

APPENDIX I

EXISTING TRAFFIC CONDITIONS FREEWAY MERGE AND DIVERGE SEGMENTS LEVEL OF SERVICE CALCULATION WORKSHEETS

APPENDIX I-I

EXISTING TRAFFIC CONDITIONS

RAMPS AND RAMP JUNCTIONS WORKSHEET									
General Information					Site Information				
Analyst		JT		Freeway/Dir of Travel		I-15 Northbound			
Agency or Company		LLG		Junction		Railroad Canyon Road Off-Ramp			
Date Performed		1/12/17		Jurisdiction					
Analysis Time Period		Weekday AM Peak Hour		Analysis Year		Existing			
Project Description 2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore									
Inputs									
Upstream Adj Ramp ☐ Yes ☐ On ☒ No ☐ Off L _{up} = ft V _u = veh/h		Freeway Number of Lanes, N 3				Downstream Adj Ramp ☒ Yes ☒ On ☐ No ☐ Off L _{down} = 2390 ft V _D = 1494 veh/h			
		Ramp Number of Lanes, N 1							
		Acceleration Lane Length, L _A							
		Deceleration Lane Length L _D 260							
		Freeway Volume, V _F 3121							
		Ramp Volume, V _R 523							
Freeway Free-Flow Speed, S _{FF} 65.0									
Ramp Free-Flow Speed, S _{FR} 35.0									
Conversion to pc/h Under Base Conditions									
(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f _{HV}	f _p	v = V/PHF × f _{HV} × f _p	
Freeway	3121	0.95	Level	2	0	0.990	1.00	3318	
Ramp	523	0.95	Level	2	0	0.990	1.00	556	
UpStream									
DownStream	1494	0.95	Level	2	0	0.990	1.00	1588	
Merge Areas					Diverge Areas				
Estimation of v₁₂					Estimation of v₁₂				
$V_{12} = V_F (P_{FM})$ L _{EQ} = (Equation 13-6 or 13-7) P _{FM} = using Equation (Exhibit 13-6) V ₁₂ = pc/h V ₃ or V _{av34} pc/h (Equation 13-14 or 13-17) Is V ₃ or V _{av34} > 2,700 pc/h? ☐ Yes ☐ No Is V ₃ or V _{av34} > 1.5 * V ₁₂ /2 ☐ Yes ☐ No If Yes, V _{12a} = pc/h (Equation 13-16, 13-18, or 13-19)					$V_{12} = V_R + (V_F - V_R)P_{FD}$ L _{EQ} = (Equation 13-12 or 13-13) P _{FD} = 0.651 using Equation (Exhibit 13-7) V ₁₂ = 2355 pc/h V ₃ or V _{av34} 963 pc/h (Equation 13-14 or 13-17) Is V ₃ or V _{av34} > 2,700 pc/h? ☐ Yes ☒ No Is V ₃ or V _{av34} > 1.5 * V ₁₂ /2 ☐ Yes ☒ No If Yes, V _{12a} = pc/h (Equation 13-16, 13-18, or 13-19)				
Capacity Checks					Capacity Checks				
	Actual	Capacity		LOS F?		Actual	Capacity		LOS F?
V _{FO}		Exhibit 13-8			V _F	3318	Exhibit 13-8	7050	No
				V _{FO} = V _F - V _R	2762	Exhibit 13-8	7050	No	
				V _R	556	Exhibit 13-10	2000	No	
Flow Entering Merge Influence Area					Flow Entering Diverge Influence Area				
	Actual	Max Desirable		Violation?		Actual	Max Desirable		Violation?
V _{R12}		Exhibit 13-8			V ₁₂	2355	Exhibit 13-8	4400:All	No
Level of Service Determination (if not F)					Level of Service Determination (if not F)				
$D_R = 5.475 + 0.00734 v_R + 0.0078 V_{12} - 0.00627 L_A$ D _R = (pc/mi/ln) LOS = (Exhibit 13-2)					$D_R = 4.252 + 0.0086 V_{12} - 0.009 L_D$ D _R = 22.2 (pc/mi/ln) LOS = C (Exhibit 13-2)				
Speed Determination					Speed Determination				
M _S = (Exhibit 13-11) S _R = mph (Exhibit 13-11) S ₀ = mph (Exhibit 13-11) S = mph (Exhibit 13-13)					D _s = 0.478 (Exhibit 13-12) S _R = 54.0 mph (Exhibit 13-12) S ₀ = 71.3 mph (Exhibit 13-12) S = 58.1 mph (Exhibit 13-13)				

RAMPS AND RAMP JUNCTIONS WORKSHEET									
General Information					Site Information				
Analyst		JT		Freeway/Dir of Travel		I-15 Northbound			
Agency or Company		LLG		Junction		Railroad Canyon Road On-Ramp			
Date Performed		1/12/17		Jurisdiction					
Analysis Time Period		Weekday AM Peak Hour		Analysis Year		Existing			
Project Description 2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore									
Inputs									
Upstream Adj Ramp ☒ Yes ☐ On ☐ No ☒ Off L _{up} = 2390 ft V _u = 523 veh/h		Freeway Number of Lanes, N 3				Downstream Adj Ramp ☐ Yes ☐ On ☒ No ☐ Off L _{down} = ft V _D = veh/h			
		Ramp Number of Lanes, N 1							
		Acceleration Lane Length, L _A 550							
		Deceleration Lane Length L _D							
		Freeway Volume, V _F 2598							
		Ramp Volume, V _R 1494							
		Freeway Free-Flow Speed, S _{FF} 65.0							
		Ramp Free-Flow Speed, S _{FR} 35.0							
Conversion to pc/h Under Base Conditions									
(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f _{HV}	f _p	v = V/PHF × f _{HV} × f _p	
Freeway	2598	0.95	Level	2	0	0.990	1.00	2762	
Ramp	1494	0.95	Level	2	0	0.990	1.00	1588	
UpStream	523	0.95	Level	2	0	0.990	1.00	556	
DownStream									
Merge Areas					Diverge Areas				
Estimation of v₁₂					Estimation of v₁₂				
$V_{12} = V_F (P_{FM})$ $L_{EQ} = 603.30 \text{ (Equation 13-6 or 13-7)}$ $P_{FM} = 0.593 \text{ using Equation (Exhibit 13-6)}$ $V_{12} = 1638 \text{ pc/h}$ $V_3 \text{ or } V_{av34} = 1124 \text{ pc/h (Equation 13-14 or 13-17)}$ $\text{Is } V_3 \text{ or } V_{av34} > 2,700 \text{ pc/h? } \quad \text{Yes } \text{No}$ $\text{Is } V_3 \text{ or } V_{av34} > 1.5 * V_{12}/2 \quad \text{Yes } \text{No}$ $\text{If Yes, } V_{12a} = 1638 \text{ pc/h (Equation 13-16, 13-18, or 13-19)}$					$V_{12} = V_R + (V_F - V_R)P_{FD}$ $L_{EQ} = \text{ (Equation 13-12 or 13-13)}$ $P_{FD} = \text{ using Equation (Exhibit 13-7)}$ $V_{12} = \text{ pc/h}$ $V_3 \text{ or } V_{av34} = \text{ pc/h (Equation 13-14 or 13-17)}$ $\text{Is } V_3 \text{ or } V_{av34} > 2,700 \text{ pc/h? } \quad \text{Yes } \text{No}$ $\text{Is } V_3 \text{ or } V_{av34} > 1.5 * V_{12}/2 \quad \text{Yes } \text{No}$ $\text{If Yes, } V_{12a} = \text{ pc/h (Equation 13-16, 13-18, or 13-19)}$				
Capacity Checks					Capacity Checks				
	Actual	Capacity		LOS F?		Actual	Capacity		LOS F?
V _{FO}	4350	Exhibit 13-8		No	V _F		Exhibit 13-8		
					V _{FO} = V _F - V _R		Exhibit 13-8		
					V _R		Exhibit 13-10		
Flow Entering Merge Influence Area					Flow Entering Diverge Influence Area				
	Actual	Max Desirable		Violation?		Actual	Max Desirable		Violation?
V _{R12}	3226	Exhibit 13-8	4600:All	No	V ₁₂		Exhibit 13-8		
Level of Service Determination (if not F)					Level of Service Determination (if not F)				
$D_R = 5.475 + 0.00734 V_R + 0.0078 V_{12} - 0.00627 L_A$ $D_R = 26.5 \text{ (pc/mi/ln)}$ $LOS = C \text{ (Exhibit 13-2)}$					$D_R = 4.252 + 0.0086 V_{12} - 0.009 L_D$ $D_R = \text{ (pc/mi/ln)}$ $LOS = \text{ (Exhibit 13-2)}$				
Speed Determination					Speed Determination				
$M_S = 0.381 \text{ (Exhibit 13-11)}$ $S_R = 56.2 \text{ mph (Exhibit 13-11)}$ $S_0 = 62.8 \text{ mph (Exhibit 13-11)}$ $S = 57.8 \text{ mph (Exhibit 13-13)}$					$D_s = \text{ (Exhibit 13-12)}$ $S_R = \text{ mph (Exhibit 13-12)}$ $S_0 = \text{ mph (Exhibit 13-12)}$ $S = \text{ mph (Exhibit 13-13)}$				

RAMPS AND RAMP JUNCTIONS WORKSHEET									
General Information					Site Information				
Analyst		JT		Freeway/Dir of Travel		I-15 Southbound			
Agency or Company		LLG		Junction		Railroad Canyon Road Off-Ramp			
Date Performed		1/12/17		Jurisdiction					
Analysis Time Period		Weekday AM Peak Hour		Analysis Year		Existing			
Project Description 2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore									
Inputs									
Upstream Adj Ramp ☐ Yes ☐ On ☒ No ☐ Off L _{up} = ft V _u = veh/h		Freeway Number of Lanes, N 3				Downstream Adj Ramp ☒ Yes ☒ On ☐ No ☐ Off L _{down} = 2850 ft V _D = 920 veh/h			
		Ramp Number of Lanes, N 1							
		Acceleration Lane Length, L _A							
		Deceleration Lane Length L _D 1300							
		Freeway Volume, V _F 5079							
		Ramp Volume, V _R 971							
Freeway Free-Flow Speed, S _{FF} 65.0									
Ramp Free-Flow Speed, S _{FR} 35.0									
Conversion to pc/h Under Base Conditions									
(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f _{HV}	f _p	v = V/PHF × f _{HV} × f _p	
Freeway	5079	0.95	Level	2	0	0.990	1.00	5400	
Ramp	971	0.95	Level	2	0	0.990	1.00	1032	
UpStream									
DownStream	920	0.95	Level	2	0	0.990	1.00	978	
Merge Areas					Diverge Areas				
Estimation of v₁₂					Estimation of v₁₂				
V ₁₂ = V _F (P _{FM}) (Equation 13-6 or 13-7) L _{EQ} = P _{FM} = using Equation (Exhibit 13-6) V ₁₂ = pc/h V ₃ or V _{av34} pc/h (Equation 13-14 or 13-17) Is V ₃ or V _{av34} > 2,700 pc/h? ☐ Yes ☐ No Is V ₃ or V _{av34} > 1.5 * V ₁₂ /2 ☐ Yes ☐ No If Yes, V _{12a} = pc/h (Equation 13-16, 13-18, or 13-19)					V ₁₂ = V _R + (V _F - V _R)P _{FD} (Equation 13-12 or 13-13) L _{EQ} = P _{FD} = 0.578 using Equation (Exhibit 13-7) V ₁₂ = 3555 pc/h V ₃ or V _{av34} 1845 pc/h (Equation 13-14 or 13-17) Is V ₃ or V _{av34} > 2,700 pc/h? ☐ Yes ☒ No Is V ₃ or V _{av34} > 1.5 * V ₁₂ /2 ☐ Yes ☒ No If Yes, V _{12a} = pc/h (Equation 13-16, 13-18, or 13-19)				
Capacity Checks					Capacity Checks				
	Actual	Capacity		LOS F?		Actual	Capacity		LOS F?
V _{FO}		Exhibit 13-8			V _F	5400	Exhibit 13-8	7050	No
				V _{FO} = V _F - V _R	4368	Exhibit 13-8	7050	No	
				V _R	1032	Exhibit 13-10	2000	No	
Flow Entering Merge Influence Area					Flow Entering Diverge Influence Area				
	Actual	Max Desirable		Violation?		Actual	Max Desirable		Violation?
V _{R12}		Exhibit 13-8			V ₁₂	3555	Exhibit 13-8	4400:All	No
Level of Service Determination (if not F)					Level of Service Determination (if not F)				
D _R = 5.475 + 0.00734 v _R + 0.0078 V ₁₂ - 0.00627 L _A					D _R = 4.252 + 0.0086 V ₁₂ - 0.009 L _D				
D _R = (pc/mi/ln)					D _R = 23.1 (pc/mi/ln)				
LOS = (Exhibit 13-2)					LOS = C (Exhibit 13-2)				
Speed Determination					Speed Determination				
M _S = (Exhibit 13-11)					D _S = 0.521 (Exhibit 13-12)				
S _R = mph (Exhibit 13-11)					S _R = 53.0 mph (Exhibit 13-12)				
S _O = mph (Exhibit 13-11)					S _O = 68.0 mph (Exhibit 13-12)				
S = mph (Exhibit 13-13)					S = 57.3 mph (Exhibit 13-13)				

RAMPS AND RAMP JUNCTIONS WORKSHEET									
General Information					Site Information				
Analyst		JT		Freeway/Dir of Travel		I-15 Southbound			
Agency or Company		LLG		Junction		Railroad Canyon Road On-Ramp			
Date Performed		1/12/17		Jurisdiction					
Analysis Time Period		Weekday AM Peak Hour		Analysis Year		Existing			
Project Description 2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore									
Inputs									
Upstream Adj Ramp		Freeway Number of Lanes, N				3			
☒ Yes ☐ On		Ramp Number of Lanes, N				1			
☐ No ☒ Off		Acceleration Lane Length, L _A				530			
		Deceleration Lane Length L _D							
L _{up} = 2850 ft		Freeway Volume, V _F				4108			
		Ramp Volume, V _R				920			
V _u = 971 veh/h		Freeway Free-Flow Speed, S _{FF}				65.0			
		Ramp Free-Flow Speed, S _{FR}				35.0			
		Downstream Adj Ramp							
		☐ Yes ☐ On							
		☒ No ☐ Off							
		L _{down} = ft							
		V _D = veh/h							
Conversion to pc/h Under Base Conditions									
(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f _{HV}	f _p	v = V/PHF x f _{HV} x f _p	
Freeway	4108	0.95	Level	2	0	0.990	1.00	4367	
Ramp	920	0.95	Level	2	0	0.990	1.00	978	
UpStream	971	0.95	Level	2	0	0.990	1.00	1032	
DownStream									
Merge Areas					Diverge Areas				
Estimation of v₁₂					Estimation of v₁₂				
$V_{12} = V_F (P_{FM})$ $L_{EQ} = 807.35 \text{ (Equation 13-6 or 13-7)}$ $P_{FM} = 0.592 \text{ using Equation (Exhibit 13-6)}$ $V_{12} = 2587 \text{ pc/h}$ $V_3 \text{ or } V_{av34} = 1780 \text{ pc/h (Equation 13-14 or 13-17)}$ $\text{Is } V_3 \text{ or } V_{av34} > 2,700 \text{ pc/h? } \input type="checkbox"/> \text{ Yes } \input checked="" type="checkbox"/> \text{ No}$ $\text{Is } V_3 \text{ or } V_{av34} > 1.5 * V_{12}/2 \text{ } \input checked="" type="checkbox"/> \text{ Yes } \input type="checkbox"/> \text{ No}$ $\text{If Yes, } V_{12a} = 2587 \text{ pc/h (Equation 13-16, 13-18, or 13-19)}$					$V_{12} = V_R + (V_F - V_R)P_{FD}$ $L_{EQ} = \text{ (Equation 13-12 or 13-13)}$ $P_{FD} = \text{ using Equation (Exhibit 13-7)}$ $V_{12} = \text{ pc/h}$ $V_3 \text{ or } V_{av34} = \text{ pc/h (Equation 13-14 or 13-17)}$ $\text{Is } V_3 \text{ or } V_{av34} > 2,700 \text{ pc/h? } \input type="checkbox"/> \text{ Yes } \input type="checkbox"/> \text{ No}$ $\text{Is } V_3 \text{ or } V_{av34} > 1.5 * V_{12}/2 \text{ } \input type="checkbox"/> \text{ Yes } \input type="checkbox"/> \text{ No}$ $\text{If Yes, } V_{12a} = \text{ pc/h (Equation 13-16, 13-18, or 13-19)}$				
Capacity Checks					Capacity Checks				
	Actual	Capacity		LOS F?		Actual	Capacity		LOS F?
V _{FO}	5345	Exhibit 13-8		No	V _F		Exhibit 13-8		
					V _{FO} = V _F - V _R		Exhibit 13-8		
					V _R		Exhibit 13-10		
Flow Entering Merge Influence Area					Flow Entering Diverge Influence Area				
	Actual	Max Desirable		Violation?		Actual	Max Desirable		Violation?
V _{R12}	3565	Exhibit 13-8	4600:All	No	V ₁₂		Exhibit 13-8		
Level of Service Determination (if not F)					Level of Service Determination (if not F)				
$D_R = 5.475 + 0.00734 v_R + 0.0078 V_{12} - 0.00627 L_A$ $D_R = 29.5 \text{ (pc/mi/ln)}$ $LOS = D \text{ (Exhibit 13-2)}$					$D_R = 4.252 + 0.0086 V_{12} - 0.009 L_D$ $D_R = \text{ (pc/mi/ln)}$ $LOS = \text{ (Exhibit 13-2)}$				
Speed Determination					Speed Determination				
$M_S = 0.422 \text{ (Exhibit 13-11)}$ $S_R = 55.3 \text{ mph (Exhibit 13-11)}$ $S_0 = 60.4 \text{ mph (Exhibit 13-11)}$ $S = 56.9 \text{ mph (Exhibit 13-13)}$					$D_s = \text{ (Exhibit 13-12)}$ $S_R = \text{ mph (Exhibit 13-12)}$ $S_0 = \text{ mph (Exhibit 13-12)}$ $S = \text{ mph (Exhibit 13-13)}$				

RAMPS AND RAMP JUNCTIONS WORKSHEET									
General Information					Site Information				
Analyst		JT		Freeway/Dir of Travel		I-15 Northbound			
Agency or Company		LLG		Junction		Railroad Canyon Road Off-Ramp			
Date Performed		1/12/17		Jurisdiction					
Analysis Time Period		Weekday PM Peak Hour		Analysis Year		Existing			
Project Description 2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore									
Inputs									
Upstream Adj Ramp ☐ Yes ☐ On ☒ No ☐ Off L _{up} = ft V _u = veh/h		Freeway Number of Lanes, N 3				Downstream Adj Ramp ☒ Yes ☒ On ☐ No ☐ Off L _{down} = 2390 ft V _D = 1004 veh/h			
		Ramp Number of Lanes, N 1							
		Acceleration Lane Length, L _A							
		Deceleration Lane Length L _D 260							
		Freeway Volume, V _F 3984							
		Ramp Volume, V _R 833							
		Freeway Free-Flow Speed, S _{FF} 65.0							
		Ramp Free-Flow Speed, S _{FR} 35.0							
Conversion to pc/h Under Base Conditions									
(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f _{HV}	f _p	v = V/PHF x f _{HV} x f _p	
Freeway	3984	0.95	Level	2	0	0.990	1.00	4236	
Ramp	833	0.95	Level	2	0	0.990	1.00	886	
UpStream									
DownStream	1004	0.95	Level	2	0	0.990	1.00	1067	
Merge Areas					Diverge Areas				
Estimation of v₁₂					Estimation of v₁₂				
$V_{12} = V_F (P_{FM})$ L _{EQ} = (Equation 13-6 or 13-7) P _{FM} = using Equation (Exhibit 13-6) V ₁₂ = pc/h V ₃ or V _{av34} pc/h (Equation 13-14 or 13-17) Is V ₃ or V _{av34} > 2,700 pc/h? ☐ Yes ☐ No Is V ₃ or V _{av34} > 1.5 * V ₁₂ /2 ☐ Yes ☐ No If Yes, V _{12a} = pc/h (Equation 13-16, 13-18, or 13-19)					$V_{12} = V_R + (V_F - V_R)P_{FD}$ L _{EQ} = (Equation 13-12 or 13-13) P _{FD} = 0.613 using Equation (Exhibit 13-7) V ₁₂ = 2941 pc/h V ₃ or V _{av34} 1295 pc/h (Equation 13-14 or 13-17) Is V ₃ or V _{av34} > 2,700 pc/h? ☐ Yes ☒ No Is V ₃ or V _{av34} > 1.5 * V ₁₂ /2 ☐ Yes ☒ No If Yes, V _{12a} = pc/h (Equation 13-16, 13-18, or 13-19)				
Capacity Checks					Capacity Checks				
	Actual	Capacity		LOS F?		Actual	Capacity		LOS F?
V _{FO}		Exhibit 13-8			V _F	4236	Exhibit 13-8	7050	No
				V _{FO} = V _F - V _R	3350	Exhibit 13-8	7050	No	
				V _R	886	Exhibit 13-10	2000	No	
Flow Entering Merge Influence Area					Flow Entering Diverge Influence Area				
	Actual	Max Desirable		Violation?		Actual	Max Desirable		Violation?
V _{R12}		Exhibit 13-8			V ₁₂	2941	Exhibit 13-8	4400:All	No
Level of Service Determination (if not F)					Level of Service Determination (if not F)				
$D_R = 5.475 + 0.00734 v_R + 0.0078 V_{12} - 0.00627 L_A$ D _R = (pc/mi/ln) LOS = (Exhibit 13-2)					$D_R = 4.252 + 0.0086 V_{12} - 0.009 L_D$ D _R = 27.2 (pc/mi/ln) LOS = C (Exhibit 13-2)				
Speed Determination					Speed Determination				
M _S = (Exhibit 13-11) S _R = mph (Exhibit 13-11) S ₀ = mph (Exhibit 13-11) S = mph (Exhibit 13-13)					D _s = 0.508 (Exhibit 13-12) S _R = 53.3 mph (Exhibit 13-12) S ₀ = 70.2 mph (Exhibit 13-12) S = 57.5 mph (Exhibit 13-13)				

RAMPS AND RAMP JUNCTIONS WORKSHEET									
General Information					Site Information				
Analyst		JT		Freeway/Dir of Travel		I-15 Northbound			
Agency or Company		LLG		Junction		Railroad Canyon Road On-Ramp			
Date Performed		1/12/17		Jurisdiction					
Analysis Time Period		Weekday PM Peak Hour		Analysis Year		Existing			
Project Description 2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore									
Inputs									
Upstream Adj Ramp ☒ Yes ☐ On ☐ No ☒ Off L _{up} = 2390 ft V _u = 833 veh/h		Freeway Number of Lanes, N 3				Downstream Adj Ramp ☐ Yes ☐ On ☒ No ☐ Off L _{down} = ft V _D = veh/h			
		Ramp Number of Lanes, N 1							
		Acceleration Lane Length, L _A 550							
		Deceleration Lane Length L _D							
		Freeway Volume, V _F 3151							
		Ramp Volume, V _R 1004							
		Freeway Free-Flow Speed, S _{FF} 65.0							
		Ramp Free-Flow Speed, S _{FR} 35.0							
Conversion to pc/h Under Base Conditions									
(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f _{HV}	f _p	v = V/PHF x f _{HV} x f _p	
Freeway	3151	0.95	Level	2	0	0.990	1.00	3350	
Ramp	1004	0.95	Level	2	0	0.990	1.00	1067	
UpStream	833	0.95	Level	2	0	0.990	1.00	886	
DownStream									
Merge Areas					Diverge Areas				
Estimation of v₁₂					Estimation of v₁₂				
$V_{12} = V_F (P_{FM})$ L _{EQ} = 617.64 (Equation 13-6 or 13-7) P _{FM} = 0.593 using Equation (Exhibit 13-6) V ₁₂ = 1986 pc/h V ₃ or V _{av34} 1364 pc/h (Equation 13-14 or 13-17) Is V ₃ or V _{av34} > 2,700 pc/h? ☐ Yes ☒ No Is V ₃ or V _{av34} > 1.5 * V ₁₂ /2 ☒ Yes ☐ No If Yes, V _{12a} = 1986 pc/h (Equation 13-16, 13-18, or 13-19)					$V_{12} = V_R + (V_F - V_R)P_{FD}$ L _{EQ} = (Equation 13-12 or 13-13) P _{FD} = using Equation (Exhibit 13-7) V ₁₂ = pc/h V ₃ or V _{av34} pc/h (Equation 13-14 or 13-17) Is V ₃ or V _{av34} > 2,700 pc/h? ☐ Yes ☐ No Is V ₃ or V _{av34} > 1.5 * V ₁₂ /2 ☐ Yes ☐ No If Yes, V _{12a} = pc/h (Equation 13-16, 13-18, or 13-19)				
Capacity Checks					Capacity Checks				
	Actual	Capacity		LOS F?		Actual	Capacity		LOS F?
V _{FO}	4417	Exhibit 13-8		No	V _F		Exhibit 13-8		
					V _{FO} = V _F - V _R		Exhibit 13-8		
					V _R		Exhibit 13-10		
Flow Entering Merge Influence Area					Flow Entering Diverge Influence Area				
	Actual	Max Desirable		Violation?		Actual	Max Desirable		Violation?
V _{R12}	3053	Exhibit 13-8	4600:All	No	V ₁₂		Exhibit 13-8		
Level of Service Determination (if not F)					Level of Service Determination (if not F)				
D _R = 5.475 + 0.00734 v _R + 0.0078 V ₁₂ - 0.00627 L _A D _R = 25.3 (pc/mi/ln) LOS = C (Exhibit 13-2)					D _R = 4.252 + 0.0086 V ₁₂ - 0.009 L _D D _R = (pc/mi/ln) LOS = (Exhibit 13-2)				
Speed Determination					Speed Determination				
M _S = 0.365 (Exhibit 13-11) S _R = 56.6 mph (Exhibit 13-11) S ₀ = 61.9 mph (Exhibit 13-11) S = 58.1 mph (Exhibit 13-13)					D _s = (Exhibit 13-12) S _R = mph (Exhibit 13-12) S ₀ = mph (Exhibit 13-12) S = mph (Exhibit 13-13)				

