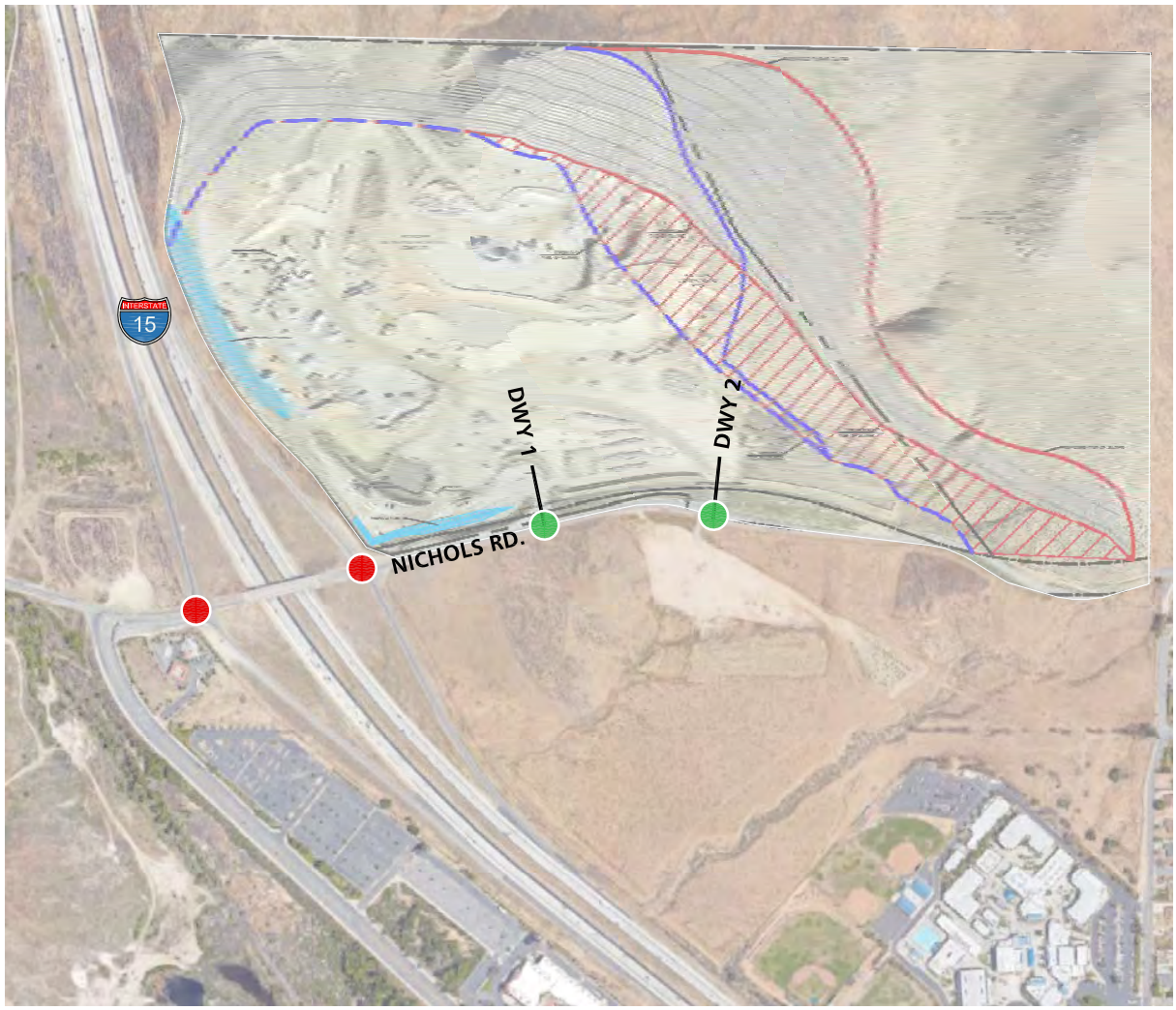
10(10) = AM(PM) PEAK HOUR INTERSECTION VOLUMES
10.0 = VEHICLES PER DAY (1000'S)

Source(s): Urban Crossroads (08-17-2015)

Figure 4.9-13

NOT TO SCALE

HORIZON YEAR (2035) WITH PROJECT TRAFFIC VOLUMES (IN PCE)



LEGEND:

- AM PEAK HOUR ACCEPTABLE LOS
- AM PEAK HOUR DEFICIENT LOS
- PM PEAK HOUR ACCEPTABLE LOS
- PM PEAK HOUR DEFICIENT LOS

Source(s): Urban Crossroads (08-17-2015)

NOT TO SCALE

Figure 4.9-14
SUMMARY OF PEAK HOUR INTERSECTION LOS FOR HORIZON YEAR (2035) WITH PROJECT CONDITIONS