RAMPS AND RAMP JUNCTIONS WORKSHEET									
General Information					Site Information				
Analyst		JT		Freeway/Dir of Travel		I-15 Southbound			
Agency or Company		LLG		Junction		Railroad Canyon Road Off-Ramp			
Date Performed		1/12/17		Jurisdiction					
Analysis Time Period		Weekday PM Peak Hour		Analysis Year		Existing			
Project Description 2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore									
Inputs									
Upstream Adj Ramp ☐ Yes ☐ On ☒ No ☐ Off $L_{up} =$ ft $V_u =$ veh/h		Freeway Number of Lanes, N				3		Downstream Adj Ramp ☒ Yes ☒ On ☐ No ☐ Off $L_{down} =$ 2850 ft $V_D =$ 559 veh/h	
		Ramp Number of Lanes, N				1			
		Acceleration Lane Length, L_A							
		Deceleration Lane Length L_D				1300			
		Freeway Volume, V_F				5164			
		Ramp Volume, V_R				1300			
		Freeway Free-Flow Speed, S_{FF}				65.0			
		Ramp Free-Flow Speed, S_{FR}				35.0			
Conversion to pc/h Under Base Conditions									
(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	$v = V/PHF \times f_{HV} \times f_p$	
Freeway	5164	0.95	Level	2	0	0.990	1.00	5490	
Ramp	1300	0.95	Level	2	0	0.990	1.00	1382	
UpStream									
DownStream	559	0.95	Level	2	0	0.990	1.00	594	
Merge Areas					Diverge Areas				
Estimation of v_{12}					Estimation of v_{12}				
$V_{12} = V_F (P_{FM})$ (Equation 13-6 or 13-7) $P_{FM} =$ using Equation (Exhibit 13-6) $V_{12} =$ pc/h V_3 or V_{av34} pc/h (Equation 13-14 or 13-17) Is V_3 or $V_{av34} > 2,700$ pc/h? ☐ Yes ☐ No Is V_3 or $V_{av34} > 1.5 \times V_{12}/2$ ☐ Yes ☐ No If Yes, $V_{12a} =$ pc/h (Equation 13-16, 13-18, or 13-19)					$V_{12} = V_R + (V_F - V_R)P_{FD}$ (Equation 13-12 or 13-13) $P_{FD} =$ 0.559 using Equation (Exhibit 13-7) $V_{12} =$ 3679 pc/h V_3 or V_{av34} 1811 pc/h (Equation 13-14 or 13-17) Is V_3 or $V_{av34} > 2,700$ pc/h? ☐ Yes ☒ No Is V_3 or $V_{av34} > 1.5 \times V_{12}/2$ ☐ Yes ☒ No If Yes, $V_{12a} =$ pc/h (Equation 13-16, 13-18, or 13-19)				
Capacity Checks					Capacity Checks				
	Actual	Capacity		LOS F?		Actual	Capacity		LOS F?
V_{FO}		Exhibit 13-8			V_F	5490	Exhibit 13-8	7050	No
					$V_{FO} = V_F - V_R$	4108	Exhibit 13-8	7050	No
					V_R	1382	Exhibit 13-10	2000	No
Flow Entering Merge Influence Area					Flow Entering Diverge Influence Area				
	Actual	Max Desirable		Violation?		Actual	Max Desirable		Violation?
V_{R12}		Exhibit 13-8			V_{12}	3679	Exhibit 13-8	4400:All	No
Level of Service Determination (if not F)					Level of Service Determination (if not F)				
$D_R = 5.475 + 0.00734 v_R + 0.0078 V_{12} - 0.00627 L_A$ $D_R =$ (pc/mi/ln) LOS = (Exhibit 13-2)					$D_R = 4.252 + 0.0086 V_{12} - 0.009 L_D$ $D_R =$ 24.2 (pc/mi/ln) LOS = C (Exhibit 13-2)				
Speed Determination					Speed Determination				
$M_S =$ (Exhibit 13-11) $S_R =$ mph (Exhibit 13-11) $S_0 =$ mph (Exhibit 13-11) $S =$ mph (Exhibit 13-13)					$D_s =$ 0.552 (Exhibit 13-12) $S_R =$ 52.3 mph (Exhibit 13-12) $S_0 =$ 68.1 mph (Exhibit 13-12) $S =$ 56.6 mph (Exhibit 13-13)				

RAMPS AND RAMP JUNCTIONS WORKSHEET									
General Information					Site Information				
Analyst		JT		Freeway/Dir of Travel		I-15 Southbound			
Agency or Company		LLG		Junction		Railroad Canyon Road On-Ramp			
Date Performed		1/12/17		Jurisdiction					
Analysis Time Period		Weekday PM Peak Hour		Analysis Year		Existing			
Project Description 2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore									
Inputs									
Upstream Adj Ramp		Freeway Number of Lanes, N				3		Downstream Adj Ramp	
☒ Yes ☐ On		Ramp Number of Lanes, N				1		☐ Yes ☐ On	
☐ No ☒ Off		Acceleration Lane Length, L_A				530		☒ No ☐ Off	
$L_{up} = 2850$ ft		Deceleration Lane Length L_D						$L_{down} =$ ft	
$V_u = 1300$ veh/h		Freeway Volume, V_F				3864		$V_D =$ veh/h	
		Ramp Volume, V_R				559			
		Freeway Free-Flow Speed, S_{FF}				65.0			
		Ramp Free-Flow Speed, S_{FR}				35.0			
Conversion to pc/h Under Base Conditions									
(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	$v = V/PHF \times f_{HV} \times f_p$	
Freeway	3864	0.95	Level	2	0	0.990	1.00	4108	
Ramp	559	0.95	Level	2	0	0.990	1.00	594	
UpStream	1300	0.95	Level	2	0	0.990	1.00	1382	
DownStream									
Merge Areas					Diverge Areas				
Estimation of v_{12}					Estimation of v_{12}				
$V_{12} = V_F (P_{FM})$					$V_{12} = V_R + (V_F - V_R)P_{FD}$				
$L_{EQ} = 669.75$ (Equation 13-6 or 13-7)					$L_{EQ} =$ (Equation 13-12 or 13-13)				
$P_{FM} = 0.592$ using Equation (Exhibit 13-6)					$P_{FD} =$ using Equation (Exhibit 13-7)				
$V_{12} = 2433$ pc/h					$V_{12} =$ pc/h				
V_3 or $V_{av34} = 1675$ pc/h (Equation 13-14 or 13-17)					V_3 or $V_{av34} =$ pc/h (Equation 13-14 or 13-17)				
Is V_3 or $V_{av34} > 2,700$ pc/h? ☐ Yes ☒ No					Is V_3 or $V_{av34} > 2,700$ pc/h? ☐ Yes ☐ No				
Is V_3 or $V_{av34} > 1.5 * V_{12}/2$ ☒ Yes ☐ No					Is V_3 or $V_{av34} > 1.5 * V_{12}/2$ ☐ Yes ☐ No				
If Yes, $V_{12a} = 2433$ pc/h (Equation 13-16, 13-18, or 13-19)					If Yes, $V_{12a} =$ pc/h (Equation 13-16, 13-18, or 13-19)				
Capacity Checks					Capacity Checks				
	Actual	Capacity		LOS F?		Actual	Capacity		LOS F?
V_{FO}	4702	Exhibit 13-8		No	V_F		Exhibit 13-8		
					$V_{FO} = V_F - V_R$		Exhibit 13-8		
					V_R		Exhibit 13-10		
Flow Entering Merge Influence Area					Flow Entering Diverge Influence Area				
	Actual	Max Desirable		Violation?		Actual	Max Desirable		Violation?
V_{R12}	3027	Exhibit 13-8	4600:All	No	V_{12}		Exhibit 13-8		
Level of Service Determination (if not F)					Level of Service Determination (if not F)				
$D_R = 5.475 + 0.00734 v_R + 0.0078 V_{12} - 0.00627 L_A$					$D_R = 4.252 + 0.0086 V_{12} - 0.009 L_D$				
$D_R = 25.5$ (pc/mi/ln)					$D_R =$ (pc/mi/ln)				
LOS = C (Exhibit 13-2)					LOS = (Exhibit 13-2)				
Speed Determination					Speed Determination				
$M_S = 0.364$ (Exhibit 13-11)					$D_S =$ (Exhibit 13-12)				
$S_R = 56.6$ mph (Exhibit 13-11)					$S_R =$ mph (Exhibit 13-12)				
$S_0 = 60.8$ mph (Exhibit 13-11)					$S_0 =$ mph (Exhibit 13-12)				
$S = 58.0$ mph (Exhibit 13-13)					$S =$ mph (Exhibit 13-13)				

APPENDIX I-II

**EXISTING WITH ELSP PROJECT BUILDOUT
TRAFFIC CONDITIONS**

RAMPS AND RAMP JUNCTIONS WORKSHEET									
General Information					Site Information				
Analyst		JT		Freeway/Dir of Travel		I-15 Northbound			
Agency or Company		LLG		Junction		Railroad Canyon Road Off-Ramp			
Date Performed		1/12/17		Jurisdiction					
Analysis Time Period		Weekday AM Peak Hour		Analysis Year		Existing + Project (Buildout)			
Project Description 2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore									
Inputs									
Upstream Adj Ramp ☐ Yes ☐ On ☒ No ☐ Off L _{up} = ft V _u = veh/h		Freeway Number of Lanes, N 3				Downstream Adj Ramp ☒ Yes ☒ On ☐ No ☐ Off L _{down} = 2390 ft V _D = 1509 veh/h			
		Ramp Number of Lanes, N 1							
		Acceleration Lane Length, L _A							
		Deceleration Lane Length L _D 260							
		Freeway Volume, V _F 3089							
		Ramp Volume, V _R 483							
		Freeway Free-Flow Speed, S _{FF} 65.0							
		Ramp Free-Flow Speed, S _{FR} 35.0							
Conversion to pc/h Under Base Conditions									
(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f _{HV}	f _p	v = V/PHF × f _{HV} × f _p	
Freeway	3089	0.95	Level	2	0	0.990	1.00	3284	
Ramp	483	0.95	Level	2	0	0.990	1.00	514	
UpStream									
DownStream	1509	0.95	Level	2	0	0.990	1.00	1604	
Merge Areas					Diverge Areas				
Estimation of v₁₂					Estimation of v₁₂				
V ₁₂ = V _F (P _{FM}) (Equation 13-6 or 13-7) L _{EQ} = P _{FM} = using Equation (Exhibit 13-6) V ₁₂ = pc/h V ₃ or V _{av34} pc/h (Equation 13-14 or 13-17) Is V ₃ or V _{av34} > 2,700 pc/h? ☐ Yes ☐ No Is V ₃ or V _{av34} > 1.5 * V ₁₂ /2 ☐ Yes ☐ No If Yes, V _{12a} = pc/h (Equation 13-16, 13-18, or 13-19)					V ₁₂ = V _R + (V _F - V _R)P _{FD} (Equation 13-12 or 13-13) L _{EQ} = P _{FD} = 0.654 using Equation (Exhibit 13-7) V ₁₂ = 2326 pc/h V ₃ or V _{av34} 958 pc/h (Equation 13-14 or 13-17) Is V ₃ or V _{av34} > 2,700 pc/h? ☐ Yes ☒ No Is V ₃ or V _{av34} > 1.5 * V ₁₂ /2 ☐ Yes ☒ No If Yes, V _{12a} = pc/h (Equation 13-16, 13-18, or 13-19)				
Capacity Checks					Capacity Checks				
	Actual	Capacity		LOS F?		Actual	Capacity		LOS F?
V _{FO}		Exhibit 13-8			V _F	3284	Exhibit 13-8	7050	No
			V _{FO} = V _F - V _R	2770	Exhibit 13-8	7050	No		
			V _R	514	Exhibit 13-10	2000	No		
Flow Entering Merge Influence Area					Flow Entering Diverge Influence Area				
	Actual	Max Desirable		Violation?		Actual	Max Desirable		Violation?
V _{R12}		Exhibit 13-8			V ₁₂	2326	Exhibit 13-8	4400:All	No
Level of Service Determination (if not F)					Level of Service Determination (if not F)				
D _R = 5.475 + 0.00734 v _R + 0.0078 V ₁₂ - 0.00627 L _A D _R = (pc/mi/ln) LOS = (Exhibit 13-2)					D _R = 4.252 + 0.0086 V ₁₂ - 0.009 L _D D _R = 21.9 (pc/mi/ln) LOS = C (Exhibit 13-2)				
Speed Determination					Speed Determination				
M _S = (Exhibit 13-11) S _R = mph (Exhibit 13-11) S ₀ = mph (Exhibit 13-11) S = mph (Exhibit 13-13)					D _s = 0.474 (Exhibit 13-12) S _R = 54.1 mph (Exhibit 13-12) S ₀ = 71.3 mph (Exhibit 13-12) S = 58.2 mph (Exhibit 13-13)				

RAMPS AND RAMP JUNCTIONS WORKSHEET									
General Information					Site Information				
Analyst	JT		Freeway/Dir of Travel	I-15 Northbound					
Agency or Company	LLG		Junction	Railroad Canyon Road On-Ramp					
Date Performed	1/12/17		Jurisdiction						
Analysis Time Period	Weekday AM Peak Hour		Analysis Year	Existing + Project (Buildout)					
Project Description 2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore									
Inputs									
Upstream Adj Ramp ☒ Yes ☐ On ☐ No ☒ Off L _{up} = 2390 ft V _u = 483 veh/h		Freeway Number of Lanes, N				3		Downstream Adj Ramp ☐ Yes ☐ On ☒ No ☐ Off L _{down} = ft V _D = veh/h	
		Ramp Number of Lanes, N				1			
		Acceleration Lane Length, L _A				550			
		Deceleration Lane Length L _D							
		Freeway Volume, V _F				2606			
		Ramp Volume, V _R				1509			
Freeway Free-Flow Speed, S _{FF}				65.0					
Ramp Free-Flow Speed, S _{FR}				35.0					
Conversion to pc/h Under Base Conditions									
(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f _{HV}	f _p	v = V/PHF x f _{HV} x f _p	
Freeway	2606	0.95	Level	2	0	0.990	1.00	2771	
Ramp	1509	0.95	Level	2	0	0.990	1.00	1604	
UpStream	483	0.95	Level	2	0	0.990	1.00	514	
DownStream									
Merge Areas					Diverge Areas				
Estimation of v₁₂					Estimation of v₁₂				
$V_{12} = V_F (P_{FM})$ L _{EQ} = 608.65 (Equation 13-6 or 13-7) P _{FM} = 0.593 using Equation (Exhibit 13-6) V ₁₂ = 1643 pc/h V ₃ or V _{av34} = 1128 pc/h (Equation 13-14 or 13-17) Is V ₃ or V _{av34} > 2,700 pc/h? ☐ Yes ☒ No Is V ₃ or V _{av34} > 1.5 * V ₁₂ /2 ☒ Yes ☐ No If Yes, V _{12a} = 1643 pc/h (Equation 13-16, 13-18, or 13-19)					$V_{12} = V_R + (V_F - V_R)P_{FD}$ L _{EQ} = (Equation 13-12 or 13-13) P _{FD} = using Equation (Exhibit 13-7) V ₁₂ = pc/h V ₃ or V _{av34} = pc/h (Equation 13-14 or 13-17) Is V ₃ or V _{av34} > 2,700 pc/h? ☐ Yes ☐ No Is V ₃ or V _{av34} > 1.5 * V ₁₂ /2 ☐ Yes ☐ No If Yes, V _{12a} = pc/h (Equation 13-16, 13-18, or 13-19)				
Capacity Checks					Capacity Checks				
	Actual	Capacity		LOS F?		Actual	Capacity		LOS F?
V _{FO}	4375	Exhibit 13-8		No	V _F		Exhibit 13-8		
					V _{FO} = V _F - V _R		Exhibit 13-8		
					V _R		Exhibit 13-10		
Flow Entering Merge Influence Area					Flow Entering Diverge Influence Area				
	Actual	Max Desirable		Violation?		Actual	Max Desirable		Violation?
V _{R12}	3247	Exhibit 13-8	4600:All	No	V ₁₂		Exhibit 13-8		
Level of Service Determination (if not F)					Level of Service Determination (if not F)				
$D_R = 5.475 + 0.00734 V_R + 0.0078 V_{12} - 0.00627 L_A$ D _R = 26.6 (pc/mi/ln) LOS = C (Exhibit 13-2)					$D_R = 4.252 + 0.0086 V_{12} - 0.009 L_D$ D _R = (pc/mi/ln) LOS = (Exhibit 13-2)				
Speed Determination					Speed Determination				
M _S = 0.383 (Exhibit 13-11) S _R = 56.2 mph (Exhibit 13-11) S ₀ = 62.7 mph (Exhibit 13-11) S = 57.7 mph (Exhibit 13-13)					D _S = (Exhibit 13-12) S _R = mph (Exhibit 13-12) S ₀ = mph (Exhibit 13-12) S = mph (Exhibit 13-13)				

RAMPS AND RAMP JUNCTIONS WORKSHEET									
General Information					Site Information				
Analyst		JT		Freeway/Dir of Travel		I-15 Southbound			
Agency or Company		LLG		Junction		Railroad Canyon Road Off-Ramp			
Date Performed		1/12/17		Jurisdiction					
Analysis Time Period		Weekday AM Peak Hour		Analysis Year		Existing + Project (Buildout)			
Project Description 2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore									
Inputs									
Upstream Adj Ramp ☐ Yes ☐ On ☒ No ☐ Off $L_{up} =$ ft $V_u =$ veh/h		Freeway Number of Lanes, N				3		Downstream Adj Ramp ☒ Yes ☒ On ☐ No ☐ Off $L_{down} =$ 2850 ft $V_D =$ 892 veh/h	
		Ramp Number of Lanes, N				1			
		Acceleration Lane Length, L_A							
		Deceleration Lane Length L_D				1300			
		Freeway Volume, V_F				5061			
		Ramp Volume, V_R				949			
Freeway Free-Flow Speed, S_{FF}				65.0					
Ramp Free-Flow Speed, S_{FR}				35.0					
Conversion to pc/h Under Base Conditions									
(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	$v = V/PHF \times f_{HV} \times f_p$	
Freeway	5061	0.95	Level	2	0	0.990	1.00	5381	
Ramp	949	0.95	Level	2	0	0.990	1.00	1009	
UpStream									
DownStream	892	0.95	Level	2	0	0.990	1.00	948	
Merge Areas					Diverge Areas				
Estimation of v_{12}					Estimation of v_{12}				
$V_{12} = V_F (P_{FM})$ $L_{EQ} =$ (Equation 13-6 or 13-7) $P_{FM} =$ using Equation (Exhibit 13-6) $V_{12} =$ pc/h V_3 or V_{av34} pc/h (Equation 13-14 or 13-17) Is V_3 or $V_{av34} > 2,700$ pc/h? ☐ Yes ☐ No Is V_3 or $V_{av34} > 1.5 * V_{12}/2$ ☐ Yes ☐ No If Yes, $V_{12a} =$ pc/h (Equation 13-16, 13-18, or 13-19)					$V_{12} = V_R + (V_F - V_R)P_{FD}$ $L_{EQ} =$ (Equation 13-12 or 13-13) $P_{FD} =$ 0.579 using Equation (Exhibit 13-7) $V_{12} =$ 3541 pc/h V_3 or V_{av34} 1840 pc/h (Equation 13-14 or 13-17) Is V_3 or $V_{av34} > 2,700$ pc/h? ☐ Yes ☒ No Is V_3 or $V_{av34} > 1.5 * V_{12}/2$ ☐ Yes ☒ No If Yes, $V_{12a} =$ pc/h (Equation 13-16, 13-18, or 13-19)				
Capacity Checks					Capacity Checks				
	Actual	Capacity		LOS F?		Actual	Capacity		LOS F?
V_{FO}		Exhibit 13-8			V_F	5381	Exhibit 13-8	7050	No
			$V_{FO} = V_F - V_R$	4372	Exhibit 13-8	7050	No		
			V_R	1009	Exhibit 13-10	2000	No		
Flow Entering Merge Influence Area					Flow Entering Diverge Influence Area				
	Actual	Max Desirable		Violation?		Actual	Max Desirable		Violation?
V_{R12}		Exhibit 13-8			V_{12}	3541	Exhibit 13-8	4400:All	No
Level of Service Determination (if not F)					Level of Service Determination (if not F)				
$D_R = 5.475 + 0.00734 v_R + 0.0078 V_{12} - 0.00627 L_A$ $D_R =$ (pc/mi/ln) LOS = (Exhibit 13-2)					$D_R = 4.252 + 0.0086 V_{12} - 0.009 L_D$ $D_R =$ 23.0 (pc/mi/ln) LOS = C (Exhibit 13-2)				
Speed Determination					Speed Determination				
$M_S =$ (Exhibit 13-11) $S_R =$ mph (Exhibit 13-11) $S_0 =$ mph (Exhibit 13-11) $S =$ mph (Exhibit 13-13)					$D_s =$ 0.519 (Exhibit 13-12) $S_R =$ 53.1 mph (Exhibit 13-12) $S_0 =$ 68.0 mph (Exhibit 13-12) $S =$ 57.4 mph (Exhibit 13-13)				

RAMPS AND RAMP JUNCTIONS WORKSHEET									
General Information					Site Information				
Analyst	JT		Freeway/Dir of Travel	I-15 Southbound					
Agency or Company	LLG		Junction	Railroad Canyon Road On-Ramp					
Date Performed	1/12/17		Jurisdiction						
Analysis Time Period	Weekday AM Peak Hour		Analysis Year	Existing + Project (Buildout)					
Project Description 2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore									
Inputs									
Upstream Adj Ramp ☒ Yes ☐ On ☐ No ☒ Off $L_{up} =$ 2850 ft $V_u =$ 949 veh/h		Freeway Number of Lanes, N		3		Downstream Adj Ramp ☐ Yes ☐ On ☒ No ☐ Off $L_{down} =$ ft $V_D =$ veh/h			
		Ramp Number of Lanes, N		1					
		Acceleration Lane Length, L_A		530					
		Deceleration Lane Length L_D							
		Freeway Volume, V_F		4112					
		Ramp Volume, V_R		892					
		Freeway Free-Flow Speed, S_{FF}		65.0					
		Ramp Free-Flow Speed, S_{FR}		35.0					
Conversion to pc/h Under Base Conditions									
(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	$v = V/PHF \times f_{HV} \times f_p$	
Freeway	4112	0.95	Level	2	0	0.990	1.00	4372	
Ramp	892	0.95	Level	2	0	0.990	1.00	948	
UpStream	949	0.95	Level	2	0	0.990	1.00	1009	
DownStream									
Merge Areas					Diverge Areas				
Estimation of v_{12}					Estimation of v_{12}				
$V_{12} = V_F (P_{FM})$ $L_{EQ} =$ 802.00 (Equation 13-6 or 13-7) $P_{FM} =$ 0.592 using Equation (Exhibit 13-6) $V_{12} =$ 2590 pc/h V_3 or V_{av34} 1782 pc/h (Equation 13-14 or 13-17) Is V_3 or $V_{av34} > 2,700$ pc/h? ☐ Yes ☒ No Is V_3 or $V_{av34} > 1.5 * V_{12}/2$ ☒ Yes ☐ No If Yes, $V_{12a} =$ 2590 pc/h (Equation 13-16, 13-18, or 13-19)					$V_{12} = V_R + (V_F - V_R)P_{FD}$ $L_{EQ} =$ (Equation 13-12 or 13-13) $P_{FD} =$ using Equation (Exhibit 13-7) $V_{12} =$ pc/h V_3 or V_{av34} pc/h (Equation 13-14 or 13-17) Is V_3 or $V_{av34} > 2,700$ pc/h? ☐ Yes ☐ No Is V_3 or $V_{av34} > 1.5 * V_{12}/2$ ☐ Yes ☐ No If Yes, $V_{12a} =$ pc/h (Equation 13-16, 13-18, or 13-19)				
Capacity Checks					Capacity Checks				
	Actual	Capacity		LOS F?		Actual	Capacity		LOS F?
V_{FO}	5320	Exhibit 13-8		No	V_F		Exhibit 13-8		
					$V_{FO} = V_F - V_R$		Exhibit 13-8		
					V_R		Exhibit 13-10		
Flow Entering Merge Influence Area					Flow Entering Diverge Influence Area				
	Actual	Max Desirable		Violation?		Actual	Max Desirable		Violation?
V_{R12}	3538	Exhibit 13-8	4600:All	No	V_{12}		Exhibit 13-8		
Level of Service Determination (if not F)					Level of Service Determination (if not F)				
$D_R = 5.475 + 0.00734 v_R + 0.0078 V_{12} - 0.00627 L_A$ $D_R =$ 29.3 (pc/mi/ln) LOS = D (Exhibit 13-2)					$D_R = 4.252 + 0.0086 V_{12} - 0.009 L_D$ $D_R =$ (pc/mi/ln) LOS = (Exhibit 13-2)				
Speed Determination					Speed Determination				
$M_S =$ 0.418 (Exhibit 13-11) $S_R =$ 55.4 mph (Exhibit 13-11) $S_0 =$ 60.4 mph (Exhibit 13-11) $S =$ 57.0 mph (Exhibit 13-13)					$D_s =$ (Exhibit 13-12) $S_R =$ mph (Exhibit 13-12) $S_0 =$ mph (Exhibit 13-12) $S =$ mph (Exhibit 13-13)				

RAMPS AND RAMP JUNCTIONS WORKSHEET											
General Information					Site Information						
Analyst		JT		Freeway/Dir of Travel		I-15 Northbound					
Agency or Company		LLG		Junction		Railroad Canyon Road Off-Ramp					
Date Performed		1/12/17		Jurisdiction							
Analysis Time Period		Weekday PM Peak Hour		Analysis Year		Existing + Project (Buildout)					
Project Description 2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore											
Inputs											
Upstream Adj Ramp ☐ Yes ☐ On ☒ No ☐ Off $L_{up} =$ ft $V_u =$ veh/h		Freeway Number of Lanes, N		3		Downstream Adj Ramp ☒ Yes ☒ On ☐ No ☐ Off $L_{down} =$ 2390 ft $V_D =$ 955 veh/h					
		Ramp Number of Lanes, N		1							
		Acceleration Lane Length, L_A									
		Deceleration Lane Length L_D		260							
		Freeway Volume, V_F		3910							
		Ramp Volume, V_R		854							
		Freeway Free-Flow Speed, S_{FF}		65.0							
		Ramp Free-Flow Speed, S_{FR}		35.0							
Conversion to pc/h Under Base Conditions											
(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	$v = V/PHF \times f_{HV} \times f_p$			
Freeway	3910	0.95	Level	2	0	0.990	1.00	4157			
Ramp	854	0.95	Level	2	0	0.990	1.00	908			
UpStream											
DownStream	955	0.95	Level	2	0	0.990	1.00	1015			
Merge Areas					Diverge Areas						
Estimation of v_{12}					Estimation of v_{12}						
$V_{12} = V_F (P_{FM})$ $L_{EQ} =$ (Equation 13-6 or 13-7) $P_{FM} =$ using Equation (Exhibit 13-6) $V_{12} =$ pc/h V_3 or V_{av34} pc/h (Equation 13-14 or 13-17) Is V_3 or $V_{av34} > 2,700$ pc/h? ☐ Yes ☐ No Is V_3 or $V_{av34} > 1.5 \times V_{12}/2$ ☐ Yes ☐ No If Yes, $V_{12a} =$ pc/h (Equation 13-16, 13-18, or 13-19)					$V_{12} = V_R + (V_F - V_R)P_{FD}$ $L_{EQ} =$ (Equation 13-12 or 13-13) $P_{FD} =$ 0.614 using Equation (Exhibit 13-7) $V_{12} =$ 2904 pc/h V_3 or V_{av34} 1253 pc/h (Equation 13-14 or 13-17) Is V_3 or $V_{av34} > 2,700$ pc/h? ☐ Yes ☒ No Is V_3 or $V_{av34} > 1.5 \times V_{12}/2$ ☐ Yes ☒ No If Yes, $V_{12a} =$ pc/h (Equation 13-16, 13-18, or 13-19)						
Capacity Checks					Capacity Checks						
		Actual	Capacity		LOS F?			Actual	Capacity	LOS F?	
V_{FO}		Exhibit 13-8				V_F	4157	Exhibit 13-8	7050	No	
						$V_{FO} = V_F - V_R$	3249	Exhibit 13-8	7050	No	
						V_R	908	Exhibit 13-10	2000	No	
Flow Entering Merge Influence Area					Flow Entering Diverge Influence Area						
		Actual	Max Desirable		Violation?			Actual	Max Desirable		Violation?
V_{R12}			Exhibit 13-8			V_{12}		2904	Exhibit 13-8	4400:All	No
Level of Service Determination (if not F)					Level of Service Determination (if not F)						
$D_R = 5.475 + 0.00734 v_R + 0.0078 V_{12} - 0.00627 L_A$ $D_R =$ (pc/mi/ln) LOS = (Exhibit 13-2)					$D_R = 4.252 + 0.0086 V_{12} - 0.009 L_D$ $D_R =$ 26.9 (pc/mi/ln) LOS = C (Exhibit 13-2)						
Speed Determination					Speed Determination						
$M_S =$ (Exhibit 13-11) $S_R =$ mph (Exhibit 13-11) $S_0 =$ mph (Exhibit 13-11) $S =$ mph (Exhibit 13-13)					$D_s =$ 0.510 (Exhibit 13-12) $S_R =$ 53.3 mph (Exhibit 13-12) $S_0 =$ 70.3 mph (Exhibit 13-12) $S =$ 57.5 mph (Exhibit 13-13)						

RAMPS AND RAMP JUNCTIONS WORKSHEET									
General Information					Site Information				
Analyst	JT		Freeway/Dir of Travel	I-15 Northbound					
Agency or Company	LLG		Junction	Railroad Canyon Road On-Ramp					
Date Performed	1/12/17		Jurisdiction						
Analysis Time Period	Weekday PM Peak Hour		Analysis Year	Existing + Project (Buildout)					
Project Description 2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore									
Inputs									
Upstream Adj Ramp ☒ Yes ☐ On ☐ No ☒ Off		Freeway Number of Lanes, N			3		Downstream Adj Ramp ☐ Yes ☐ On ☒ No ☐ Off		
		Ramp Number of Lanes, N			1				
$L_{up} =$ 2390 ft $V_u =$ 854 veh/h		Acceleration Lane Length, L_A			550		$L_{down} =$ ft $V_D =$ veh/h		
		Deceleration Lane Length L_D							
		Freeway Volume, V_F			3056				
		Ramp Volume, V_R			955				
		Freeway Free-Flow Speed, S_{FF}			65.0				
		Ramp Free-Flow Speed, S_{FR}			35.0				
Conversion to pc/h Under Base Conditions									
(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	$v = V/PHF \times f_{HV} \times f_p$	
Freeway	3056	0.95	Level	2	0	0.990	1.00	3249	
Ramp	955	0.95	Level	2	0	0.990	1.00	1015	
UpStream	854	0.95	Level	2	0	0.990	1.00	908	
DownStream									
Merge Areas					Diverge Areas				
Estimation of v_{12}					Estimation of v_{12}				
$V_{12} = V_F (P_{FM})$ $L_{EQ} =$ 584.90 (Equation 13-6 or 13-7) $P_{FM} =$ 0.593 using Equation (Exhibit 13-6) $V_{12} =$ 1926 pc/h V_3 or V_{av34} 1323 pc/h (Equation 13-14 or 13-17) Is V_3 or $V_{av34} > 2,700$ pc/h? ☐ Yes ☒ No Is V_3 or $V_{av34} > 1.5 \times V_{12}/2$ ☒ Yes ☐ No If Yes, $V_{12a} =$ 1926 pc/h (Equation 13-16, 13-18, or 13-19)					$V_{12} = V_R + (V_F - V_R)P_{FD}$ $L_{EQ} =$ (Equation 13-12 or 13-13) $P_{FD} =$ using Equation (Exhibit 13-7) $V_{12} =$ pc/h V_3 or V_{av34} pc/h (Equation 13-14 or 13-17) Is V_3 or $V_{av34} > 2,700$ pc/h? ☐ Yes ☐ No Is V_3 or $V_{av34} > 1.5 \times V_{12}/2$ ☐ Yes ☐ No If Yes, $V_{12a} =$ pc/h (Equation 13-16, 13-18, or 13-19)				
Capacity Checks					Capacity Checks				
	Actual	Capacity		LOS F?		Actual	Capacity		LOS F?
V_{FO}	4264	Exhibit 13-8		No	V_F		Exhibit 13-8		
					$V_{FO} = V_F - V_R$		Exhibit 13-8		
					V_R		Exhibit 13-10		
Flow Entering Merge Influence Area					Flow Entering Diverge Influence Area				
	Actual	Max Desirable		Violation?		Actual	Max Desirable		Violation?
V_{R12}	2941	Exhibit 13-8	4600:All	No	V_{12}		Exhibit 13-8		
Level of Service Determination (if not F)					Level of Service Determination (if not F)				
$D_R = 5.475 + 0.00734 v_R + 0.0078 V_{12} - 0.00627 L_A$ $D_R =$ 24.5 (pc/mi/ln) LOS = C (Exhibit 13-2)					$D_R = 4.252 + 0.0086 V_{12} - 0.009 L_D$ $D_R =$ (pc/mi/ln) LOS = (Exhibit 13-2)				
Speed Determination					Speed Determination				
$M_S =$ 0.356 (Exhibit 13-11) $S_R =$ 56.8 mph (Exhibit 13-11) $S_0 =$ 62.0 mph (Exhibit 13-11) $S =$ 58.3 mph (Exhibit 13-13)					$D_s =$ (Exhibit 13-12) $S_R =$ mph (Exhibit 13-12) $S_0 =$ mph (Exhibit 13-12) $S =$ mph (Exhibit 13-13)				

RAMPS AND RAMP JUNCTIONS WORKSHEET									
General Information					Site Information				
Analyst	JT		Freeway/Dir of Travel	I-15 Southbound					
Agency or Company	LLG		Junction	Railroad Canyon Road Off-Ramp					
Date Performed	1/12/17		Jurisdiction						
Analysis Time Period	Weekday PM Peak Hour		Analysis Year	Existing + Project (Buildout)					
Project Description 2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore									
Inputs									
Upstream Adj Ramp ☐ Yes ☐ On ☒ No ☐ Off L _{up} = ft V _u = veh/h		Freeway Number of Lanes, N 3				Downstream Adj Ramp ☒ Yes ☒ On ☐ No ☐ Off L _{down} = 2850 ft V _D = 426 veh/h			
		Ramp Number of Lanes, N 1							
		Acceleration Lane Length, L _A							
		Deceleration Lane Length L _D 1300							
		Freeway Volume, V _F 5190							
		Ramp Volume, V _R 1325							
		Freeway Free-Flow Speed, S _{FF} 65.0							
		Ramp Free-Flow Speed, S _{FR} 35.0							
Conversion to pc/h Under Base Conditions									
(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f _{HV}	f _p	v = V/PHF x f _{HV} x f _p	
Freeway	5190	0.95	Level	2	0	0.990	1.00	5518	
Ramp	1325	0.95	Level	2	0	0.990	1.00	1409	
UpStream									
DownStream	426	0.95	Level	2	0	0.990	1.00	453	
Merge Areas					Diverge Areas				
Estimation of v ₁₂					Estimation of v ₁₂				
$V_{12} = V_F (P_{FM})$ (Equation 13-6 or 13-7) P _{FM} = using Equation (Exhibit 13-6) V ₁₂ = pc/h V ₃ or V _{av34} pc/h (Equation 13-14 or 13-17) Is V ₃ or V _{av34} > 2,700 pc/h? ☐ Yes ☐ No Is V ₃ or V _{av34} > 1.5 * V ₁₂ /2 ☐ Yes ☐ No If Yes, V _{12a} = pc/h (Equation 13-16, 13-18, or 13-19)					$V_{12} = V_R + (V_F - V_R)P_{FD}$ (Equation 13-12 or 13-13) P _{FD} = 0.557 using Equation (Exhibit 13-7) V ₁₂ = 3699 pc/h V ₃ or V _{av34} 1819 pc/h (Equation 13-14 or 13-17) Is V ₃ or V _{av34} > 2,700 pc/h? ☐ Yes ☒ No Is V ₃ or V _{av34} > 1.5 * V ₁₂ /2 ☐ Yes ☒ No If Yes, V _{12a} = pc/h (Equation 13-16, 13-18, or 13-19)				
Capacity Checks					Capacity Checks				
	Actual	Capacity		LOS F?		Actual	Capacity		LOS F?
V _{FO}		Exhibit 13-8			V _F	5518	Exhibit 13-8	7050	No
				V _{FO} = V _F - V _R	4109	Exhibit 13-8	7050	No	
				V _R	1409	Exhibit 13-10	2000	No	
Flow Entering Merge Influence Area					Flow Entering Diverge Influence Area				
	Actual	Max Desirable		Violation?		Actual	Max Desirable		Violation?
V _{R12}		Exhibit 13-8			V ₁₂	3699	Exhibit 13-8	4400:All	No
Level of Service Determination (if not F)					Level of Service Determination (if not F)				
$D_R = 5.475 + 0.00734 v_R + 0.0078 V_{12} - 0.00627 L_A$ D _R = (pc/mi/ln) LOS = (Exhibit 13-2)					$D_R = 4.252 + 0.0086 V_{12} - 0.009 L_D$ D _R = 24.4 (pc/mi/ln) LOS = C (Exhibit 13-2)				
Speed Determination					Speed Determination				
M _S = (Exhibit 13-11) S _R = mph (Exhibit 13-11) S ₀ = mph (Exhibit 13-11) S = mph (Exhibit 13-13)					D _s = 0.555 (Exhibit 13-12) S _R = 52.2 mph (Exhibit 13-12) S ₀ = 68.1 mph (Exhibit 13-12) S = 56.6 mph (Exhibit 13-13)				

RAMPS AND RAMP JUNCTIONS WORKSHEET									
General Information					Site Information				
Analyst	JT		Freeway/Dir of Travel	I-15 Southbound					
Agency or Company	LLG		Junction	Railroad Canyon Road On-Ramp					
Date Performed	1/12/17		Jurisdiction						
Analysis Time Period	Weekday PM Peak Hour		Analysis Year	Existing + Project (Buildout)					
Project Description 2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore									
Inputs									
Upstream Adj Ramp ☒ Yes ☐ On ☐ No ☒ Off L _{up} = 2850 ft V _u = 1325 veh/h		Freeway Number of Lanes, N 3 Ramp Number of Lanes, N 1 Acceleration Lane Length, L _A 530 Deceleration Lane Length L _D Freeway Volume, V _F 3865 Ramp Volume, V _R 426 Freeway Free-Flow Speed, S _{FF} 65.0 Ramp Free-Flow Speed, S _{FR} 35.0				Downstream Adj Ramp ☐ Yes ☐ On ☒ No ☐ Off L _{down} = ft V _D = veh/h			
Conversion to pc/h Under Base Conditions									
(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f _{HV}	f _p	v = V/PHF x f _{HV} x f _p	
Freeway	3865	0.95	Level	2	0	0.990	1.00	4109	
Ramp	426	0.95	Level	2	0	0.990	1.00	453	
UpStream	1325	0.95	Level	2	0	0.990	1.00	1409	
DownStream									
Merge Areas					Diverge Areas				
Estimation of v ₁₂					Estimation of v ₁₂				
$V_{12} = V_F (P_{FM})$ $L_{EQ} = 639.79 \text{ (Equation 13-6 or 13-7)}$ $P_{FM} = 0.592 \text{ using Equation (Exhibit 13-6)}$ $V_{12} = 2434 \text{ pc/h}$ $V_3 \text{ or } V_{av34} = 1675 \text{ pc/h (Equation 13-14 or 13-17)}$ $\text{Is } V_3 \text{ or } V_{av34} > 2,700 \text{ pc/h? } \quad \text{Yes } \quad \text{No } \quad \text{No}$ $\text{Is } V_3 \text{ or } V_{av34} > 1.5 * V_{12}/2 \quad \text{Yes } \quad \text{No } \quad \text{No}$ $\text{If Yes, } V_{12a} = 2434 \text{ pc/h (Equation 13-16, 13-18, or 13-19)}$					$V_{12} = V_R + (V_F - V_R)P_{FD}$ $L_{EQ} = \text{ (Equation 13-12 or 13-13)}$ $P_{FD} = \text{ using Equation (Exhibit 13-7)}$ $V_{12} = \text{ pc/h}$ $V_3 \text{ or } V_{av34} = \text{ pc/h (Equation 13-14 or 13-17)}$ $\text{Is } V_3 \text{ or } V_{av34} > 2,700 \text{ pc/h? } \quad \text{Yes } \quad \text{No } \quad \text{No}$ $\text{Is } V_3 \text{ or } V_{av34} > 1.5 * V_{12}/2 \quad \text{Yes } \quad \text{No } \quad \text{No}$ $\text{If Yes, } V_{12a} = \text{ pc/h (Equation 13-16, 13-18, or 13-19)}$				
Capacity Checks					Capacity Checks				
	Actual	Capacity		LOS F?		Actual	Capacity		LOS F?
V _{FO}	4562	Exhibit 13-8		No	V _F		Exhibit 13-8		
					V _{FO} = V _F - V _R		Exhibit 13-8		
					V _R		Exhibit 13-10		
Flow Entering Merge Influence Area					Flow Entering Diverge Influence Area				
	Actual	Max Desirable		Violation?		Actual	Max Desirable		Violation?
V _{R12}	2887	Exhibit 13-8	4600:All	No	V ₁₂		Exhibit 13-8		
Level of Service Determination (if not F)					Level of Service Determination (if not F)				
$D_R = 5.475 + 0.00734 v_R + 0.0078 V_{12} - 0.00627 L_A$ $D_R = 24.5 \text{ (pc/mi/ln)}$ $LOS = C \text{ (Exhibit 13-2)}$					$D_R = 4.252 + 0.0086 V_{12} - 0.009 L_D$ $D_R = \text{ (pc/mi/ln)}$ $LOS = \text{ (Exhibit 13-2)}$				
Speed Determination					Speed Determination				
$M_S = 0.354 \text{ (Exhibit 13-11)}$ $S_R = 56.9 \text{ mph (Exhibit 13-11)}$ $S_0 = 60.8 \text{ mph (Exhibit 13-11)}$ $S = 58.2 \text{ mph (Exhibit 13-13)}$					$D_s = \text{ (Exhibit 13-12)}$ $S_R = \text{ mph (Exhibit 13-12)}$ $S_0 = \text{ mph (Exhibit 13-12)}$ $S = \text{ mph (Exhibit 13-13)}$				

APPENDIX I-III

**EXISTING WITH ELSP PROJECT BUILDOUT
WITH MITIGATION TRAFFIC CONDITIONS**

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APPENDIX J

YEAR 2022 TRAFFIC CONDITIONS BASIC FREEWAY SEGMENTS LEVEL OF SERVICE CALCULATION WORKSHEETS

APPENDIX J-1

**YEAR 2022 WITHOUT ELSP PROJECT PHASE I
TRAFFIC CONDITIONS**

BASIC FREEWAY SEGMENTS WORKSHEET					
General Information			Site Information		
Analyst	JT		Highway/Direction of Travel I-15 Northbound		
Agency or Company	LLG		From/To South of Bundy Canyon Road		
Date Performed	1/12/17		Jurisdiction		
Analysis Time Period	Weekday AM Peak Hour		Analysis Year Year 2022 without Project		
Project Description 2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore					
☒ Oper.(LOS)		☐ Des.(N)		☐ Planning Data	
Flow Inputs					
Volume, V	3165	veh/h	Peak-Hour Factor, PHF	0.95	
AADT		veh/day	%Trucks and Buses, P _T	2	
Peak-Hr Prop. of AADT, K			%RVs, P _R	0	
Peak-Hr Direction Prop, D			General Terrain:	Level	
DDHV = AADT x K x D		veh/h	Grade %	Length	mi
			Up/Down %		
Calculate Flow Adjustments					
f _p	1.00		E _R	1.2	
E _T	1.5		f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)] 0.990		
Speed Inputs			Calc Speed Adj and FFS		
Lane Width	ft		f_{LW} mph f_{LC} mph TRD Adjustment mph FFS 65.0 mph		
Rt-Side Lat. Clearance	ft				
Number of Lanes, N	3				
Total Ramp Density, TRD	ramps/mi				
FFS (measured)	65.0				
Base free-flow Speed, BFFS	mph				
LOS and Performance Measures			Design (N)		
<u>Operational (LOS)</u> $v_p = (V \text{ or } DDHV) / (PHF \times N \times f_{HV} \times f_p)$ 1122 pc/h/ln $S = 65.0$ mph $D = v_p / S = 17.3$ pc/mi/ln LOS B			<u>Design (N)</u> Design LOS $v_p = (V \text{ or } DDHV) / (PHF \times N \times f_{HV} \times f_p)$ pc/h/ln $S =$ mph $D = v_p / S =$ pc/mi/ln Required Number of Lanes, N		
Glossary			Factor Location		
N - Number of lanes S - Speed V - Hourly volume D - Density v _p - Flow rate FFS - Free-flow speed LOS - Level of service BFFS - Base free-flow speed DDHV - Directional design hour volume			E _R - Exhibits 11-10, 11-12 f _{LW} - Exhibit 11-8 E _T - Exhibits 11-10, 11-11, 11-13 f _{LC} - Exhibit 11-9 f _p - Page 11-18 TRD - Page 11-11 LOS, S, FFS, v _p - Exhibits 11-2, 11-3		

BASIC FREEWAY SEGMENTS WORKSHEET					
General Information			Site Information		
Analyst	JT		Highway/Direction of Travel I-15 Northbound		
Agency or Company	LLG		From/To North of Bundy Canyon Road		
Date Performed	1/17/17		Jurisdiction		
Analysis Time Period	Weekday AM Peak Hour		Analysis Year Year 2022 without Project		
Project Description 2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore					
☒ Oper.(LOS) ☐ Des.(N) ☐ Planning Data					
Flow Inputs					
Volume, V	3214	veh/h	Peak-Hour Factor, PHF	0.95	
AADT		veh/day	%Trucks and Buses, P _T	2	
Peak-Hr Prop. of AADT, K			%RVs, P _R	0	
Peak-Hr Direction Prop, D			General Terrain:	Level	
DDHV = AADT x K x D		veh/h	Grade %	Length	mi
			Up/Down %		
Calculate Flow Adjustments					
f _p	1.00		E _R	1.2	
E _T	1.5		f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)] 0.990		
Speed Inputs			Calc Speed Adj and FFS		
Lane Width	ft				
Rt-Side Lat. Clearance	ft				
Number of Lanes, N	3				
Total Ramp Density, TRD	ramps/mi				
FFS (measured)	65.0				
Base free-flow Speed, BFFS	mph				
			f _{LW}	mph	
			f _{LC}	mph	
			TRD Adjustment	mph	
			FFS	65.0	
			mph		
LOS and Performance Measures			Design (N)		
<u>Operational (LOS)</u>			<u>Design (N)</u>		
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)			Design LOS		
1139 pc/h/ln			v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)		
S 65.0 mph			pc/h/ln		
D = v _p / S			mph		
17.5 pc/mi/ln			D = v _p / S		
LOS B			pc/mi/ln		
			Required Number of Lanes, N		
Glossary			Factor Location		
N - Number of lanes	S - Speed		E _R - Exhibits 11-10, 11-12		
V - Hourly volume	D - Density		f _{LW} - Exhibit 11-8		
v _p - Flow rate	FFS - Free-flow speed		E _T - Exhibits 11-10, 11-11, 11-13		
LOS - Level of service	BFFS - Base free-flow speed		f _{LC} - Exhibit 11-9		
DDHV - Directional design hour volume			f _p - Page 11-18		
			TRD - Page 11-11		
			LOS, S, FFS, v _p - Exhibits 11-2, 11-3		

BASIC FREEWAY SEGMENTS WORKSHEET					
General Information			Site Information		
Analyst	JT		Highway/Direction of Travel <i>I-15 Northbound</i>		
Agency or Company	LLG		From/To <i>North of Railroad Canyon Road</i>		
Date Performed	1/12/17		Jurisdiction		
Analysis Time Period	Weekday AM Peak Hour		Analysis Year <i>Year 2022 without Project</i>		
Project Description <i>2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore</i>					
☒ Oper.(LOS) ☐ Des.(N) ☐ Planning Data					
Flow Inputs					
Volume, V	3400	veh/h	Peak-Hour Factor, PHF	0.95	
AADT		veh/day	%Trucks and Buses, P _T	2	
Peak-Hr Prop. of AADT, K			%RVs, P _R	0	
Peak-Hr Direction Prop, D			General Terrain:	Level	
DDHV = AADT x K x D		veh/h	Grade %	Length	mi
			Up/Down %		
Calculate Flow Adjustments					
f _p	1.00		E _R	1.2	
E _T	1.5		f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)] 0.990		
Speed Inputs			Calc Speed Adj and FFS		
Lane Width	ft				
Rt-Side Lat. Clearance	ft				
Number of Lanes, N	4				
Total Ramp Density, TRD	ramps/mi				
FFS (measured)	65.0				
Base free-flow Speed, BFFS	mph				
f _{LW}			mph		
f _{LC}			mph		
TRD Adjustment			mph		
FFS			65.0		
mph			mph		
LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v _p = (V or DDHV) / (PHF x N x f _{HV})			Design LOS		
904			v _p = (V or DDHV) / (PHF x N x f _{HV})		
pc/h/ln			pc/h/ln		
S			S		
65.0			mph		
D = v _p / S			D = v _p / S		
13.9			pc/mi/ln		
LOS			Required Number of Lanes, N		
B					
Glossary			Factor Location		
N - Number of lanes			E _R - Exhibits 11-10, 11-12		
S - Speed			f _{LW} - Exhibit 11-8		
V - Hourly volume			E _T - Exhibits 11-10, 11-11, 11-13		
D - Density			f _{LC} - Exhibit 11-9		
v _p - Flow rate			f _p - Page 11-18		
FFS - Free-flow speed			TRD - Page 11-11		
LOS - Level of service			LOS, S, FFS, v _p - Exhibits 11-2, 11-3		
BFFS - Base free-flow speed					
DDHV - Directional design hour volume					

BASIC FREEWAY SEGMENTS WORKSHEET					
General Information			Site Information		
Analyst	JT		Highway/Direction of Travel <i>I-15 Southbound</i>		
Agency or Company	LLG		From/To <i>North of Railroad Canyon Road</i>		
Date Performed	1/12/17		Jurisdiction		
Analysis Time Period	Weekday AM Peak Hour		Analysis Year		Year 2022 without Project
Project Description <i>2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore</i>					
☒ Oper. (LOS) ☐ Des. (N) ☐ Planning Data					
Flow Inputs					
Volume, V	5211	veh/h	Peak-Hour Factor, PHF	0.95	
AADT		veh/day	%Trucks and Buses, P _T	2	
Peak-Hr Prop. of AADT, K			%RVs, P _R	0	
Peak-Hr Direction Prop, D			General Terrain:	Level	
DDHV = AADT x K x D		veh/h	Grade %	Length	mi
			Up/Down %		
Calculate Flow Adjustments					
f _p	1.00		E _R	1.2	
E _T	1.5		f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)] 0.990		
Speed Inputs			Calc Speed Adj and FFS		
Lane Width	ft				
Rt-Side Lat. Clearance	ft				
Number of Lanes, N	4				
Total Ramp Density, TRD	ramps/mi				
FFS (measured)	65.0				
Base free-flow Speed, BFFS	mph		f _{LW}	mph	
			f _{LC}	mph	
			TRD Adjustment	mph	
			FFS	65.0	
				mph	
LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)			Design LOS		
S	65.0	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)		
D = v _p / S	21.3	pc/mi/ln	S		
LOS	C		D = v _p / S		
			Required Number of Lanes, N		
Glossary			Factor Location		
N - Number of lanes	S - Speed		E _R - Exhibits 11-10, 11-12		
V - Hourly volume	D - Density		f _{LW} - Exhibit 11-8		
v _p - Flow rate	FFS - Free-flow speed		E _T - Exhibits 11-10, 11-11, 11-13		
LOS - Level of service	BFFS - Base free-flow speed		f _{LC} - Exhibit 11-9		
DDHV - Directional design hour volume			f _p - Page 11-18		
			TRD - Page 11-11		
			LOS, S, FFS, v _p - Exhibits 11-2, 11-3		

BASIC FREEWAY SEGMENTS WORKSHEET					
General Information			Site Information		
Analyst	JT		Highway/Direction of Travel <i>I-15 Southbound</i>		
Agency or Company	LLG		From/To <i>North of Bundy Canyon Road</i>		
Date Performed	1/12/17		Jurisdiction		
Analysis Time Period	Weekday AM Peak Hour		Analysis Year <i>Year 2022 without Project</i>		
Project Description <i>2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore</i>					
☒ Oper.(LOS)		☐ Des.(N)		☐ Planning Data	
Flow Inputs					
Volume, V	5329	veh/h	Peak-Hour Factor, PHF	0.95	
AADT		veh/day	%Trucks and Buses, P _T	2	
Peak-Hr Prop. of AADT, K			%RVs, P _R	0	
Peak-Hr Direction Prop, D			General Terrain:	Level	
DDHV = AADT x K x D		veh/h	Grade %	Length	mi
				Up/Down %	
Calculate Flow Adjustments					
f _p	1.00		E _R	1.2	
E _T	1.5		f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)] 0.990		
Speed Inputs			Calc Speed Adj and FFS		
Lane Width	ft				
Rt-Side Lat. Clearance	ft				
Number of Lanes, N	3				
Total Ramp Density, TRD	ramps/mi				
FFS (measured)	65.0				
Base free-flow Speed, BFFS	mph		f _{LW}	mph	
			f _{LC}	mph	
			TRD Adjustment	mph	
			FFS	65.0	
				mph	
LOS and Performance Measures			Design (N)		
<u>Operational (LOS)</u>			<u>Design (N)</u>		
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)			Design LOS		
S	61.6	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)		
D = v _p / S	30.7	pc/mi/ln	S		
LOS	D		D = v _p / S		
			Required Number of Lanes, N		
Glossary			Factor Location		
N - Number of lanes	S - Speed		E _R - Exhibits 11-10, 11-12		
V - Hourly volume	D - Density		f _{LW} - Exhibit 11-8		
v _p - Flow rate	FFS - Free-flow speed		E _T - Exhibits 11-10, 11-11, 11-13		
LOS - Level of service	BFFS - Base free-flow speed		f _{LC} - Exhibit 11-9		
DDHV - Directional design hour volume			f _p - Page 11-18		
			TRD - Page 11-11		
			LOS, S, FFS, v _p - Exhibits 11-2, 11-3		

BASIC FREEWAY SEGMENTS WORKSHEET					
General Information			Site Information		
Analyst	JT		Highway/Direction of Travel <i>I-15 Southbound</i>		
Agency or Company	LLG		From/To <i>South of Bundy Canyon Road</i>		
Date Performed	1/12/17		Jurisdiction		
Analysis Time Period	Weekday AM Peak Hour		Analysis Year <i>Year 2022 without Project</i>		
Project Description <i>2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore</i>					
☒ Oper.(LOS)		☐ Des.(N)		☐ Planning Data	
Flow Inputs					
Volume, V	5912	veh/h	Peak-Hour Factor, PHF	0.95	
AADT		veh/day	%Trucks and Buses, P _T	2	
Peak-Hr Prop. of AADT, K			%RVs, P _R	0	
Peak-Hr Direction Prop, D			General Terrain:	Level	
DDHV = AADT x K x D		veh/h	Grade %	Length	mi
			Up/Down %		
Calculate Flow Adjustments					
f _p	1.00		E _R	1.2	
E _T	1.5		f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)] 0.990		
Speed Inputs			Calc Speed Adj and FFS		
Lane Width		ft			
Rt-Side Lat. Clearance		ft			
Number of Lanes, N	3				
Total Ramp Density, TRD		ramps/mi			
FFS (measured)	65.0	mph			
Base free-flow Speed, BFFS		mph	f _{LW}		mph
			f _{LC}		mph
			TRD Adjustment		mph
			FFS	65.0	mph
LOS and Performance Measures			Design (N)		
<u>Operational (LOS)</u>			<u>Design (N)</u>		
v _p = (V or DDHV) / (PHF x N x f _{HV}) 2095 pc/h/ln			Design LOS		
x f _p)			v _p = (V or DDHV) / (PHF x N x f _{HV}) pc/h/ln		
S 58.2 mph			x f _p)		
D = v _p / S 36.0 pc/mi/ln			S mph		
LOS E			D = v _p / S pc/mi/ln		
			Required Number of Lanes, N		
Glossary			Factor Location		
N - Number of lanes S - Speed			E _R - Exhibits 11-10, 11-12 f _{LW} - Exhibit 11-8		
V - Hourly volume D - Density			E _T - Exhibits 11-10, 11-11, 11-13 f _{LC} - Exhibit 11-9		
v _p - Flow rate FFS - Free-flow speed			f _p - Page 11-18 TRD - Page 11-11		
LOS - Level of service BFFS - Base free-flow speed			LOS, S, FFS, v _p - Exhibits 11-2, 11-3		
DDHV - Directional design hour volume					

BASIC FREEWAY SEGMENTS WORKSHEET					
General Information			Site Information		
Analyst	JT		Highway/Direction of Travel <i>I-15 Northbound</i>		
Agency or Company	LLG		From/To <i>South of Bundy Canyon Road</i>		
Date Performed	1/12/17		Jurisdiction		
Analysis Time Period	Weekday PM Peak Hour		Analysis Year <i>Year 2022 without Project</i>		
Project Description <i>2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore</i>					
☒ Oper.(LOS) ☐ Des.(N) ☐ Planning Data					
Flow Inputs					
Volume, V	4828	veh/h	Peak-Hour Factor, PHF	0.95	
AADT		veh/day	%Trucks and Buses, P _T	2	
Peak-Hr Prop. of AADT, K			%RVs, P _R	0	
Peak-Hr Direction Prop, D			General Terrain:	Level	
DDHV = AADT x K x D		veh/h	Grade %	Length	mi
				Up/Down %	
Calculate Flow Adjustments					
f _p	1.00		E _R	1.2	
E _T	1.5		f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)] 0.990		
Speed Inputs			Calc Speed Adj and FFS		
Lane Width	ft				
Rt-Side Lat. Clearance	ft				
Number of Lanes, N	3				
Total Ramp Density, TRD	ramps/mi				
FFS (measured)	65.0				
Base free-flow Speed, BFFS	mph		f _{LW}	mph	
			f _{LC}	mph	
			TRD Adjustment	mph	
			FFS	65.0	
				mph	
LOS and Performance Measures			Design (N)		
<u>Operational (LOS)</u>			<u>Design (N)</u>		
v _p = (V or DDHV) / (PHF x N x f _{HV})			Design LOS		
1711	pc/h/ln		v _p = (V or DDHV) / (PHF x N x f _{HV})		
x f _p)			pc/h/ln		
S	63.6	mph	x f _p)		
D = v _p / S	26.9	pc/mi/ln	S		
LOS	D		D = v _p / S		
			pc/mi/ln		
			Required Number of Lanes, N		
Glossary			Factor Location		
N - Number of lanes	S - Speed		E _R - Exhibits 11-10, 11-12		
V - Hourly volume	D - Density		f _{LW} - Exhibit 11-8		
v _p - Flow rate	FFS - Free-flow speed		E _T - Exhibits 11-10, 11-11, 11-13		
LOS - Level of service	BFFS - Base free-flow speed		f _{LC} - Exhibit 11-9		
DDHV - Directional design hour volume			f _p - Page 11-18		
			TRD - Page 11-11		
			LOS, S, FFS, v _p - Exhibits 11-2, 11-3		

BASIC FREEWAY SEGMENTS WORKSHEET					
General Information			Site Information		
Analyst	JT		Highway/Direction of Travel <i>I-15 Northbound</i>		
Agency or Company	LLG		From/To <i>North of Bundy Canyon Road</i>		
Date Performed	1/12/17		Jurisdiction		
Analysis Time Period	Weekday PM Peak Hour		Analysis Year <i>Year 2022 without Project</i>		
Project Description <i>2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore</i>					
☒ Oper.(LOS) ☐ Des.(N) ☐ Planning Data					
Flow Inputs					
Volume, V	4301	veh/h	Peak-Hour Factor, PHF	0.95	
AADT		veh/day	%Trucks and Buses, P _T	2	
Peak-Hr Prop. of AADT, K			%RVs, P _R	0	
Peak-Hr Direction Prop, D			General Terrain:	Level	
DDHV = AADT x K x D		veh/h	Grade %	Length	mi
				Up/Down %	
Calculate Flow Adjustments					
f _p	1.00		E _R	1.2	
E _T	1.5		f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)] 0.990		
Speed Inputs			Calc Speed Adj and FFS		
Lane Width	ft				
Rt-Side Lat. Clearance	ft				
Number of Lanes, N	3				
Total Ramp Density, TRD	ramps/mi				
FFS (measured)	65.0				
Base free-flow Speed, BFFS	mph		f _{LV}	mph	
			f _{LC}	mph	
			TRD Adjustment	mph	
			FFS	65.0	
				mph	
LOS and Performance Measures			Design (N)		
<u>Operational (LOS)</u>			<u>Design (N)</u>		
v _p = (V or DDHV) / (PHF x N x f _{HV})			Design LOS		
1524	pc/h/ln		v _p = (V or DDHV) / (PHF x N x f _{HV})		
x f _p)			pc/h/ln		
S	64.8	mph	x f _p)		
D = v _p / S	23.5	pc/mi/ln	S		
LOS	C		D = v _p / S		
			pc/mi/ln		
			Required Number of Lanes, N		
Glossary			Factor Location		
N - Number of lanes	S - Speed		E _R - Exhibits 11-10, 11-12		
V - Hourly volume	D - Density		f _{LV} - Exhibit 11-8		
v _p - Flow rate	FFS - Free-flow speed		E _T - Exhibits 11-10, 11-11, 11-13		
LOS - Level of service	BFFS - Base free-flow speed		f _{LC} - Exhibit 11-9		
DDHV - Directional design hour volume			f _p - Page 11-18		
			TRD - Page 11-11		
			LOS, S, FFS, v _p - Exhibits 11-2, 11-3		

BASIC FREEWAY SEGMENTS WORKSHEET					
General Information			Site Information		
Analyst	JT		Highway/Direction of Travel <i>I-15 Northbound</i>		
Agency or Company	LLG		From/To <i>North of Railroad Canyon Road</i>		
Date Performed	1/12/17		Jurisdiction		
Analysis Time Period	Weekday PM Peak Hour		Analysis Year <i>Year 2022 without Project</i>		
Project Description <i>2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore</i>					
☒ Oper.(LOS) ☐ Des.(N) ☐ Planning Data					
Flow Inputs					
Volume, V	4009	veh/h	Peak-Hour Factor, PHF	0.95	
AADT		veh/day	%Trucks and Buses, P _T	2	
Peak-Hr Prop. of AADT, K			%RVs, P _R	0	
Peak-Hr Direction Prop, D			General Terrain:	Level	
DDHV = AADT x K x D		veh/h	Grade %	Length	mi
			Up/Down %		
Calculate Flow Adjustments					
f _p	1.00		E _R	1.2	
E _T	1.5		f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)] 0.990		
Speed Inputs			Calc Speed Adj and FFS		
Lane Width	ft				
Rt-Side Lat. Clearance	ft				
Number of Lanes, N	4				
Total Ramp Density, TRD	ramps/mi				
FFS (measured)	65.0				
Base free-flow Speed, BFFS	mph				
			f _{LW}	mph	
			f _{LC}	mph	
			TRD Adjustment	mph	
			FFS	65.0	
			mph		
LOS and Performance Measures			Design (N)		
<u>Operational (LOS)</u>			<u>Design (N)</u>		
v _p = (V or DDHV) / (PHF x N x f _{HV})			Design LOS		
1066	pc/h/ln		v _p = (V or DDHV) / (PHF x N x f _{HV})		
x f _p)			pc/h/ln		
S	65.0		mph		
D = v _p / S	16.4		pc/mi/ln		
LOS	B		D = v _p / S		
			Required Number of Lanes, N		
Glossary			Factor Location		
N - Number of lanes	S - Speed		E _R - Exhibits 11-10, 11-12		
V - Hourly volume	D - Density		f _{LW} - Exhibit 11-8		
v _p - Flow rate	FFS - Free-flow speed		E _T - Exhibits 11-10, 11-11, 11-13		
LOS - Level of service	BFFS - Base free-flow speed		f _{LC} - Exhibit 11-9		
DDHV - Directional design hour volume			f _p - Page 11-18		
			TRD - Page 11-11		
			LOS, S, FFS, v _p - Exhibits 11-2, 11-3		

BASIC FREEWAY SEGMENTS WORKSHEET					
General Information			Site Information		
Analyst	JT		Highway/Direction of Travel <i>I-15 Southbound</i>		
Agency or Company	LLG		From/To <i>North of Railroad Canyon Road</i>		
Date Performed	1/12/17		Jurisdiction		
Analysis Time Period	Weekday PM Peak Hour		Analysis Year		Year 2022 without Project
Project Description <i>2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore</i>					
☒ Oper. (LOS) ☐ Des. (N) ☐ Planning Data					
Flow Inputs					
Volume, V	4704	veh/h	Peak-Hour Factor, PHF	0.95	
AADT		veh/day	% Trucks and Buses, P _T	2	
Peak-Hr Prop. of AADT, K			% RVs, P _R	0	
Peak-Hr Direction Prop, D			General Terrain:	Level	
DDHV = AADT x K x D		veh/h	Grade %	Length	mi
			Up/Down %		
Calculate Flow Adjustments					
f _p	1.00		E _R	1.2	
E _T	1.5		f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)] 0.990		
Speed Inputs			Calc Speed Adj and FFS		
Lane Width	ft				
Rt-Side Lat. Clearance	ft				
Number of Lanes, N	4				
Total Ramp Density, TRD	ramps/mi				
FFS (measured)	65.0				
Base free-flow Speed, BFFS	mph				
			f _{LW}	mph	
			f _{LC}	mph	
			TRD Adjustment		
			FFS		
			65.0		
			mph		
LOS and Performance Measures			Design (N)		
<u>Operational (LOS)</u>			<u>Design (N)</u>		
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)			Design LOS		
S	65.0	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)		
D = v _p / S	19.2	pc/mi/ln	S		
LOS	C		D = v _p / S		
			Required Number of Lanes, N		
Glossary			Factor Location		
N - Number of lanes	S - Speed		E _R - Exhibits 11-10, 11-12		
V - Hourly volume	D - Density		f _{LW} - Exhibit 11-8		
v _p - Flow rate	FFS - Free-flow speed		E _T - Exhibits 11-10, 11-11, 11-13		
LOS - Level of service	BFFS - Base free-flow speed		f _{LC} - Exhibit 11-9		
DDHV - Directional design hour volume			f _p - Page 11-18		
			TRD - Page 11-11		
			LOS, S, FFS, v _p - Exhibits 11-2, 11-3		

BASIC FREEWAY SEGMENTS WORKSHEET					
General Information			Site Information		
Analyst	JT		Highway/Direction of Travel <i>I-15 Southbound</i>		
Agency or Company	LLG		From/To <i>North of Bundy Canyon Road</i>		
Date Performed	1/12/17		Jurisdiction		
Analysis Time Period	Weekday PM Peak Hour		Analysis Year <i>Year 2022 without Project</i>		
Project Description <i>2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore</i>					
☒ Oper. (LOS)		☐ Des. (N)		☐ Planning Data	
Flow Inputs					
Volume, V	4228	veh/h	Peak-Hour Factor, PHF	0.95	
AADT		veh/day	%Trucks and Buses, P _T	2	
Peak-Hr Prop. of AADT, K			%RVs, P _R	0	
Peak-Hr Direction Prop, D			General Terrain:	Level	
DDHV = AADT x K x D		veh/h	Grade %	Length	mi
			Up/Down %		
Calculate Flow Adjustments					
f _p	1.00		E _R	1.2	
E _T	1.5		f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)] 0.990		
Speed Inputs			Calc Speed Adj and FFS		
Lane Width	ft		f_{LW} mph f_{LC} mph TRD Adjustment mph FFS 65.0 mph		
Rt-Side Lat. Clearance	ft				
Number of Lanes, N	3				
Total Ramp Density, TRD	ramps/mi				
FFS (measured)	65.0				
Base free-flow Speed, BFFS	mph				
LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)			v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)		
S	64.9	mph	S		
D = v _p / S	23.1	pc/mi/ln	D = v _p / S		
LOS	C		Required Number of Lanes, N		
Glossary			Factor Location		
N - Number of lanes	S - Speed		E _R - Exhibits 11-10, 11-12		
V - Hourly volume	D - Density		E _T - Exhibits 11-10, 11-11, 11-13		
v _p - Flow rate	FFS - Free-flow speed		f _{LW} - Exhibit 11-8		
LOS - Level of service	BFFS - Base free-flow speed		f _{LC} - Exhibit 11-9		
DDHV - Directional design hour volume			f _p - Page 11-18		
			TRD - Page 11-11		
			LOS, S, FFS, v _p - Exhibits 11-2, 11-3		

BASIC FREEWAY SEGMENTS WORKSHEET					
General Information			Site Information		
Analyst	JT		Highway/Direction of Travel <i>I-15 Southbound</i>		
Agency or Company	LLG		From/To <i>South of Bundy Canyon Road</i>		
Date Performed	1/12/17		Jurisdiction		
Analysis Time Period	Weekday PM Peak Hour		Analysis Year		Year 2022 without Project
Project Description <i>2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore</i>					
☒ Oper. (LOS) ☐ Des. (N) ☐ Planning Data					
Flow Inputs					
Volume, V	4388	veh/h	Peak-Hour Factor, PHF	0.95	
AADT		veh/day	% Trucks and Buses, P _T	2	
Peak-Hr Prop. of AADT, K			% RVs, P _R	0	
Peak-Hr Direction Prop, D			General Terrain:	Level	
DDHV = AADT x K x D		veh/h	Grade %	Length	mi
			Up/Down %		
Calculate Flow Adjustments					
f _p	1.00		E _R	1.2	
E _T	1.5		f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)] 0.990		
Speed Inputs			Calc Speed Adj and FFS		
Lane Width	ft				
Rt-Side Lat. Clearance	ft				
Number of Lanes, N	3				
Total Ramp Density, TRD	ramps/mi				
FFS (measured)	65.0				
Base free-flow Speed, BFFS	mph		f _{LW}	mph	
			f _{LC}	mph	
			TRD Adjustment	mph	
			FFS	65.0	
			mph		
LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)			Design LOS		
S	64.7	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)		
D = v _p / S	24.0	pc/mi/ln	S		
LOS	C		D = v _p / S		
			Required Number of Lanes, N		
Glossary			Factor Location		
N - Number of lanes	S - Speed		E _R - Exhibits 11-10, 11-12		
V - Hourly volume	D - Density		f _{LW} - Exhibit 11-8		
v _p - Flow rate	FFS - Free-flow speed		E _T - Exhibits 11-10, 11-11, 11-13		
LOS - Level of service	BFFS - Base free-flow speed		f _{LC} - Exhibit 11-9		
DDHV - Directional design hour volume			f _p - Page 11-18		
			TRD - Page 11-11		
			LOS, S, FFS, v _p - Exhibits 11-2, 11-3		

APPENDIX J-II

**YEAR 2022 WITH ELSP PROJECT PHASE I
TRAFFIC CONDITIONS**

BASIC FREEWAY SEGMENTS WORKSHEET					
General Information			Site Information		
Analyst	JT		Highway/Direction of Travel I-15 Northbound		
Agency or Company	LLG		From/To South of Bundy Canyon Road		
Date Performed	1/12/17		Jurisdiction		
Analysis Time Period	Weekday AM Peak Hour		Analysis Year Year 2022 with Project (Ph. I)		
Project Description 2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore					
☒ Oper. (LOS) ☐ Des. (N) ☐ Planning Data					
Flow Inputs					
Volume, V	3210	veh/h	Peak-Hour Factor, PHF	0.95	
AADT		veh/day	%Trucks and Buses, P _T	2	
Peak-Hr Prop. of AADT, K			%RVs, P _R	0	
Peak-Hr Direction Prop, D			General Terrain:	Level	
DDHV = AADT x K x D		veh/h	Grade %	Length	mi
			Up/Down %		
Calculate Flow Adjustments					
f _p	1.00		E _R	1.2	
E _T	1.5		f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)] 0.990		
Speed Inputs			Calc Speed Adj and FFS		
Lane Width	ft				
Rt-Side Lat. Clearance	ft				
Number of Lanes, N	3				
Total Ramp Density, TRD	ramps/mi				
FFS (measured)	65.0				
Base free-flow Speed, BFFS	mph		f _{LW}	mph	
			f _{LC}	mph	
			TRD Adjustment	mph	
			FFS	65.0	
			mph		
LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)			Design LOS		
S	65.0	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)		
D = v _p / S	17.5	pc/mi/ln	S		
LOS	B		D = v _p / S		
			Required Number of Lanes, N		
Glossary			Factor Location		
N - Number of lanes	S - Speed		E _R - Exhibits 11-10, 11-12		
V - Hourly volume	D - Density		f _{LW} - Exhibit 11-8		
v _p - Flow rate	FFS - Free-flow speed		E _T - Exhibits 11-10, 11-11, 11-13		
LOS - Level of service	BFFS - Base free-flow speed		f _{LC} - Exhibit 11-9		
DDHV - Directional design hour volume			f _p - Page 11-18		
			TRD - Page 11-11		
			LOS, S, FFS, v _p - Exhibits 11-2, 11-3		

BASIC FREEWAY SEGMENTS WORKSHEET					
General Information			Site Information		
Analyst	JT		Highway/Direction of Travel I-15 Northbound		
Agency or Company	LLG		From/To North of Bundy Canyon Road		
Date Performed	1/17/17		Jurisdiction		
Analysis Time Period	Weekday AM Peak Hour		Analysis Year Year 2022 with Project (Ph. I)		
Project Description 2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore					
☒ Oper.(LOS) ☐ Des.(N) ☐ Planning Data					
Flow Inputs					
Volume, V	3224	veh/h	Peak-Hour Factor, PHF	0.95	
AADT		veh/day	%Trucks and Buses, P _T	2	
Peak-Hr Prop. of AADT, K			%RVs, P _R	0	
Peak-Hr Direction Prop, D			General Terrain:	Level	
DDHV = AADT x K x D		veh/h	Grade %	Length	mi
			Up/Down %		
Calculate Flow Adjustments					
f _p	1.00		E _R	1.2	
E _T	1.5		f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)] 0.990		
Speed Inputs			Calc Speed Adj and FFS		
Lane Width		ft			
Rt-Side Lat. Clearance		ft			
Number of Lanes, N	3				
Total Ramp Density, TRD		ramps/mi			
FFS (measured)	65.0	mph			
Base free-flow Speed, BFFS		mph			
LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)			Design LOS		
S			v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)		
D = v _p / S			S		
LOS			D = v _p / S		
			Required Number of Lanes, N		
Glossary			Factor Location		
N - Number of lanes			E _R - Exhibits 11-10, 11-12		
V - Hourly volume			E _T - Exhibits 11-10, 11-11, 11-13		
v _p - Flow rate			f _p - Page 11-18		
LOS - Level of service			LOS, S, FFS, v _p - Exhibits 11-2, 11-3		
DDHV - Directional design hour volume			f _{LW} - Exhibit 11-8		
			f _{LC} - Exhibit 11-9		
			TRD - Page 11-11		

BASIC FREEWAY SEGMENTS WORKSHEET					
General Information			Site Information		
Analyst	JT		Highway/Direction of Travel I-15 Northbound		
Agency or Company	LLG		From/To North of Railroad Canyon Road		
Date Performed	1/12/17		Jurisdiction		
Analysis Time Period	Weekday AM Peak Hour		Analysis Year Year 2022 with Project (Ph. I)		
Project Description 2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore					
☒ Oper.(LOS) ☐ Des.(N) ☐ Planning Data					
Flow Inputs					
Volume, V	3419	veh/h	Peak-Hour Factor, PHF	0.95	
AADT		veh/day	%Trucks and Buses, P _T	2	
Peak-Hr Prop. of AADT, K			%RVs, P _R	0	
Peak-Hr Direction Prop, D			General Terrain:	Level	
DDHV = AADT x K x D		veh/h	Grade %	Length	mi
			Up/Down %		
Calculate Flow Adjustments					
f _p	1.00		E _R	1.2	
E _T	1.5		f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)] 0.990		
Speed Inputs			Calc Speed Adj and FFS		
Lane Width	ft				
Rt-Side Lat. Clearance	ft				
Number of Lanes, N	4				
Total Ramp Density, TRD	ramps/mi				
FFS (measured)	65.0 mph				
Base free-flow Speed, BFFS	mph				
f _{LW}			mph		
f _{LC}			mph		
TRD Adjustment			mph		
FFS			65.0 mph		
LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)			Design LOS		
S			v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)		
D = v _p / S			S		
LOS			D = v _p / S		
909 pc/h/ln			pc/h/ln		
65.0 mph			mph		
14.0 pc/mi/ln			pc/mi/ln		
B			Required Number of Lanes, N		
Glossary			Factor Location		
N - Number of lanes			E _R - Exhibits 11-10, 11-12		
V - Hourly volume			E _T - Exhibits 11-10, 11-11, 11-13		
v _p - Flow rate			f _p - Page 11-18		
LOS - Level of service			LOS, S, FFS, v _p - Exhibits 11-2, 11-3		
DDHV - Directional design hour volume			f _{LW} - Exhibit 11-8		
S - Speed			f _{LC} - Exhibit 11-9		
D - Density			TRD - Page 11-11		
FFS - Free-flow speed					
BFFS - Base free-flow speed					

BASIC FREEWAY SEGMENTS WORKSHEET					
General Information			Site Information		
Analyst	JT		Highway/Direction of Travel I-15 Southbound		
Agency or Company	LLG		From/To North of Railroad Canyon Road		
Date Performed	1/12/17		Jurisdiction		
Analysis Time Period	Weekday AM Peak Hour		Analysis Year Year 2022 with Project (Ph. I)		
Project Description 2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore					
☒ Oper.(LOS) ☐ Des.(N) ☐ Planning Data					
Flow Inputs					
Volume, V	5231		veh/h	Peak-Hour Factor, PHF	0.95
AADT			veh/day	%Trucks and Buses, P _T	2
Peak-Hr Prop. of AADT, K				%RVs, P _R	0
Peak-Hr Direction Prop, D				General Terrain:	Level
DDHV = AADT x K x D			veh/h	Grade % Length	mi
				Up/Down %	
Calculate Flow Adjustments					
f _p	1.00			E _R	1.2
E _T	1.5			f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)] 0.990	
Speed Inputs			Calc Speed Adj and FFS		
Lane Width			ft		
Rt-Side Lat. Clearance			ft	f _{LW}	mph
Number of Lanes, N	4			f _{LC}	mph
Total Ramp Density, TRD			ramps/mi	TRD Adjustment	mph
FFS (measured)	65.0		mph	FFS	65.0 mph
Base free-flow Speed, BFFS			mph		
LOS and Performance Measures			Design (N)		
<u>Operational (LOS)</u>			<u>Design (N)</u>		
v _p = (V or DDHV) / (PHF x N x f _{HV})			Design LOS		
1390			pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV})	
x f _p)				pc/h/ln	
S	65.0		mph	S	
D = v _p / S	21.4		pc/mi/ln	D = v _p / S	
LOS	C			Required Number of Lanes, N	
Glossary			Factor Location		
N - Number of lanes	S - Speed		E _R - Exhibits 11-10, 11-12		
V - Hourly volume	D - Density		f _{LW} - Exhibit 11-8		
v _p - Flow rate	FFS - Free-flow speed		E _T - Exhibits 11-10, 11-11, 11-13		
LOS - Level of service	BFFS - Base free-flow speed		f _{LC} - Exhibit 11-9		
DDHV - Directional design hour volume			f _p - Page 11-18		
			TRD - Page 11-11		
			LOS, S, FFS, v _p - Exhibits 11-2, 11-3		

BASIC FREEWAY SEGMENTS WORKSHEET					
General Information			Site Information		
Analyst	JT		Highway/Direction of Travel I-15 Southbound		
Agency or Company	LLG		From/To North of Bundy Canyon Road		
Date Performed	1/12/17		Jurisdiction		
Analysis Time Period	Weekday AM Peak Hour		Analysis Year Year 2022 with Project (Ph. I)		
Project Description 2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore					
☒ Oper.(LOS) ☐ Des.(N) ☐ Planning Data					
Flow Inputs					
Volume, V	5359	veh/h	Peak-Hour Factor, PHF	0.95	
AADT		veh/day	%Trucks and Buses, P _T	2	
Peak-Hr Prop. of AADT, K			%RVs, P _R	0	
Peak-Hr Direction Prop, D			General Terrain:	Level	
DDHV = AADT x K x D		veh/h	Grade %	Length	mi
			Up/Down %		
Calculate Flow Adjustments					
f _p	1.00		E _R	1.2	
E _T	1.5		f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)] 0.990		
Speed Inputs			Calc Speed Adj and FFS		
Lane Width	ft				
Rt-Side Lat. Clearance	ft				
Number of Lanes, N	3				
Total Ramp Density, TRD	ramps/mi				
FFS (measured)	65.0				
Base free-flow Speed, BFFS	mph		f _{LW}	mph	
			f _{LC}	mph	
			TRD Adjustment	mph	
			FFS	65.0	
			mph		
LOS and Performance Measures			Design (N)		
<u>Operational (LOS)</u>			<u>Design (N)</u>		
v _p = (V or DDHV) / (PHF x N x f _{HV}) 1899			Design LOS		
x f _p)			v _p = (V or DDHV) / (PHF x N x f _{HV})		
S 61.5			x f _p)		
D = v _p / S 30.9			S		
LOS D			D = v _p / S		
			pc/mi/ln		
			Required Number of Lanes, N		
Glossary			Factor Location		
N - Number of lanes	S - Speed		E _R - Exhibits 11-10, 11-12		
V - Hourly volume	D - Density		f _{LW} - Exhibit 11-8		
v _p - Flow rate	FFS - Free-flow speed		E _T - Exhibits 11-10, 11-11, 11-13		
LOS - Level of service	BFFS - Base free-flow speed		f _{LC} - Exhibit 11-9		
DDHV - Directional design hour volume			f _p - Page 11-18		
			TRD - Page 11-11		
			LOS, S, FFS, v _p - Exhibits 11-2, 11-3		

BASIC FREEWAY SEGMENTS WORKSHEET					
General Information			Site Information		
Analyst	JT		Highway/Direction of Travel I-15 Southbound		
Agency or Company	LLG		From/To South of Bundy Canyon Road		
Date Performed	1/12/17		Jurisdiction		
Analysis Time Period	Weekday AM Peak Hour		Analysis Year Year 2022 with Project (Ph. I)		
Project Description 2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore					
☒ Oper.(LOS) ☐ Des.(N) ☐ Planning Data					
Flow Inputs					
Volume, V	6120	veh/h	Peak-Hour Factor, PHF	0.95	
AADT		veh/day	%Trucks and Buses, P _T	2	
Peak-Hr Prop. of AADT, K			%RVs, P _R	0	
Peak-Hr Direction Prop, D			General Terrain:	Level	
DDHV = AADT x K x D		veh/h	Grade %	Length	mi
			Up/Down %		
Calculate Flow Adjustments					
f _p	1.00		E _R	1.2	
E _T	1.5		f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)] 0.990		
Speed Inputs			Calc Speed Adj and FFS		
Lane Width	ft		f_{LW} mph f_{LC} mph TRD Adjustment mph FFS 65.0 mph		
Rt-Side Lat. Clearance	ft				
Number of Lanes, N	3				
Total Ramp Density, TRD	ramps/mi				
FFS (measured)	65.0 mph				
Base free-flow Speed, BFFS	mph				
LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)			Design LOS		
S			v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)		
D = v _p / S			S		
LOS			D = v _p / S		
			Required Number of Lanes, N		
Glossary			Factor Location		
N - Number of lanes			E _R - Exhibits 11-10, 11-12		
V - Hourly volume			E _T - Exhibits 11-10, 11-11, 11-13		
v _p - Flow rate			f _p - Page 11-18		
LOS - Level of service			LOS, S, FFS, v _p - Exhibits 11-2, 11-3		
DDHV - Directional design hour volume			f _{LW} - Exhibit 11-8		
S - Speed			f _{LC} - Exhibit 11-9		
D - Density			TRD - Page 11-11		
FFS - Free-flow speed					
BFFS - Base free-flow speed					

BASIC FREEWAY SEGMENTS WORKSHEET					
General Information			Site Information		
Analyst	JT		Highway/Direction of Travel <i>I-15 Northbound</i>		
Agency or Company	LLG		From/To <i>South of Bundy Canyon Road</i>		
Date Performed	1/12/17		Jurisdiction		
Analysis Time Period	Weekday PM Peak Hour		Analysis Year <i>Year 2022 with Project (Ph. I)</i>		
Project Description <i>2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore</i>					
☒ Oper. (LOS)		☐ Des. (N)		☐ Planning Data	
Flow Inputs					
Volume, V	5017	veh/h	Peak-Hour Factor, PHF	0.95	
AADT		veh/day	% Trucks and Buses, P _T	2	
Peak-Hr Prop. of AADT, K			% RVs, P _R	0	
Peak-Hr Direction Prop, D			General Terrain:	Level	
DDHV = AADT x K x D		veh/h	Grade %	Length	mi
			Up/Down %		
Calculate Flow Adjustments					
f _p	1.00		E _R	1.2	
E _T	1.5		f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)] 0.990		
Speed Inputs			Calc Speed Adj and FFS		
Lane Width		ft			
Rt-Side Lat. Clearance		ft			
Number of Lanes, N	3				
Total Ramp Density, TRD		ramps/mi			
FFS (measured)	65.0	mph			
Base free-flow Speed, BFFS		mph			
			f _{LW}	mph	
			f _{LC}	mph	
			TRD Adjustment	mph	
			FFS	65.0	mph
LOS and Performance Measures					
<u>Operational (LOS)</u>			<u>Design (N)</u>		
v _p = (V or DDHV) / (PHF x N x f _{HV}) 1778 pc/h/ln			Design LOS		
x f _p)			v _p = (V or DDHV) / (PHF x N x f _{HV}) pc/h/ln		
S 63.0 mph			x f _p)		
D = v _p / S 28.2 pc/mi/ln			S mph		
LOS D			D = v _p / S pc/mi/ln		
			Required Number of Lanes, N		
Glossary			Factor Location		
N - Number of lanes			E _R - Exhibits 11-10, 11-12		
S - Speed			f _{LW} - Exhibit 11-8		
V - Hourly volume			E _T - Exhibits 11-10, 11-11, 11-13		
D - Density			f _{LC} - Exhibit 11-9		
v _p - Flow rate			f _p - Page 11-18		
FFS - Free-flow speed			TRD - Page 11-11		
LOS - Level of service			LOS, S, FFS, v _p - Exhibits 11-2, 11-3		
BFFS - Base free-flow speed					
DDHV - Directional design hour volume					

BASIC FREEWAY SEGMENTS WORKSHEET					
General Information			Site Information		
Analyst	JT		Highway/Direction of Travel I-15 Northbound		
Agency or Company	LLG		From/To North of Bundy Canyon Road		
Date Performed	1/12/17		Jurisdiction		
Analysis Time Period	Weekday PM Peak Hour		Analysis Year Year 2022 with Project (Ph. I)		
Project Description 2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore					
☒ Oper.(LOS) ☐ Des.(N) ☐ Planning Data					
Flow Inputs					
Volume, V	4331	veh/h	Peak-Hour Factor, PHF	0.95	
AADT		veh/day	%Trucks and Buses, P _T	2	
Peak-Hr Prop. of AADT, K			%RVs, P _R	0	
Peak-Hr Direction Prop, D			General Terrain:	Level	
DDHV = AADT x K x D		veh/h	Grade %	Length	mi
			Up/Down %		
Calculate Flow Adjustments					
f _p	1.00		E _R	1.2	
E _T	1.5		f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)] 0.990		
Speed Inputs			Calc Speed Adj and FFS		
Lane Width	ft		f_{LW} mph f_{LC} mph TRD Adjustment mph FFS 65.0 mph		
Rt-Side Lat. Clearance	ft				
Number of Lanes, N	3				
Total Ramp Density, TRD	ramps/mi				
FFS (measured)	65.0				
Base free-flow Speed, BFFS	mph				
LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)			Design LOS		
S			v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)		
D = v _p / S			S		
LOS			D = v _p / S		
			Required Number of Lanes, N		
Glossary			Factor Location		
N - Number of lanes			E _R - Exhibits 11-10, 11-12		
V - Hourly volume			E _T - Exhibits 11-10, 11-11, 11-13		
v _p - Flow rate			f _p - Page 11-18		
LOS - Level of service			LOS, S, FFS, v _p - Exhibits 11-2, 11-3		
DDHV - Directional design hour volume			f _{LW} - Exhibit 11-8		
			f _{LC} - Exhibit 11-9		
			TRD - Page 11-11		

BASIC FREEWAY SEGMENTS WORKSHEET					
General Information			Site Information		
Analyst	JT		Highway/Direction of Travel <i>I-15 Northbound</i>		
Agency or Company	LLG		From/To <i>North of Railroad Canyon Road</i>		
Date Performed	1/12/17		Jurisdiction		
Analysis Time Period	Weekday PM Peak Hour		Analysis Year <i>Year 2022 with Project (Ph. I)</i>		
Project Description <i>2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore</i>					
☒ Oper.(LOS) ☐ Des.(N) ☐ Planning Data					
Flow Inputs					
Volume, V	4013	veh/h	Peak-Hour Factor, PHF	0.95	
AADT		veh/day	%Trucks and Buses, P _T	2	
Peak-Hr Prop. of AADT, K			%RVs, P _R	0	
Peak-Hr Direction Prop, D			General Terrain:	Level	
DDHV = AADT x K x D		veh/h	Grade %	Length	mi
				Up/Down %	
Calculate Flow Adjustments					
f _p	1.00		E _R	1.2	
E _T	1.5		f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)] 0.990		
Speed Inputs			Calc Speed Adj and FFS		
Lane Width	ft		f _{LW} mph f _{LC} mph TRD Adjustment mph FFS 65.0 mph		
Rt-Side Lat. Clearance	ft				
Number of Lanes, N	4				
Total Ramp Density, TRD	ramps/mi				
FFS (measured)	65.0 mph				
Base free-flow Speed, BFFS	mph				
LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v _p = (V or DDHV) / (PHF x N x f _{HV}) 1067 pc/h/ln			Design LOS		
x f _p)			v _p = (V or DDHV) / (PHF x N x f _{HV}) pc/h/ln		
S 65.0 mph			x f _p)		
D = v _p / S 16.4 pc/mi/ln			S mph		
LOS B			D = v _p / S pc/mi/ln		
			Required Number of Lanes, N		
Glossary			Factor Location		
N - Number of lanes			E _R - Exhibits 11-10, 11-12		
S - Speed			f _{LW} - Exhibit 11-8		
V - Hourly volume			E _T - Exhibits 11-10, 11-11, 11-13		
D - Density			f _{LC} - Exhibit 11-9		
v _p - Flow rate			f _p - Page 11-18		
FFS - Free-flow speed			TRD - Page 11-11		
LOS - Level of service			LOS, S, FFS, v _p - Exhibits 11-2, 11-3		
BFFS - Base free-flow speed					
DDHV - Directional design hour volume					

BASIC FREEWAY SEGMENTS WORKSHEET					
General Information			Site Information		
Analyst	JT		Highway/Direction of Travel <i>I-15 Southbound</i>		
Agency or Company	LLG		From/To <i>North of Railroad Canyon Road</i>		
Date Performed	1/12/17		Jurisdiction		
Analysis Time Period	Weekday PM Peak Hour		Analysis Year <i>Year 2022 with Project (Ph. I)</i>		
Project Description <i>2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore</i>					
☒ Oper.(LOS) ☐ Des.(N) ☐ Planning Data					
Flow Inputs					
Volume, V	4751	veh/h	Peak-Hour Factor, PHF	0.95	
AADT		veh/day	%Trucks and Buses, P _T	2	
Peak-Hr Prop. of AADT, K			%RVs, P _R	0	
Peak-Hr Direction Prop, D			General Terrain:	Level	
DDHV = AADT x K x D		veh/h	Grade %	Length	mi
			Up/Down %		
Calculate Flow Adjustments					
f _p	1.00		E _R	1.2	
E _T	1.5		f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)] 0.990		
Speed Inputs			Calc Speed Adj and FFS		
Lane Width	ft				
Rt-Side Lat. Clearance	ft				
Number of Lanes, N	4				
Total Ramp Density, TRD	ramps/mi				
FFS (measured)	65.0 mph				
Base free-flow Speed, BFFS	mph				
f _{LW}			mph		
f _{LC}			mph		
TRD Adjustment			mph		
FFS			65.0 mph		
LOS and Performance Measures			Design (N)		
<u>Operational (LOS)</u>			<u>Design (N)</u>		
v _p = (V or DDHV) / (PHF x N x f _{HV})			Design LOS		
1263 pc/h/ln			v _p = (V or DDHV) / (PHF x N x f _{HV})		
x f _p)			pc/h/ln		
S			mph		
D = v _p / S			pc/mi/ln		
19.4			D = v _p / S		
LOS			C		
C			Required Number of Lanes, N		
Glossary			Factor Location		
N - Number of lanes			E _R - Exhibits 11-10, 11-12		
S - Speed			f _{LW} - Exhibit 11-8		
V - Hourly volume			E _T - Exhibits 11-10, 11-11, 11-13		
D - Density			f _{LC} - Exhibit 11-9		
v _p - Flow rate			f _p - Page 11-18		
FFS - Free-flow speed			TRD - Page 11-11		
LOS - Level of service			LOS, S, FFS, v _p - Exhibits 11-2, 11-3		
BFFS - Base free-flow speed					
DDHV - Directional design hour volume					

BASIC FREEWAY SEGMENTS WORKSHEET					
General Information			Site Information		
Analyst	JT		Highway/Direction of Travel <i>I-15 Southbound</i>		
Agency or Company	LLG		From/To <i>North of Bundy Canyon Road</i>		
Date Performed	1/12/17		Jurisdiction		
Analysis Time Period	Weekday PM Peak Hour		Analysis Year <i>Year 2022 with Project (Ph. I)</i>		
Project Description <i>2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore</i>					
☒ Oper.(LOS) ☐ Des.(N) ☐ Planning Data					
Flow Inputs					
Volume, V	4241	veh/h	Peak-Hour Factor, PHF	0.95	
AADT		veh/day	%Trucks and Buses, P _T	2	
Peak-Hr Prop. of AADT, K			%RVs, P _R	0	
Peak-Hr Direction Prop, D			General Terrain:	Level	
DDHV = AADT x K x D		veh/h	Grade %	Length	mi
			Up/Down %		
Calculate Flow Adjustments					
f _p	1.00		E _R	1.2	
E _T	1.5		f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)] 0.990		
Speed Inputs			Calc Speed Adj and FFS		
Lane Width	ft		f_{LW} mph f_{LC} mph TRD Adjustment mph FFS 65.0 mph		
Rt-Side Lat. Clearance	ft				
Number of Lanes, N	3				
Total Ramp Density, TRD	ramps/mi				
FFS (measured)	65.0 mph				
Base free-flow Speed, BFFS	mph				
LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v _p = (V or DDHV) / (PHF x N x f _{HV}) 1503 pc/h/ln			Design LOS		
x f _p)			v _p = (V or DDHV) / (PHF x N x f _{HV})		
S 64.8 mph			x f _p)		
D = v _p / S 23.2 pc/mi/ln			S		
LOS C			D = v _p / S		
			Required Number of Lanes, N		
Glossary			Factor Location		
N - Number of lanes			E _R - Exhibits 11-10, 11-12		
V - Hourly volume			f _{LW} - Exhibit 11-8		
v _p - Flow rate			E _T - Exhibits 11-10, 11-11, 11-13		
LOS - Level of service			f _{LC} - Exhibit 11-9		
DDHV - Directional design hour volume			f _p - Page 11-18		
			TRD - Page 11-11		
			LOS, S, FFS, v _p - Exhibits 11-2, 11-3		

BASIC FREEWAY SEGMENTS WORKSHEET					
General Information			Site Information		
Analyst	JT		Highway/Direction of Travel I-15 Southbound		
Agency or Company	LLG		From/To South of Bundy Canyon Road		
Date Performed	1/12/17		Jurisdiction		
Analysis Time Period	Weekday PM Peak Hour		Analysis Year Year 2022 with Project (Ph. I)		
Project Description 2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore					
☒ Oper.(LOS) ☐ Des.(N) ☐ Planning Data					
Flow Inputs					
Volume, V	4467		veh/h	Peak-Hour Factor, PHF	0.95
AADT			veh/day	%Trucks and Buses, P _T	2
Peak-Hr Prop. of AADT, K				%RVs, P _R	0
Peak-Hr Direction Prop, D				General Terrain:	Level
DDHV = AADT x K x D			veh/h	Grade % Length	mi
				Up/Down %	
Calculate Flow Adjustments					
f _p	1.00		E _R		1.2
E _T	1.5		f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)] 0.990		
Speed Inputs			Calc Speed Adj and FFS		
Lane Width			ft		
Rt-Side Lat. Clearance			ft		
Number of Lanes, N	3		f _{LW}		mph
Total Ramp Density, TRD			f _{LC}		mph
FFS (measured)	65.0		TRD Adjustment		mph
Base free-flow Speed, BFFS			FFS		65.0 mph
LOS and Performance Measures			Design (N)		
<u>Operational (LOS)</u>			<u>Design (N)</u>		
v _p = (V or DDHV) / (PHF x N x f _{HV})			Design LOS		
1583	pc/h/ln		v _p = (V or DDHV) / (PHF x N x f _{HV})		
x f _p)			pc/h/ln		
S	64.5 mph		x f _p)		
D = v _p / S	24.5 pc/mi/ln		S		
LOS	C		D = v _p / S		
			pc/mi/ln		
			Required Number of Lanes, N		
Glossary			Factor Location		
N - Number of lanes	S - Speed		E _R - Exhibits 11-10, 11-12		f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density		E _T - Exhibits 11-10, 11-11, 11-13		f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed		f _p - Page 11-18		TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed		LOS, S, FFS, v _p - Exhibits 11-2, 11-3		
DDHV - Directional design hour volume					

APPENDIX J-III

**YEAR 2022 WITH ELSP PROJECT PHASE I
WITH MITIGATION TRAFFIC CONDITIONS**

BASIC FREEWAY SEGMENTS WORKSHEET					
General Information			Site Information		
Analyst	JT		Highway/Direction of Travel I-15 Southbound		
Agency or Company	LLG		From/To South of Bundy Canyon Road		
Date Performed	1/12/17		Jurisdiction [Mitigation]		
Analysis Time Period	Weekday AM Peak Hour		Analysis Year Year 2022 with Project (Ph. I)		
Project Description 2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore					
☒ Oper.(LOS) ☐ Des.(N) ☐ Planning Data					
Flow Inputs					
Volume, V	6120	veh/h	Peak-Hour Factor, PHF	0.95	
AADT		veh/day	%Trucks and Buses, P _T	2	
Peak-Hr Prop. of AADT, K			%RVs, P _R	0	
Peak-Hr Direction Prop, D			General Terrain:	Level	
DDHV = AADT x K x D		veh/h	Grade %	Length mi	Up/Down %
Calculate Flow Adjustments					
f _p	1.00		E _R	1.2	
E _T	1.5		f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)] 0.990		
Speed Inputs			Calc Speed Adj and FFS		
Lane Width		ft			
Rt-Side Lat. Clearance		ft	f _{LW}		mph
Number of Lanes, N	4		f _{LC}		mph
Total Ramp Density, TRD		ramps/mi	TRD Adjustment		mph
FFS (measured)	65.0	mph	FFS	65.0	mph
Base free-flow Speed, BFFS		mph			
LOS and Performance Measures			Design (N)		
<u>Operational (LOS)</u>			<u>Design (N)</u>		
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)			Design LOS		
	1627	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)		
S	64.3	mph	S		
D = v _p / S	25.3	pc/mi/ln	D = v _p / S		
LOS	C		Required Number of Lanes, N		
Glossary			Factor Location		
N - Number of lanes	S - Speed		E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8	
V - Hourly volume	D - Density		E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9	
v _p - Flow rate	FFS - Free-flow speed		f _p - Page 11-18	TRD - Page 11-11	
LOS - Level of service	BFFS - Base free-flow speed		LOS, S, FFS, v _p - Exhibits 11-2, 11-3		
DDHV - Directional design hour volume					

BASIC FREEWAY SEGMENTS WORKSHEET					
General Information			Site Information		
Analyst	JT		Highway/Direction of Travel I-15 Southbound		
Agency or Company	LLG		From/To South of Bundy Canyon Road		
Date Performed	1/12/17		Jurisdiction [Mitigation]		
Analysis Time Period	Weekday PM Peak Hour		Analysis Year Year 2022 with Project (Ph. I)		
Project Description 2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore					
☒ Oper.(LOS) ☐ Des.(N) ☐ Planning Data					
Flow Inputs					
Volume, V	4467		veh/h	Peak-Hour Factor, PHF	0.95
AADT			veh/day	%Trucks and Buses, P _T	2
Peak-Hr Prop. of AADT, K				%RVs, P _R	0
Peak-Hr Direction Prop, D				General Terrain:	Level
DDHV = AADT x K x D			veh/h	Grade % Length	mi
				Up/Down %	
Calculate Flow Adjustments					
f _p	1.00			E _R	1.2
E _T	1.5			f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)] 0.990	
Speed Inputs			Calc Speed Adj and FFS		
Lane Width			ft		
Rt-Side Lat. Clearance			ft	f _{LW}	mph
Number of Lanes, N	4			f _{LC}	mph
Total Ramp Density, TRD			ramps/mi	TRD Adjustment	mph
FFS (measured)	65.0		mph	FFS	65.0 mph
Base free-flow Speed, BFFS			mph		
LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)			Design LOS		
S	65.0		mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)	
D = v _p / S	18.3		pc/mi/ln	S	
LOS	C			D = v _p / S	
			Required Number of Lanes, N		
Glossary			Factor Location		
N - Number of lanes	S - Speed		E _R - Exhibits 11-10, 11-12		
V - Hourly volume	D - Density		f _{LW} - Exhibit 11-8		
v _p - Flow rate	FFS - Free-flow speed		E _T - Exhibits 11-10, 11-11, 11-13		
LOS - Level of service	BFFS - Base free-flow speed		f _p - Page 11-18		
DDHV - Directional design hour volume			TRD - Page 11-11		
			LOS, S, FFS, v _p - Exhibits 11-2, 11-3		

APPENDIX K

YEAR 2022 TRAFFIC CONDITIONS FREEWAY MERGE AND DIVERGE SEGMENTS LEVEL OF SERVICE CALCULATION WORKSHEETS

APPENDIX K-1

**YEAR 2022 WITHOUT ELSP PROJECT PHASE I
TRAFFIC CONDITIONS**

RAMPS AND RAMP JUNCTIONS WORKSHEET									
General Information					Site Information				
Analyst		JT		Freeway/Dir of Travel		I-15 Northbound			
Agency or Company		LLG		Junction		Railroad Canyon Road Off-Ramp			
Date Performed		1/12/17		Jurisdiction					
Analysis Time Period		Weekday AM Peak Hour		Analysis Year		Year 2022 without Project			
Project Description 2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore									
Inputs									
Upstream Adj Ramp ☐ Yes ☐ On ☒ No ☐ Off L _{up} = ft V _u = veh/h		Freeway Number of Lanes, N 3				Downstream Adj Ramp ☒ Yes ☒ On ☐ No ☐ Off L _{down} = 3000 ft V _D = 751 veh/h			
		Ramp Number of Lanes, N 1							
		Acceleration Lane Length, L _A							
		Deceleration Lane Length L _D 1500							
		Freeway Volume, V _F 3214							
		Ramp Volume, V _R 565							
Freeway Free-Flow Speed, S _{FF} 65.0									
Ramp Free-Flow Speed, S _{FR} 35.0									
Conversion to pc/h Under Base Conditions									
(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f _{HV}	f _p	v = V/PHF × f _{HV} × f _p	
Freeway	3214	0.95	Level	2	0	0.990	1.00	3417	
Ramp	565	0.95	Level	2	0	0.990	1.00	601	
UpStream									
DownStream	751	0.95	Level	2	0	0.990	1.00	798	
Merge Areas					Diverge Areas				
Estimation of v₁₂					Estimation of v₁₂				
V ₁₂ = V _F (P _{FM}) (Equation 13-6 or 13-7) P _{FM} = using Equation (Exhibit 13-6) V ₁₂ = pc/h V ₃ or V _{av34} pc/h (Equation 13-14 or 13-17) Is V ₃ or V _{av34} > 2,700 pc/h? ☐ Yes ☐ No Is V ₃ or V _{av34} > 1.5 * V ₁₂ /2 ☐ Yes ☐ No If Yes, V _{12a} = pc/h (Equation 13-16, 13-18, or 13-19)					V ₁₂ = V _R + (V _F - V _R)P _{FD} (Equation 13-12 or 13-13) P _{FD} = 0.647 using Equation (Exhibit 13-7) V ₁₂ = 2423 pc/h V ₃ or V _{av34} 994 pc/h (Equation 13-14 or 13-17) Is V ₃ or V _{av34} > 2,700 pc/h? ☐ Yes ☒ No Is V ₃ or V _{av34} > 1.5 * V ₁₂ /2 ☐ Yes ☒ No If Yes, V _{12a} = pc/h (Equation 13-16, 13-18, or 13-19)				
Capacity Checks					Capacity Checks				
	Actual	Capacity		LOS F?		Actual	Capacity		LOS F?
V _{FO}		Exhibit 13-8			V _F	3417	Exhibit 13-8	7050	No
					V _{FO} = V _F - V _R	2816	Exhibit 13-8	7050	No
					V _R	601	Exhibit 13-10	2000	No
Flow Entering Merge Influence Area					Flow Entering Diverge Influence Area				
	Actual	Max Desirable		Violation?		Actual	Max Desirable		Violation?
V _{R12}		Exhibit 13-8			V ₁₂	2423	Exhibit 13-8	4400:All	No
Level of Service Determination (if not F)					Level of Service Determination (if not F)				
D _R = 5.475 + 0.00734 v _R + 0.0078 V ₁₂ - 0.00627 L _A					D _R = 4.252 + 0.0086 V ₁₂ - 0.009 L _D				
D _R = (pc/mi/ln)					D _R = 11.6 (pc/mi/ln)				
LOS = (Exhibit 13-2)					LOS = B (Exhibit 13-2)				
Speed Determination					Speed Determination				
M _S = (Exhibit 13-11)					D _S = 0.482 (Exhibit 13-12)				
S _R = mph (Exhibit 13-11)					S _R = 53.9 mph (Exhibit 13-12)				
S ₀ = mph (Exhibit 13-11)					S ₀ = 71.3 mph (Exhibit 13-12)				
S = mph (Exhibit 13-13)					S = 58.0 mph (Exhibit 13-13)				

RAMPS AND RAMP JUNCTIONS WORKSHEET									
General Information					Site Information				
Analyst	JT		Freeway/Dir of Travel	I-15 Northbound					
Agency or Company	LLG		Junction	Railroad Canyon Road On-Ramp					
Date Performed	1/12/17		Jurisdiction						
Analysis Time Period	Weekday AM Peak Hour		Analysis Year	Year 2022 without Project					
Project Description 2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore									
Inputs									
Upstream Adj Ramp ☒ Yes ☐ On ☐ No ☒ Off L _{up} = 3000 ft V _u = 565 veh/h		Freeway Number of Lanes, N 4				Downstream Adj Ramp ☐ Yes ☐ On ☒ No ☐ Off L _{down} = ft V _D = veh/h			
		Ramp Number of Lanes, N 1							
		Acceleration Lane Length, L _A 1500							
		Deceleration Lane Length L _D							
		Freeway Volume, V _F 2649							
		Ramp Volume, V _R 751							
Freeway Free-Flow Speed, S _{FF} 65.0									
Ramp Free-Flow Speed, S _{FR} 35.0									
Conversion to pc/h Under Base Conditions									
(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f _{HV}	f _p	v = V/PHF x f _{HV} x f _p	
Freeway	2649	0.95	Level	2	0	0.990	1.00	2816	
Ramp	751	0.95	Level	2	0	0.990	1.00	798	
UpStream	565	0.95	Level	2	0	0.990	1.00	601	
DownStream									
Merge Areas					Diverge Areas				
Estimation of v ₁₂					Estimation of v ₁₂				
$V_{12} = V_F (P_{FM})$ (Equation 13-6 or 13-7) P _{FM} = 0.118 using Equation (Exhibit 13-6) V ₁₂ = 332 pc/h V ₃ or V _{av34} 1242 pc/h (Equation 13-14 or 13-17) Is V ₃ or V _{av34} > 2,700 pc/h? ☐ Yes ☒ No Is V ₃ or V _{av34} > 1.5 * V ₁₂ /2 ☒ Yes ☐ No If Yes, V _{12a} = 1126 pc/h (Equation 13-16, 13-18, or 13-19)					$V_{12} = V_R + (V_F - V_R)P_{FD}$ (Equation 13-12 or 13-13) P _{FD} = using Equation (Exhibit 13-7) V ₁₂ = pc/h V ₃ or V _{av34} pc/h (Equation 13-14 or 13-17) Is V ₃ or V _{av34} > 2,700 pc/h? ☐ Yes ☐ No Is V ₃ or V _{av34} > 1.5 * V ₁₂ /2 ☐ Yes ☐ No If Yes, V _{12a} = pc/h (Equation 13-16, 13-18, or 13-19)				
Capacity Checks					Capacity Checks				
	Actual	Capacity		LOS F?		Actual	Capacity		LOS F?
V _{FO}	3614	Exhibit 13-8		No	V _F		Exhibit 13-8		
					V _{FO} = V _F - V _R		Exhibit 13-8		
					V _R		Exhibit 13-10		
Flow Entering Merge Influence Area					Flow Entering Diverge Influence Area				
	Actual	Max Desirable		Violation?		Actual	Max Desirable		Violation?
V _{R12}	1924	Exhibit 13-8	4600:All	No	V ₁₂		Exhibit 13-8		
Level of Service Determination (if not F)					Level of Service Determination (if not F)				
$D_R = 5.475 + 0.00734 v_R + 0.0078 V_{12} - 0.00627 L_A$ D _R = 10.7 (pc/mi/ln) LOS = B (Exhibit 13-2)					$D_R = 4.252 + 0.0086 V_{12} - 0.009 L_D$ D _R = (pc/mi/ln) LOS = (Exhibit 13-2)				
Speed Determination					Speed Determination				
M _S = 0.243 (Exhibit 13-11) S _R = 59.4 mph (Exhibit 13-11) S ₀ = 63.8 mph (Exhibit 13-11) S = 61.4 mph (Exhibit 13-13)					D _s = (Exhibit 13-12) S _R = mph (Exhibit 13-12) S ₀ = mph (Exhibit 13-12) S = mph (Exhibit 13-13)				

RAMPS AND RAMP JUNCTIONS WORKSHEET									
General Information					Site Information				
Analyst		JT		Freeway/Dir of Travel		I-15 Southbound			
Agency or Company		LLG		Junction		Railroad Canyon Road Off-Ramp			
Date Performed		1/12/17		Jurisdiction					
Analysis Time Period		Weekday AM Peak Hour		Analysis Year		Year 2022 without Project			
Project Description 2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore									
Inputs									
Upstream Adj Ramp ☐ Yes ☐ On ☒ No ☐ Off L _{up} = ft V _u = veh/h		Freeway Number of Lanes, N				4		Downstream Adj Ramp ☒ Yes ☒ On ☐ No ☐ Off L _{down} = 3000 ft V _D = 914 veh/h	
		Ramp Number of Lanes, N				2			
		Acceleration Lane Length, L _A							
		Deceleration Lane Length L _D				170			
		Freeway Volume, V _F				5211			
		Ramp Volume, V _R				796			
		Freeway Free-Flow Speed, S _{FF}				65.0			
		Ramp Free-Flow Speed, S _{FR}				35.0			
Conversion to pc/h Under Base Conditions									
(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f _{HV}	f _p	v = V/PHF × f _{HV} × f _p	
Freeway	5211	0.95	Level	2	0	0.990	1.00	5540	
Ramp	796	0.95	Level	2	0	0.990	1.00	846	
UpStream									
DownStream	914	0.95	Level	2	0	0.990	1.00	972	
Merge Areas					Diverge Areas				
Estimation of v₁₂					Estimation of v₁₂				
V ₁₂ = V _F (P _{FM}) (Equation 13-6 or 13-7) L _{EQ} = P _{FM} = using Equation (Exhibit 13-6) V ₁₂ = pc/h V ₃ or V _{av34} pc/h (Equation 13-14 or 13-17) Is V ₃ or V _{av34} > 2,700 pc/h? ☐ Yes ☐ No Is V ₃ or V _{av34} > 1.5 * V ₁₂ /2 ☐ Yes ☐ No If Yes, V _{12a} = pc/h (Equation 13-16, 13-18, or 13-19)					V ₁₂ = V _R + (V _F - V _R)P _{FD} (Equation 13-12 or 13-13) L _{EQ} = P _{FD} = 0.260 using Equation (Exhibit 13-7) V ₁₂ = 2066 pc/h V ₃ or V _{av34} 1737 pc/h (Equation 13-14 or 13-17) Is V ₃ or V _{av34} > 2,700 pc/h? ☐ Yes ☒ No Is V ₃ or V _{av34} > 1.5 * V ₁₂ /2 ☒ Yes ☐ No If Yes, V _{12a} = 2216 pc/h (Equation 13-16, 13-18, or 13-19)				
Capacity Checks					Capacity Checks				
	Actual	Capacity		LOS F?		Actual	Capacity		LOS F?
V _{FO}		Exhibit 13-8			V _F	5540	Exhibit 13-8	9400	No
			V _{FO} = V _F - V _R	4694	Exhibit 13-8	9400	No		
			V _R	846	Exhibit 13-10	4000	No		
Flow Entering Merge Influence Area					Flow Entering Diverge Influence Area				
	Actual	Max Desirable		Violation?		Actual	Max Desirable		Violation?
V _{R12}		Exhibit 13-8			V ₁₂	2066	Exhibit 13-8	4400:All	No
Level of Service Determination (if not F)					Level of Service Determination (if not F)				
D _R = 5.475 + 0.00734 v _R + 0.0078 V ₁₂ - 0.00627 L _A					D _R = 4.252 + 0.0086 V ₁₂ - 0.009 L _D				
D _R = (pc/mi/ln)					D _R = 6.7 (pc/mi/ln)				
LOS = (Exhibit 13-2)					LOS = A (Exhibit 13-2)				
Speed Determination					Speed Determination				
M _S = (Exhibit 13-11)					D _S = 0.504 (Exhibit 13-12)				
S _R = mph (Exhibit 13-11)					S _R = 53.4 mph (Exhibit 13-12)				
S ₀ = mph (Exhibit 13-11)					S ₀ = 68.7 mph (Exhibit 13-12)				
S = mph (Exhibit 13-13)					S = 61.6 mph (Exhibit 13-13)				

RAMPS AND RAMP JUNCTIONS WORKSHEET									
General Information					Site Information				
Analyst	JT		Freeway/Dir of Travel	I-15 Southbound					
Agency or Company	LLG		Junction	Railroad Canyon Road On-Ramp					
Date Performed	1/12/17		Jurisdiction						
Analysis Time Period	Weekday AM Peak Hour		Analysis Year	Year 2022 without Project					
Project Description 2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore									
Inputs									
Upstream Adj Ramp ☒ Yes ☐ On ☐ No ☒ Off		Freeway Number of Lanes, N 3				Downstream Adj Ramp ☐ Yes ☐ On ☒ No ☐ Off			
		Ramp Number of Lanes, N 1							
$L_{up} =$ 3000 ft $V_u =$ 796 veh/h		Acceleration Lane Length, L_A 1500				$L_{down} =$ ft $V_D =$ veh/h			
		Deceleration Lane Length L_D							
		Freeway Volume, V_F 4415							
		Ramp Volume, V_R 914							
		Freeway Free-Flow Speed, S_{FF} 65.0							
		Ramp Free-Flow Speed, S_{FR} 35.0							
Conversion to pc/h Under Base Conditions									
(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	$v = V/PHF \times f_{HV} \times f_p$	
Freeway	4415	0.95	Level	2	0	0.990	1.00	4694	
Ramp	914	0.95	Level	2	0	0.990	1.00	972	
UpStream	796	0.95	Level	2	0	0.990	1.00	846	
DownStream									
Merge Areas					Diverge Areas				
Estimation of v_{12}					Estimation of v_{12}				
$V_{12} = V_F (P_{FM})$ $L_{EQ} =$ 1306.72 (Equation 13-6 or 13-7) $P_{FM} =$ 0.619 using Equation (Exhibit 13-6) $V_{12} =$ 2908 pc/h V_3 or V_{av34} 1786 pc/h (Equation 13-14 or 13-17) Is V_3 or $V_{av34} > 2,700$ pc/h? ☐ Yes ☒ No Is V_3 or $V_{av34} > 1.5 * V_{12}/2$ ☒ Yes ☐ No If Yes, $V_{12a} =$ 2908 pc/h (Equation 13-16, 13-18, or 13-19)					$V_{12} = V_R + (V_F - V_R)P_{FD}$ $L_{EQ} =$ (Equation 13-12 or 13-13) $P_{FD} =$ using Equation (Exhibit 13-7) $V_{12} =$ pc/h V_3 or V_{av34} pc/h (Equation 13-14 or 13-17) Is V_3 or $V_{av34} > 2,700$ pc/h? ☐ Yes ☐ No Is V_3 or $V_{av34} > 1.5 * V_{12}/2$ ☐ Yes ☐ No If Yes, $V_{12a} =$ pc/h (Equation 13-16, 13-18, or 13-19)				
Capacity Checks					Capacity Checks				
	Actual	Capacity		LOS F?		Actual	Capacity		LOS F?
V_{FO}	5666	Exhibit 13-8		No	V_F		Exhibit 13-8		
					$V_{FO} = V_F - V_R$		Exhibit 13-8		
					V_R		Exhibit 13-10		
Flow Entering Merge Influence Area					Flow Entering Diverge Influence Area				
	Actual	Max Desirable		Violation?		Actual	Max Desirable		Violation?
V_{R12}	3880	Exhibit 13-8	4600:All	No	V_{12}		Exhibit 13-8		
Level of Service Determination (if not F)					Level of Service Determination (if not F)				
$D_R = 5.475 + 0.00734 v_R + 0.0078 V_{12} - 0.00627 L_A$ $D_R =$ 25.9 (pc/mi/ln) LOS = C (Exhibit 13-2)					$D_R = 4.252 + 0.0086 V_{12} - 0.009 L_D$ $D_R =$ (pc/mi/ln) LOS = (Exhibit 13-2)				
Speed Determination					Speed Determination				
$M_S =$ 0.405 (Exhibit 13-11) $S_R =$ 55.7 mph (Exhibit 13-11) $S_0 =$ 60.4 mph (Exhibit 13-11) $S =$ 57.1 mph (Exhibit 13-13)					$D_s =$ (Exhibit 13-12) $S_R =$ mph (Exhibit 13-12) $S_0 =$ mph (Exhibit 13-12) $S =$ mph (Exhibit 13-13)				

RAMPS AND RAMP JUNCTIONS WORKSHEET													
General Information					Site Information								
Analyst		JT		Freeway/Dir of Travel		I-15 Northbound							
Agency or Company		LLG		Junction		Railroad Canyon Road Off-Ramp							
Date Performed		1/12/17		Jurisdiction									
Analysis Time Period		Weekday PM Peak Hour		Analysis Year		Year 2022 without Project							
Project Description 2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore													
Inputs													
Upstream Adj Ramp ☐ Yes ☐ On ☒ No ☐ Off L _{up} = ft V _u = veh/h		Freeway Number of Lanes, N 3				Downstream Adj Ramp ☒ Yes ☒ On ☐ No ☐ Off L _{down} = 3000 ft V _D = 743 veh/h							
		Ramp Number of Lanes, N 1											
		Acceleration Lane Length, L _A											
		Deceleration Lane Length L _D 1500											
		Freeway Volume, V _F 4301											
		Ramp Volume, V _R 1035											
Freeway Free-Flow Speed, S _{FF} 65.0													
Ramp Free-Flow Speed, S _{FR} 35.0													
Conversion to pc/h Under Base Conditions													
(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f _{HV}	f _p	v = V/PHF × f _{HV} × f _p					
Freeway	4301	0.95	Level	2	0	0.990	1.00	4573					
Ramp	1035	0.95	Level	2	0	0.990	1.00	1100					
UpStream													
DownStream	743	0.95	Level	2	0	0.990	1.00	790					
Merge Areas					Diverge Areas								
Estimation of v₁₂					Estimation of v₁₂								
V ₁₂ = V _F (P _{FM}) (Equation 13-6 or 13-7) L _{EQ} = P _{FM} = using Equation (Exhibit 13-6) V ₁₂ = pc/h V ₃ or V _{av34} pc/h (Equation 13-14 or 13-17) Is V ₃ or V _{av34} > 2,700 pc/h? ☐ Yes ☐ No Is V ₃ or V _{av34} > 1.5 * V ₁₂ /2 ☐ Yes ☐ No If Yes, V _{12a} = pc/h (Equation 13-16, 13-18, or 13-19)					V ₁₂ = V _R + (V _F - V _R)P _{FD} (Equation 13-12 or 13-13) L _{EQ} = P _{FD} = 0.595 using Equation (Exhibit 13-7) V ₁₂ = 3167 pc/h V ₃ or V _{av34} 1406 pc/h (Equation 13-14 or 13-17) Is V ₃ or V _{av34} > 2,700 pc/h? ☐ Yes ☒ No Is V ₃ or V _{av34} > 1.5 * V ₁₂ /2 ☐ Yes ☒ No If Yes, V _{12a} = pc/h (Equation 13-16, 13-18, or 13-19)								
Capacity Checks					Capacity Checks								
		Actual	Capacity		LOS F?								
V _{FO}		Exhibit 13-8					V _F	4573	Exhibit 13-8	7050	No		
							V _{FO} = V _F - V _R	3473	Exhibit 13-8	7050	No		
							V _R	1100	Exhibit 13-10	2000	No		
Flow Entering Merge Influence Area					Flow Entering Diverge Influence Area								
		Actual	Max Desirable		Violation?				Actual	Max Desirable		Violation?	
V _{R12}			Exhibit 13-8				V ₁₂		3167	Exhibit 13-8	4400:All	No	
Level of Service Determination (if not F)					Level of Service Determination (if not F)								
D _R = 5.475 + 0.00734 V _R + 0.0078 V ₁₂ - 0.00627 L _A					D _R = 4.252 + 0.0086 V ₁₂ - 0.009 L _D								
D _R = (pc/mi/ln)					D _R = 18.0 (pc/mi/ln)								
LOS = (Exhibit 13-2)					LOS = B (Exhibit 13-2)								
Speed Determination					Speed Determination								
M _S = (Exhibit 13-11)					D _S = 0.527 (Exhibit 13-12)								
S _R = mph (Exhibit 13-11)					S _R = 52.9 mph (Exhibit 13-12)								
S ₀ = mph (Exhibit 13-11)					S ₀ = 69.7 mph (Exhibit 13-12)								
S = mph (Exhibit 13-13)					S = 57.1 mph (Exhibit 13-13)								

RAMPS AND RAMP JUNCTIONS WORKSHEET									
General Information					Site Information				
Analyst	JT		Freeway/Dir of Travel	I-15 Northbound					
Agency or Company	LLG		Junction	Railroad Canyon Road On-Ramp					
Date Performed	1/12/17		Jurisdiction						
Analysis Time Period	Weekday PM Peak Hour		Analysis Year	Year 2022 without Project					
Project Description 2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore									
Inputs									
Upstream Adj Ramp ☒ Yes ☐ On ☐ No ☒ Off		Freeway Number of Lanes, N 4				Downstream Adj Ramp ☐ Yes ☐ On ☒ No ☐ Off			
		Ramp Number of Lanes, N 1							
L _{up} = 3000 ft V _u = 1035 veh/h		Acceleration Lane Length, L _A 1500				L _{down} = ft V _D = veh/h			
		Deceleration Lane Length L _D							
		Freeway Volume, V _F 3266							
		Ramp Volume, V _R 743							
		Freeway Free-Flow Speed, S _{FF} 65.0							
		Ramp Free-Flow Speed, S _{FR} 35.0							
Conversion to pc/h Under Base Conditions									
(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f _{HV}	f _p	v = V/PHF × f _{HV} × f _p	
Freeway	3266	0.95	Level	2	0	0.990	1.00	3472	
Ramp	743	0.95	Level	2	0	0.990	1.00	790	
UpStream	1035	0.95	Level	2	0	0.990	1.00	1100	
DownStream									
Merge Areas					Diverge Areas				
Estimation of v ₁₂					Estimation of v ₁₂				
$V_{12} = V_F (P_{FM})$ (Equation 13-6 or 13-7) L _{EQ} = P _{FM} = 0.119 using Equation (Exhibit 13-6) V ₁₂ = 413 pc/h V ₃ or V _{av34} = 1529 pc/h (Equation 13-14 or 13-17) Is V ₃ or V _{av34} > 2,700 pc/h? ☐ Yes ☒ No Is V ₃ or V _{av34} > 1.5 * V ₁₂ /2 ☒ Yes ☐ No If Yes, V _{12a} = 1388 pc/h (Equation 13-16, 13-18, or 13-19)					$V_{12} = V_R + (V_F - V_R)P_{FD}$ (Equation 13-12 or 13-13) L _{EQ} = P _{FD} = using Equation (Exhibit 13-7) V ₁₂ = pc/h V ₃ or V _{av34} = pc/h (Equation 13-14 or 13-17) Is V ₃ or V _{av34} > 2,700 pc/h? ☐ Yes ☐ No Is V ₃ or V _{av34} > 1.5 * V ₁₂ /2 ☐ Yes ☐ No If Yes, V _{12a} = pc/h (Equation 13-16, 13-18, or 13-19)				
Capacity Checks					Capacity Checks				
	Actual	Capacity		LOS F?		Actual	Capacity		LOS F?
V _{FO}	4262	Exhibit 13-8		No	V _F		Exhibit 13-8		
					V _{FO} = V _F - V _R		Exhibit 13-8		
					V _R		Exhibit 13-10		
Flow Entering Merge Influence Area					Flow Entering Diverge Influence Area				
	Actual	Max Desirable		Violation?		Actual	Max Desirable		Violation?
V _{R12}	2178	Exhibit 13-8	4600:All	No	V ₁₂		Exhibit 13-8		
Level of Service Determination (if not F)					Level of Service Determination (if not F)				
$D_R = 5.475 + 0.00734 v_R + 0.0078 V_{12} - 0.00627 L_A$ D _R = 12.7 (pc/mi/ln) LOS = B (Exhibit 13-2)					$D_R = 4.252 + 0.0086 V_{12} - 0.009 L_D$ D _R = (pc/mi/ln) LOS = (Exhibit 13-2)				
Speed Determination					Speed Determination				
M _S = 0.250 (Exhibit 13-11) S _R = 59.2 mph (Exhibit 13-11) S ₀ = 63.0 mph (Exhibit 13-11) S = 61.0 mph (Exhibit 13-13)					D _s = (Exhibit 13-12) S _R = mph (Exhibit 13-12) S ₀ = mph (Exhibit 13-12) S = mph (Exhibit 13-13)				

RAMPS AND RAMP JUNCTIONS WORKSHEET													
General Information					Site Information								
Analyst		JT		Freeway/Dir of Travel		I-15 Southbound							
Agency or Company		LLG		Junction		Railroad Canyon Road Off-Ramp							
Date Performed		1/12/17		Jurisdiction									
Analysis Time Period		Weekday PM Peak Hour		Analysis Year		Year 2022 without Project							
Project Description 2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore													
Inputs													
Upstream Adj Ramp ☐ Yes ☐ On ☒ No ☐ Off $L_{up} =$ ft $V_u =$ veh/h		Freeway Number of Lanes, N				4		Downstream Adj Ramp ☒ Yes ☒ On ☐ No ☐ Off $L_{down} =$ 3000 ft $V_D =$ 650 veh/h					
		Ramp Number of Lanes, N				2							
		Acceleration Lane Length, L_A											
		Deceleration Lane Length L_D				170							
		Freeway Volume, V_F				4704							
		Ramp Volume, V_R				1126							
Freeway Free-Flow Speed, S_{FF}				65.0									
Ramp Free-Flow Speed, S_{FR}				35.0									
Conversion to pc/h Under Base Conditions													
(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	$v = V/PHF \times f_{HV} \times f_p$					
Freeway	4704	0.95	Level	2	0	0.990	1.00	5001					
Ramp	1126	0.95	Level	2	0	0.990	1.00	1197					
UpStream													
DownStream	650	0.95	Level	2	0	0.990	1.00	691					
Merge Areas					Diverge Areas								
Estimation of v_{12}					Estimation of v_{12}								
$V_{12} = V_F (P_{FM})$ $L_{EQ} =$ (Equation 13-6 or 13-7) $P_{FM} =$ using Equation (Exhibit 13-6) $V_{12} =$ pc/h V_3 or V_{av34} pc/h (Equation 13-14 or 13-17) Is V_3 or $V_{av34} > 2,700$ pc/h? ☐ Yes ☐ No Is V_3 or $V_{av34} > 1.5 * V_{12}/2$ ☐ Yes ☐ No If Yes, $V_{12a} =$ pc/h (Equation 13-16, 13-18, or 13-19)					$V_{12} = V_R + (V_F - V_R)P_{FD}$ $L_{EQ} =$ (Equation 13-12 or 13-13) $P_{FD} =$ 0.260 using Equation (Exhibit 13-7) $V_{12} =$ 2186 pc/h V_3 or V_{av34} 1407 pc/h (Equation 13-14 or 13-17) Is V_3 or $V_{av34} > 2,700$ pc/h? ☐ Yes ☒ No Is V_3 or $V_{av34} > 1.5 * V_{12}/2$ ☐ Yes ☒ No If Yes, $V_{12a} =$ pc/h (Equation 13-16, 13-18, or 13-19)								
Capacity Checks					Capacity Checks								
		Actual	Capacity		LOS F?								
V_{FO}		Exhibit 13-8					V_F	5001	Exhibit 13-8	9400	No		
							$V_{FO} = V_F - V_R$	3804	Exhibit 13-8	9400	No		
							V_R	1197	Exhibit 13-10	4000	No		
Flow Entering Merge Influence Area					Flow Entering Diverge Influence Area								
		Actual	Max Desirable		Violation?				Actual	Max Desirable		Violation?	
V_{R12}			Exhibit 13-8				V_{12}		2186	Exhibit 13-8	4400:All	No	
Level of Service Determination (if not F)					Level of Service Determination (if not F)								
$D_R = 5.475 + 0.00734 v_R + 0.0078 V_{12} - 0.00627 L_A$ $D_R =$ (pc/mi/ln) LOS = (Exhibit 13-2)					$D_R = 4.252 + 0.0086 V_{12} - 0.009 L_D$ $D_R =$ 6.5 (pc/mi/ln) LOS = A (Exhibit 13-2)								
Speed Determination					Speed Determination								
$M_S =$ (Exhibit 13-11) $S_R =$ mph (Exhibit 13-11) $S_0 =$ mph (Exhibit 13-11) $S =$ mph (Exhibit 13-13)					$D_s =$ 0.536 (Exhibit 13-12) $S_R =$ 52.7 mph (Exhibit 13-12) $S_0 =$ 69.7 mph (Exhibit 13-12) $S =$ 61.1 mph (Exhibit 13-13)								

RAMPS AND RAMP JUNCTIONS WORKSHEET									
General Information					Site Information				
Analyst		JT		Freeway/Dir of Travel		I-15 Southbound			
Agency or Company		LLG		Junction		Railroad Canyon Road On-Ramp			
Date Performed		1/12/17		Jurisdiction					
Analysis Time Period		Weekday PM Peak Hour		Analysis Year		Year 2022 without Project			
Project Description 2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore									
Inputs									
Upstream Adj Ramp		Freeway Number of Lanes, N				3		Downstream Adj Ramp	
☒ Yes ☐ On		Ramp Number of Lanes, N				1		☐ Yes ☐ On	
☐ No ☒ Off		Acceleration Lane Length, L_A				1500		☒ No ☐ Off	
$L_{up} = 3000$ ft		Deceleration Lane Length L_D						$L_{down} =$ ft	
$V_u = 1126$ veh/h		Freeway Volume, V_F				3578		$V_D =$ veh/h	
		Ramp Volume, V_R				650			
		Freeway Free-Flow Speed, S_{FF}				65.0			
		Ramp Free-Flow Speed, S_{FR}				35.0			
Conversion to pc/h Under Base Conditions									
(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	$v = V/PHF \times f_{HV} \times f_p$	
Freeway	3578	0.95	Level	2	0	0.990	1.00	3804	
Ramp	650	0.95	Level	2	0	0.990	1.00	691	
UpStream	1126	0.95	Level	2	0	0.990	1.00	1197	
DownStream									
Merge Areas					Diverge Areas				
Estimation of v_{12}					Estimation of v_{12}				
$V_{12} = V_F (P_{FM})$					$V_{12} = V_R + (V_F - V_R)P_{FD}$				
$L_{EQ} = 1056.13$ (Equation 13-6 or 13-7)					$L_{EQ} =$ (Equation 13-12 or 13-13)				
$P_{FM} = 0.619$ using Equation (Exhibit 13-6)					$P_{FD} =$ using Equation (Exhibit 13-7)				
$V_{12} = 2357$ pc/h					$V_{12} =$ pc/h				
V_3 or $V_{av34} = 1447$ pc/h (Equation 13-14 or 13-17)					V_3 or $V_{av34} =$ pc/h (Equation 13-14 or 13-17)				
Is V_3 or $V_{av34} > 2,700$ pc/h? ☐ Yes ☒ No					Is V_3 or $V_{av34} > 2,700$ pc/h? ☐ Yes ☐ No				
Is V_3 or $V_{av34} > 1.5 * V_{12}/2$ ☒ Yes ☐ No					Is V_3 or $V_{av34} > 1.5 * V_{12}/2$ ☐ Yes ☐ No				
If Yes, $V_{12a} = 2357$ pc/h (Equation 13-16, 13-18, or 13-19)					If Yes, $V_{12a} =$ pc/h (Equation 13-16, 13-18, or 13-19)				
Capacity Checks					Capacity Checks				
	Actual	Capacity		LOS F?		Actual	Capacity		LOS F?
V_{FO}	4495	Exhibit 13-8		No	V_F		Exhibit 13-8		
					$V_{FO} = V_F - V_R$		Exhibit 13-8		
					V_R		Exhibit 13-10		
Flow Entering Merge Influence Area					Flow Entering Diverge Influence Area				
	Actual	Max Desirable		Violation?		Actual	Max Desirable		Violation?
V_{R12}	3048	Exhibit 13-8	4600:All	No	V_{12}		Exhibit 13-8		
Level of Service Determination (if not F)					Level of Service Determination (if not F)				
$D_R = 5.475 + 0.00734 V_R + 0.0078 V_{12} - 0.00627 L_A$					$D_R = 4.252 + 0.0086 V_{12} - 0.009 L_D$				
$D_R = 19.5$ (pc/mi/ln)					$D_R =$ (pc/mi/ln)				
LOS = B (Exhibit 13-2)					LOS = (Exhibit 13-2)				
Speed Determination					Speed Determination				
$M_S = 0.298$ (Exhibit 13-11)					$D_s =$ (Exhibit 13-12)				
$S_R = 58.1$ mph (Exhibit 13-11)					$S_R =$ mph (Exhibit 13-12)				
$S_0 = 61.6$ mph (Exhibit 13-11)					$S_0 =$ mph (Exhibit 13-12)				
$S = 59.2$ mph (Exhibit 13-13)					$S =$ mph (Exhibit 13-13)				

APPENDIX K-II

**YEAR 2022 WITH ELSP PROJECT PHASE I
TRAFFIC CONDITIONS**

RAMPS AND RAMP JUNCTIONS WORKSHEET									
General Information					Site Information				
Analyst		JT		Freeway/Dir of Travel		I-15 Northbound			
Agency or Company		LLG		Junction		Railroad Canyon Road Off-Ramp			
Date Performed		1/12/17		Jurisdiction					
Analysis Time Period		Weekday AM Peak Hour		Analysis Year		Year 2022 with Project (Ph. I)			
Project Description 2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore									
Inputs									
Upstream Adj Ramp ☐ Yes ☐ On ☒ No ☐ Off L_{up} = ft V_u = veh/h		Freeway Number of Lanes, N				3		Downstream Adj Ramp ☒ Yes ☒ On ☐ No ☐ Off L_{down} = 3000 ft V_D = 770 veh/h	
		Ramp Number of Lanes, N				1			
		Acceleration Lane Length, L_A							
		Deceleration Lane Length L_D				1500			
		Freeway Volume, V_F				3224			
		Ramp Volume, V_R				575			
Freeway Free-Flow Speed, S_{FF}				65.0					
Ramp Free-Flow Speed, S_{FR}				35.0					
Conversion to pc/h Under Base Conditions									
(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	$v = V/PHF \times f_{HV} \times f_p$	
Freeway	3224	0.95	Level	2	0	0.990	1.00	3428	
Ramp	575	0.95	Level	2	0	0.990	1.00	611	
UpStream									
DownStream	770	0.95	Level	2	0	0.990	1.00	819	
Merge Areas					Diverge Areas				
Estimation of v_{12}					Estimation of v_{12}				
$V_{12} = V_F (P_{FM})$ (Equation 13-6 or 13-7) P_{FM} = using Equation (Exhibit 13-6) V_{12} = pc/h V_3 or V_{av34} pc/h (Equation 13-14 or 13-17) Is V_3 or $V_{av34} > 2,700$ pc/h? ☐ Yes ☐ No Is V_3 or $V_{av34} > 1.5 * V_{12}/2$ ☐ Yes ☐ No If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)					$V_{12} = V_R + (V_F - V_R)P_{FD}$ (Equation 13-12 or 13-13) P_{FD} = 0.646 using Equation (Exhibit 13-7) V_{12} = 2431 pc/h V_3 or V_{av34} 997 pc/h (Equation 13-14 or 13-17) Is V_3 or $V_{av34} > 2,700$ pc/h? ☐ Yes ☒ No Is V_3 or $V_{av34} > 1.5 * V_{12}/2$ ☐ Yes ☒ No If Yes, V_{12a} = pc/h (Equation 13-16, 13-18, or 13-19)				
Capacity Checks					Capacity Checks				
	Actual	Capacity		LOS F?		Actual	Capacity		LOS F?
V_{FO}		Exhibit 13-8			V_F	3428	Exhibit 13-8	7050	No
			$V_{FO} = V_F - V_R$	2817	Exhibit 13-8	7050	No		
			V_R	611	Exhibit 13-10	2000	No		
Flow Entering Merge Influence Area					Flow Entering Diverge Influence Area				
	Actual	Max Desirable		Violation?		Actual	Max Desirable		Violation?
V_{R12}		Exhibit 13-8			V_{12}	2431	Exhibit 13-8	4400:All	No
Level of Service Determination (if not F)					Level of Service Determination (if not F)				
$D_R = 5.475 + 0.00734 v_R + 0.0078 V_{12} - 0.00627 L_A$ D_R = (pc/mi/ln) LOS = (Exhibit 13-2)					$D_R = 4.252 + 0.0086 V_{12} - 0.009 L_D$ D_R = 11.7 (pc/mi/ln) LOS = B (Exhibit 13-2)				
Speed Determination					Speed Determination				
M_S = (Exhibit 13-11) S_R = mph (Exhibit 13-11) S_0 = mph (Exhibit 13-11) S = mph (Exhibit 13-13)					D_s = 0.483 (Exhibit 13-12) S_R = 53.9 mph (Exhibit 13-12) S_0 = 71.3 mph (Exhibit 13-12) S = 58.0 mph (Exhibit 13-13)				

RAMPS AND RAMP JUNCTIONS WORKSHEET									
General Information					Site Information				
Analyst		JT		Freeway/Dir of Travel		I-15 Northbound			
Agency or Company		LLG		Junction		Railroad Canyon Road On-Ramp			
Date Performed		1/12/17		Jurisdiction					
Analysis Time Period		Weekday AM Peak Hour		Analysis Year		Year 2022 with Project (Ph. I)			
Project Description 2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore									
Inputs									
Upstream Adj Ramp		Freeway Number of Lanes, N				4			
☒ Yes ☐ On		Ramp Number of Lanes, N				1			
☐ No ☒ Off		Acceleration Lane Length, L _A				1500			
L _{up} = 3000 ft		Deceleration Lane Length L _D							
V _u = 575 veh/h		Freeway Volume, V _F				2649			
		Ramp Volume, V _R				770			
		Freeway Free-Flow Speed, S _{FF}				65.0			
		Ramp Free-Flow Speed, S _{FR}				35.0			
		Downstream Adj Ramp							
		☐ Yes ☐ On							
		☒ No ☐ Off							
		L _{down} = ft							
		V _D = veh/h							
Conversion to pc/h Under Base Conditions									
(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f _{HV}	f _p	v = V/PHF × f _{HV} × f _p	
Freeway	2649	0.95	Level	2	0	0.990	1.00	2816	
Ramp	770	0.95	Level	2	0	0.990	1.00	819	
UpStream	575	0.95	Level	2	0	0.990	1.00	611	
DownStream									
Merge Areas					Diverge Areas				
Estimation of v₁₂					Estimation of v₁₂				
$V_{12} = V_F (P_{FM})$ (Equation 13-6 or 13-7)					$V_{12} = V_R + (V_F - V_R)P_{FD}$ (Equation 13-12 or 13-13)				
L _{EQ} =					L _{EQ} =				
P _{FM} = 0.115 using Equation (Exhibit 13-6)					P _{FD} = using Equation (Exhibit 13-7)				
V ₁₂ = 325 pc/h					V ₁₂ = pc/h				
V ₃ or V _{av34} 1245 pc/h (Equation 13-14 or 13-17)					V ₃ or V _{av34} pc/h (Equation 13-14 or 13-17)				
Is V ₃ or V _{av34} > 2,700 pc/h? ☐ Yes ☒ No					Is V ₃ or V _{av34} > 2,700 pc/h? ☐ Yes ☐ No				
Is V ₃ or V _{av34} > 1.5 * V ₁₂ /2 ☒ Yes ☐ No					Is V ₃ or V _{av34} > 1.5 * V ₁₂ /2 ☐ Yes ☐ No				
If Yes, V _{12a} = 1126 pc/h (Equation 13-16, 13-18, or 13-19)					If Yes, V _{12a} = pc/h (Equation 13-16, 13-18, or 13-19)				
Capacity Checks					Capacity Checks				
	Actual	Capacity		LOS F?		Actual	Capacity		LOS F?
V _{FO}	3635	Exhibit 13-8		No	V _F		Exhibit 13-8		
					V _{FO} = V _F - V _R		Exhibit 13-8		
					V _R		Exhibit 13-10		
Flow Entering Merge Influence Area					Flow Entering Diverge Influence Area				
	Actual	Max Desirable		Violation?		Actual	Max Desirable		Violation?
V _{R12}	1945	Exhibit 13-8	4600:All	No	V ₁₂		Exhibit 13-8		
Level of Service Determination (if not F)					Level of Service Determination (if not F)				
$D_R = 5.475 + 0.00734 v_R + 0.0078 V_{12} - 0.00627 L_A$					$D_R = 4.252 + 0.0086 V_{12} - 0.009 L_D$				
D _R = 10.9 (pc/mi/ln)					D _R = (pc/mi/ln)				
LOS = B (Exhibit 13-2)					LOS = (Exhibit 13-2)				
Speed Determination					Speed Determination				
M _S = 0.243 (Exhibit 13-11)					D _S = (Exhibit 13-12)				
S _R = 59.4 mph (Exhibit 13-11)					S _R = mph (Exhibit 13-12)				
S ₀ = 63.8 mph (Exhibit 13-11)					S ₀ = mph (Exhibit 13-12)				
S = 61.4 mph (Exhibit 13-13)					S = mph (Exhibit 13-13)				

RAMPS AND RAMP JUNCTIONS WORKSHEET										
General Information					Site Information					
Analyst	JT		Freeway/Dir of Travel	I-15 Southbound						
Agency or Company	LLG		Junction	Railroad Canyon Road Off-Ramp						
Date Performed	1/12/17		Jurisdiction							
Analysis Time Period	Weekday AM Peak Hour		Analysis Year	Year 2022 with Project (Ph. I)						
Project Description 2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore										
Inputs										
Upstream Adj Ramp	Freeway Number of Lanes, N		4		Downstream Adj Ramp					
☐ Yes ☐ On	Ramp Number of Lanes, N		2		☒ Yes ☒ On					
☒ No ☐ Off	Acceleration Lane Length, L_A				☐ No ☐ Off					
$L_{up} =$ ft	Deceleration Lane Length L_D		170		$L_{down} =$ 3000 ft					
$V_u =$ veh/h	Freeway Volume, V_F		5231		$V_D =$ 943 veh/h					
	Ramp Volume, V_R		815							
	Freeway Free-Flow Speed, S_{FF}		65.0							
	Ramp Free-Flow Speed, S_{FR}		35.0							
Conversion to pc/h Under Base Conditions										
(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	$v = V/PHF \times f_{HV} \times f_p$		
Freeway	5231	0.95	Level	2	0	0.990	1.00	5561		
Ramp	815	0.95	Level	2	0	0.990	1.00	866		
UpStream										
DownStream	943	0.95	Level	2	0	0.990	1.00	1003		
Merge Areas					Diverge Areas					
Estimation of v_{12}					Estimation of v_{12}					
$V_{12} = V_F (P_{FM})$ (Equation 13-6 or 13-7)					$V_{12} = V_R + (V_F - V_R)P_{FD}$ (Equation 13-12 or 13-13)					
$L_{EQ} =$ using Equation (Exhibit 13-6)					$L_{EQ} =$ 0.260 using Equation (Exhibit 13-7)					
$P_{FM} =$ pc/h					$P_{FD} =$ 2087 pc/h					
$V_{12} =$ pc/h (Equation 13-14 or 13-17)					$V_{12} =$ 1737 pc/h (Equation 13-14 or 13-17)					
Is V_3 or $V_{av34} > 2,700$ pc/h? ☐ Yes ☐ No					Is V_3 or $V_{av34} > 2,700$ pc/h? ☐ Yes ☒ No					
Is V_3 or $V_{av34} > 1.5 * V_{12}/2$ ☐ Yes ☐ No					Is V_3 or $V_{av34} > 1.5 * V_{12}/2$ ☒ Yes ☐ No					
If Yes, $V_{12a} =$ pc/h (Equation 13-16, 13-18, or 13-19)					If Yes, $V_{12a} =$ 2224 pc/h (Equation 13-16, 13-18, or 13-19)					
Capacity Checks					Capacity Checks					
	Actual	Capacity		LOS F?		Actual	Capacity		LOS F?	
V_{FO}		Exhibit 13-8			V_F	5561	Exhibit 13-8		9400	No
					$V_{FO} = V_F - V_R$	4695	Exhibit 13-8		9400	No
					V_R	866	Exhibit 13-10		4000	No
Flow Entering Merge Influence Area					Flow Entering Diverge Influence Area					
	Actual	Max Desirable		Violation?		Actual	Max Desirable		Violation?	
V_{R12}		Exhibit 13-8			V_{12}	2087	Exhibit 13-8		4400:All	No
Level of Service Determination (if not F)					Level of Service Determination (if not F)					
$D_R = 5.475 + 0.00734 v_R + 0.0078 V_{12} - 0.00627 L_A$					$D_R = 4.252 + 0.0086 V_{12} - 0.009 L_D$					
$D_R =$ (pc/mi/ln)					$D_R =$ 6.8 (pc/mi/ln)					
LOS = (Exhibit 13-2)					LOS = A (Exhibit 13-2)					
Speed Determination					Speed Determination					
$M_S =$ (Exhibit 13-11)					$D_s =$ 0.506 (Exhibit 13-12)					
$S_R =$ mph (Exhibit 13-11)					$S_R =$ 53.4 mph (Exhibit 13-12)					
$S_0 =$ mph (Exhibit 13-11)					$S_0 =$ 68.7 mph (Exhibit 13-12)					
$S =$ mph (Exhibit 13-13)					$S =$ 61.6 mph (Exhibit 13-13)					

RAMPS AND RAMP JUNCTIONS WORKSHEET									
General Information					Site Information				
Analyst		JT		Freeway/Dir of Travel		I-15 Southbound			
Agency or Company		LLG		Junction		Railroad Canyon Road On-Ramp			
Date Performed		1/12/17		Jurisdiction					
Analysis Time Period		Weekday AM Peak Hour		Analysis Year		Year 2022 with Project (Ph. I)			
Project Description 2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore									
Inputs									
Upstream Adj Ramp		Freeway Number of Lanes, N				3			
☒ Yes ☐ On		Ramp Number of Lanes, N				1			
☐ No ☒ Off		Acceleration Lane Length, L_A				1500			
$L_{up} = 3000$ ft		Deceleration Lane Length L_D							
$V_u = 815$ veh/h		Freeway Volume, V_F				4416			
		Ramp Volume, V_R				943			
		Freeway Free-Flow Speed, S_{FF}				65.0			
		Ramp Free-Flow Speed, S_{FR}				35.0			
		Downstream Adj Ramp							
		☐ Yes ☐ On							
		☒ No ☐ Off							
		$L_{down} =$ ft							
		$V_D =$ veh/h							
Conversion to pc/h Under Base Conditions									
(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	$v = V/PHF \times f_{HV} \times f_p$	
Freeway	4416	0.95	Level	2	0	0.990	1.00	4695	
Ramp	943	0.95	Level	2	0	0.990	1.00	1003	
UpStream	815	0.95	Level	2	0	0.990	1.00	866	
DownStream									
Merge Areas					Diverge Areas				
Estimation of v_{12}					Estimation of v_{12}				
$V_{12} = V_F (P_{FM})$ $L_{EQ} = 1313.57$ (Equation 13-6 or 13-7) $P_{FM} = 0.619$ using Equation (Exhibit 13-6) $V_{12} = 2909$ pc/h V_3 or $V_{av34} = 1786$ pc/h (Equation 13-14 or 13-17) Is V_3 or $V_{av34} > 2,700$ pc/h? ☐ Yes ☒ No Is V_3 or $V_{av34} > 1.5 \times V_{12}/2$ ☒ Yes ☐ No If Yes, $V_{12a} = 2909$ pc/h (Equation 13-16, 13-18, or 13-19)					$V_{12} = V_R + (V_F - V_R)P_{FD}$ $L_{EQ} =$ (Equation 13-12 or 13-13) $P_{FD} =$ using Equation (Exhibit 13-7) $V_{12} =$ pc/h V_3 or $V_{av34} =$ pc/h (Equation 13-14 or 13-17) Is V_3 or $V_{av34} > 2,700$ pc/h? ☐ Yes ☐ No Is V_3 or $V_{av34} > 1.5 \times V_{12}/2$ ☐ Yes ☐ No If Yes, $V_{12a} =$ pc/h (Equation 13-16, 13-18, or 13-19)				
Capacity Checks					Capacity Checks				
	Actual	Capacity		LOS F?		Actual	Capacity		LOS F?
V_{FO}	5698	Exhibit 13-8		No	V_F		Exhibit 13-8		
					$V_{FO} = V_F - V_R$		Exhibit 13-8		
					V_R		Exhibit 13-10		
Flow Entering Merge Influence Area					Flow Entering Diverge Influence Area				
	Actual	Max Desirable		Violation?		Actual	Max Desirable		Violation?
V_{R12}	3912	Exhibit 13-8	4600:All	No	V_{12}		Exhibit 13-8		
Level of Service Determination (if not F)					Level of Service Determination (if not F)				
$D_R = 5.475 + 0.00734 V_R + 0.0078 V_{12} - 0.00627 L_A$ $D_R = 26.1$ (pc/mi/ln) LOS = C (Exhibit 13-2)					$D_R = 4.252 + 0.0086 V_{12} - 0.009 L_D$ $D_R =$ (pc/mi/ln) LOS = (Exhibit 13-2)				
Speed Determination					Speed Determination				
$M_S = 0.411$ (Exhibit 13-11)					$D_S =$ (Exhibit 13-12)				
$S_R = 55.5$ mph (Exhibit 13-11)					$S_R =$ mph (Exhibit 13-12)				
$S_0 = 60.4$ mph (Exhibit 13-11)					$S_0 =$ mph (Exhibit 13-12)				
$S = 57.0$ mph (Exhibit 13-13)					$S =$ mph (Exhibit 13-13)				

RAMPS AND RAMP JUNCTIONS WORKSHEET									
General Information					Site Information				
Analyst		JT		Freeway/Dir of Travel		I-15 Northbound			
Agency or Company		LLG		Junction		Railroad Canyon Road Off-Ramp			
Date Performed		1/12/17		Jurisdiction					
Analysis Time Period		Weekday PM Peak Hour		Analysis Year		Year 2022 with Project (Ph. I)			
Project Description 2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore									
Inputs									
Upstream Adj Ramp ☐ Yes ☐ On ☒ No ☐ Off L _{up} = ft V _u = veh/h		Freeway Number of Lanes, N				3		Downstream Adj Ramp ☒ Yes ☒ On ☐ No ☐ Off L _{down} = 3000 ft V _D = 747 veh/h	
		Ramp Number of Lanes, N				1			
		Acceleration Lane Length, L _A							
		Deceleration Lane Length L _D				1500			
		Freeway Volume, V _F				4331			
		Ramp Volume, V _R				1065			
Freeway Free-Flow Speed, S _{FF}				65.0					
Ramp Free-Flow Speed, S _{FR}				35.0					
Conversion to pc/h Under Base Conditions									
(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f _{HV}	f _p	v = V/PHF × f _{HV} × f _p	
Freeway	4331	0.95	Level	2	0	0.990	1.00	4605	
Ramp	1065	0.95	Level	2	0	0.990	1.00	1132	
UpStream									
DownStream	747	0.95	Level	2	0	0.990	1.00	794	
Merge Areas					Diverge Areas				
Estimation of v₁₂					Estimation of v₁₂				
V ₁₂ = V _F (P _{FM}) (Equation 13-6 or 13-7) L _{EQ} = P _{FM} = using Equation (Exhibit 13-6) V ₁₂ = pc/h V ₃ or V _{av34} pc/h (Equation 13-14 or 13-17) Is V ₃ or V _{av34} > 2,700 pc/h? ☐ Yes ☐ No Is V ₃ or V _{av34} > 1.5 * V ₁₂ /2 ☐ Yes ☐ No If Yes, V _{12a} = pc/h (Equation 13-16, 13-18, or 13-19)					V ₁₂ = V _R + (V _F - V _R)P _{FD} (Equation 13-12 or 13-13) L _{EQ} = P _{FD} = 0.593 using Equation (Exhibit 13-7) V ₁₂ = 3191 pc/h V ₃ or V _{av34} 1414 pc/h (Equation 13-14 or 13-17) Is V ₃ or V _{av34} > 2,700 pc/h? ☐ Yes ☒ No Is V ₃ or V _{av34} > 1.5 * V ₁₂ /2 ☐ Yes ☒ No If Yes, V _{12a} = pc/h (Equation 13-16, 13-18, or 13-19)				
Capacity Checks					Capacity Checks				
	Actual	Capacity		LOS F?		Actual	Capacity		LOS F?
V _{FO}		Exhibit 13-8			V _F	4605	Exhibit 13-8	7050	No
			V _{FO} = V _F - V _R	3473	Exhibit 13-8	7050	No		
			V _R	1132	Exhibit 13-10	2000	No		
Flow Entering Merge Influence Area					Flow Entering Diverge Influence Area				
	Actual	Max Desirable		Violation?		Actual	Max Desirable		Violation?
V _{R12}		Exhibit 13-8			V ₁₂	3191	Exhibit 13-8	4400:All	No
Level of Service Determination (if not F)					Level of Service Determination (if not F)				
D _R = 5.475 + 0.00734 v _R + 0.0078 V ₁₂ - 0.00627 L _A D _R = (pc/mi/ln) LOS = (Exhibit 13-2)					D _R = 4.252 + 0.0086 V ₁₂ - 0.009 L _D D _R = 18.2 (pc/mi/ln) LOS = B (Exhibit 13-2)				
Speed Determination					Speed Determination				
M _S = (Exhibit 13-11) S _R = mph (Exhibit 13-11) S ₀ = mph (Exhibit 13-11) S = mph (Exhibit 13-13)					D _S = 0.530 (Exhibit 13-12) S _R = 52.8 mph (Exhibit 13-12) S ₀ = 69.7 mph (Exhibit 13-12) S = 57.1 mph (Exhibit 13-13)				

RAMPS AND RAMP JUNCTIONS WORKSHEET									
General Information					Site Information				
Analyst	JT		Freeway/Dir of Travel	I-15 Northbound					
Agency or Company	LLG		Junction	Railroad Canyon Road On-Ramp					
Date Performed	1/12/17		Jurisdiction						
Analysis Time Period	Weekday PM Peak Hour		Analysis Year	Year 2022 with Project (Ph. I)					
Project Description 2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore									
Inputs									
Upstream Adj Ramp	Freeway Number of Lanes, N		4		Downstream Adj Ramp				
☒ Yes ☐ On	Ramp Number of Lanes, N		1		☐ Yes ☐ On				
☐ No ☒ Off	Acceleration Lane Length, L_A		1500		☒ No ☐ Off				
$L_{up} =$ 3000 ft	Deceleration Lane Length L_D				$L_{down} =$ ft				
$V_u =$ 1065 veh/h	Freeway Volume, V_F		3266		$V_D =$ veh/h				
	Ramp Volume, V_R		747						
	Freeway Free-Flow Speed, S_{FF}		65.0						
	Ramp Free-Flow Speed, S_{FR}		35.0						
Conversion to pc/h Under Base Conditions									
(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	$v = V/PHF \times f_{HV} \times f_p$	
Freeway	3266	0.95	Level	2	0	0.990	1.00	3472	
Ramp	747	0.95	Level	2	0	0.990	1.00	794	
UpStream	1065	0.95	Level	2	0	0.990	1.00	1132	
DownStream									
Merge Areas					Diverge Areas				
Estimation of v_{12}					Estimation of v_{12}				
$V_{12} = V_F (P_{FM})$ (Equation 13-6 or 13-7) $P_{FM} =$ 0.119 using Equation (Exhibit 13-6) $V_{12} =$ 412 pc/h V_3 or V_{av34} 1530 pc/h (Equation 13-14 or 13-17) Is V_3 or $V_{av34} > 2,700$ pc/h? ☐ Yes ☒ No Is V_3 or $V_{av34} > 1.5 \times V_{12}/2$ ☒ Yes ☐ No If Yes, $V_{12a} =$ 1388 pc/h (Equation 13-16, 13-18, or 13-19)					$V_{12} = V_R + (V_F - V_R)P_{FD}$ (Equation 13-12 or 13-13) $P_{FD} =$ using Equation (Exhibit 13-7) $V_{12} =$ pc/h V_3 or V_{av34} pc/h (Equation 13-14 or 13-17) Is V_3 or $V_{av34} > 2,700$ pc/h? ☐ Yes ☐ No Is V_3 or $V_{av34} > 1.5 \times V_{12}/2$ ☐ Yes ☐ No If Yes, $V_{12a} =$ pc/h (Equation 13-16, 13-18, or 13-19)				
Capacity Checks					Capacity Checks				
	Actual	Capacity		LOS F?		Actual	Capacity		LOS F?
V_{FO}	4266	Exhibit 13-8		No	V_F		Exhibit 13-8		
					$V_{FO} = V_F - V_R$		Exhibit 13-8		
					V_R		Exhibit 13-10		
Flow Entering Merge Influence Area					Flow Entering Diverge Influence Area				
	Actual	Max Desirable		Violation?		Actual	Max Desirable		Violation?
V_{R12}	2182	Exhibit 13-8	4600:All	No	V_{12}		Exhibit 13-8		
Level of Service Determination (if not F)					Level of Service Determination (if not F)				
$D_R = 5.475 + 0.00734 v_R + 0.0078 V_{12} - 0.00627 L_A$ $D_R =$ 12.7 (pc/mi/ln) $LOS =$ B (Exhibit 13-2)					$D_R = 4.252 + 0.0086 V_{12} - 0.009 L_D$ $D_R =$ (pc/mi/ln) $LOS =$ (Exhibit 13-2)				
Speed Determination					Speed Determination				
$M_S =$ 0.251 (Exhibit 13-11) $S_R =$ 59.2 mph (Exhibit 13-11) $S_0 =$ 63.0 mph (Exhibit 13-11) $S =$ 61.0 mph (Exhibit 13-13)					$D_S =$ (Exhibit 13-12) $S_R =$ mph (Exhibit 13-12) $S_0 =$ mph (Exhibit 13-12) $S =$ mph (Exhibit 13-13)				

RAMPS AND RAMP JUNCTIONS WORKSHEET											
General Information					Site Information						
Analyst		JT		Freeway/Dir of Travel		I-15 Southbound					
Agency or Company		LLG		Junction		Railroad Canyon Road Off-Ramp					
Date Performed		1/12/17		Jurisdiction							
Analysis Time Period		Weekday PM Peak Hour		Analysis Year		Year 2022 with Project (Ph. I)					
Project Description 2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore											
Inputs											
Upstream Adj Ramp ☐ Yes ☐ On ☒ No ☐ Off L _{up} = ft V _u = veh/h		Freeway Number of Lanes, N 4				Downstream Adj Ramp ☒ Yes ☒ On ☐ No ☐ Off L _{down} = 3000 ft V _D = 663 veh/h					
		Ramp Number of Lanes, N 2									
		Acceleration Lane Length, L _A									
		Deceleration Lane Length L _D 170									
		Freeway Volume, V _F 4751									
		Ramp Volume, V _R 1173									
Freeway Free-Flow Speed, S _{FF} 65.0											
Ramp Free-Flow Speed, S _{FR} 35.0											
Conversion to pc/h Under Base Conditions											
(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f _{HV}	f _p	v = V/PHF × f _{HV} × f _p			
Freeway	4751	0.95	Level	2	0	0.990	1.00	5051			
Ramp	1173	0.95	Level	2	0	0.990	1.00	1247			
UpStream											
DownStream	663	0.95	Level	2	0	0.990	1.00	705			
Merge Areas					Diverge Areas						
Estimation of v₁₂					Estimation of v₁₂						
$V_{12} = V_F (P_{FM})$ L _{EQ} = (Equation 13-6 or 13-7) P _{FM} = using Equation (Exhibit 13-6) V ₁₂ = pc/h V ₃ or V _{av34} pc/h (Equation 13-14 or 13-17) Is V ₃ or V _{av34} > 2,700 pc/h? ☐ Yes ☐ No Is V ₃ or V _{av34} > 1.5 * V ₁₂ /2 ☐ Yes ☐ No If Yes, V _{12a} = pc/h (Equation 13-16, 13-18, or 13-19)					$V_{12} = V_R + (V_F - V_R)P_{FD}$ L _{EQ} = (Equation 13-12 or 13-13) P _{FD} = 0.260 using Equation (Exhibit 13-7) V ₁₂ = 2236 pc/h V ₃ or V _{av34} 1407 pc/h (Equation 13-14 or 13-17) Is V ₃ or V _{av34} > 2,700 pc/h? ☐ Yes ☒ No Is V ₃ or V _{av34} > 1.5 * V ₁₂ /2 ☐ Yes ☒ No If Yes, V _{12a} = pc/h (Equation 13-16, 13-18, or 13-19)						
Capacity Checks					Capacity Checks						
		Actual	Capacity		LOS F?			Actual	Capacity	LOS F?	
V _{FO}		Exhibit 13-8				V _F		5051	Exhibit 13-8	9400	No
						V _{FO} = V _F - V _R		3804	Exhibit 13-8	9400	No
						V _R		1247	Exhibit 13-10	4000	No
Flow Entering Merge Influence Area					Flow Entering Diverge Influence Area						
		Actual	Max Desirable		Violation?			Actual	Max Desirable	Violation?	
V _{R12}			Exhibit 13-8			V ₁₂		2236	Exhibit 13-8	4400:All	No
Level of Service Determination (if not F)					Level of Service Determination (if not F)						
$D_R = 5.475 + 0.00734 v_R + 0.0078 V_{12} - 0.00627 L_A$ D _R = (pc/mi/ln) LOS = (Exhibit 13-2)					$D_R = 4.252 + 0.0086 V_{12} - 0.009 L_D$ D _R = 6.9 (pc/mi/ln) LOS = A (Exhibit 13-2)						
Speed Determination					Speed Determination						
M _S = (Exhibit 13-11) S _R = mph (Exhibit 13-11) S ₀ = mph (Exhibit 13-11) S = mph (Exhibit 13-13)					D _s = 0.540 (Exhibit 13-12) S _R = 52.6 mph (Exhibit 13-12) S ₀ = 69.7 mph (Exhibit 13-12) S = 60.9 mph (Exhibit 13-13)						

RAMPS AND RAMP JUNCTIONS WORKSHEET									
General Information					Site Information				
Analyst	JT		Freeway/Dir of Travel	I-15 Southbound					
Agency or Company	LLG		Junction	Railroad Canyon Road On-Ramp					
Date Performed	1/12/17		Jurisdiction						
Analysis Time Period	Weekday PM Peak Hour		Analysis Year	Year 2022 with Project (Ph. I)					
Project Description 2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore									
Inputs									
Upstream Adj Ramp ☒ Yes ☐ On ☐ No ☒ Off L _{up} = 3000 ft V _u = 1173 veh/h		Freeway Number of Lanes, N				3		Downstream Adj Ramp ☐ Yes ☐ On ☒ No ☐ Off L _{down} = ft V _D = veh/h	
		Ramp Number of Lanes, N				1			
		Acceleration Lane Length, L _A				1500			
		Deceleration Lane Length L _D							
		Freeway Volume, V _F				3578			
		Ramp Volume, V _R				663			
Freeway Free-Flow Speed, S _{FF}				65.0					
Ramp Free-Flow Speed, S _{FR}				35.0					
Conversion to pc/h Under Base Conditions									
(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f _{HV}	f _p	v = V/PHF × f _{HV} × f _p	
Freeway	3578	0.95	Level	2	0	0.990	1.00	3804	
Ramp	663	0.95	Level	2	0	0.990	1.00	705	
UpStream	1173	0.95	Level	2	0	0.990	1.00	1247	
DownStream									
Merge Areas					Diverge Areas				
Estimation of v ₁₂					Estimation of v ₁₂				
$V_{12} = V_F (P_{FM})$ L _{EQ} = 1059.13 (Equation 13-6 or 13-7) P _{FM} = 0.619 using Equation (Exhibit 13-6) V ₁₂ = 2357 pc/h V ₃ or V _{av34} = 1447 pc/h (Equation 13-14 or 13-17) Is V ₃ or V _{av34} > 2,700 pc/h? ☐ Yes ☒ No Is V ₃ or V _{av34} > 1.5 * V ₁₂ /2 ☒ Yes ☐ No If Yes, V _{12a} = 2357 pc/h (Equation 13-16, 13-18, or 13-19)					$V_{12} = V_R + (V_F - V_R)P_{FD}$ L _{EQ} = (Equation 13-12 or 13-13) P _{FD} = using Equation (Exhibit 13-7) V ₁₂ = pc/h V ₃ or V _{av34} = pc/h (Equation 13-14 or 13-17) Is V ₃ or V _{av34} > 2,700 pc/h? ☐ Yes ☐ No Is V ₃ or V _{av34} > 1.5 * V ₁₂ /2 ☐ Yes ☐ No If Yes, V _{12a} = pc/h (Equation 13-16, 13-18, or 13-19)				
Capacity Checks					Capacity Checks				
	Actual	Capacity		LOS F?		Actual	Capacity		LOS F?
V _{FO}	4509	Exhibit 13-8		No	V _F		Exhibit 13-8		
					V _{FO} = V _F - V _R		Exhibit 13-8		
					V _R		Exhibit 13-10		
Flow Entering Merge Influence Area					Flow Entering Diverge Influence Area				
	Actual	Max Desirable		Violation?		Actual	Max Desirable		Violation?
V _{R12}	3062	Exhibit 13-8	4600:All	No	V ₁₂		Exhibit 13-8		
Level of Service Determination (if not F)					Level of Service Determination (if not F)				
$D_R = 5.475 + 0.00734 v_R + 0.0078 V_{12} - 0.00627 L_A$ D _R = 19.6 (pc/mi/ln) LOS = B (Exhibit 13-2)					$D_R = 4.252 + 0.0086 V_{12} - 0.009 L_D$ D _R = (pc/mi/ln) LOS = (Exhibit 13-2)				
Speed Determination					Speed Determination				
M _S = 0.299 (Exhibit 13-11) S _R = 58.1 mph (Exhibit 13-11) S ₀ = 61.6 mph (Exhibit 13-11) S = 59.2 mph (Exhibit 13-13)					D _S = (Exhibit 13-12) S _R = mph (Exhibit 13-12) S ₀ = mph (Exhibit 13-12) S = mph (Exhibit 13-13)				

APPENDIX K-III

**YEAR 2022 WITH ELSP PROJECT PHASE I
WITH MITIGATION TRAFFIC CONDITIONS**

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APPENDIX L

YEAR 2040 TRAFFIC CONDITIONS BASIC FREEWAY SEGMENTS LEVEL OF SERVICE CALCULATION WORKSHEETS

APPENDIX L-1

**YEAR 2040 WITH ADOPTED SPECIFIC PLAN
TRAFFIC CONDITIONS**

BASIC FREEWAY SEGMENTS WORKSHEET					
General Information			Site Information		
Analyst	JT		Highway/Direction of Travel I-15 Northbound		
Agency or Company	LLG		From/To South of Bundy Canyon Road		
Date Performed	1/12/17		Jurisdiction		
Analysis Time Period	Weekday AM Peak Hour		Analysis Year Year 2040 with Adopted SP		
Project Description 2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore					
☒ Oper.(LOS) ☐ Des.(N) ☐ Planning Data					
Flow Inputs					
Volume, V	3398	veh/h	Peak-Hour Factor, PHF	0.95	
AADT		veh/day	%Trucks and Buses, P _T	2	
Peak-Hr Prop. of AADT, K			%RVs, P _R	0	
Peak-Hr Direction Prop, D			General Terrain:	Level	
DDHV = AADT x K x D		veh/h	Grade % Length	mi	
			Up/Down %		
Calculate Flow Adjustments					
f _p	1.00		E _R	1.2	
E _T	1.5		f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.990	
Speed Inputs			Calc Speed Adj and FFS		
Lane Width		ft			
Rt-Side Lat. Clearance		ft	f _{LW}	mph	
Number of Lanes, N	3		f _{LC}	mph	
Total Ramp Density, TRD		ramps/mi	TRD Adjustment	mph	
FFS (measured)	65.0	mph	FFS	65.0	mph
Base free-flow Speed, BFFS		mph			
LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)			Design LOS		
	1204	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)		
S	65.0	mph	S		
D = v _p / S	18.5	pc/mi/ln	D = v _p / S		
LOS	C		Required Number of Lanes, N		
Glossary			Factor Location		
N - Number of lanes	S - Speed		E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8	
V - Hourly volume	D - Density		E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9	
v _p - Flow rate	FFS - Free-flow speed		f _p - Page 11-18	TRD - Page 11-11	
LOS - Level of service	BFFS - Base free-flow speed		LOS, S, FFS, v _p - Exhibits 11-2, 11-3		
DDHV - Directional design hour volume					

BASIC FREEWAY SEGMENTS WORKSHEET					
General Information			Site Information		
Analyst	JT		Highway/Direction of Travel I-15 Northbound		
Agency or Company	LLG		From/To North of Bundy Canyon Road		
Date Performed	1/17/17		Jurisdiction		
Analysis Time Period	Weekday AM Peak Hour		Analysis Year Year 2040 with Adopted SP		
Project Description 2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore					
☒ Oper.(LOS) ☐ Des.(N) ☐ Planning Data					
Flow Inputs					
Volume, V	3323	veh/h	Peak-Hour Factor, PHF	0.95	
AADT		veh/day	%Trucks and Buses, P _T	2	
Peak-Hr Prop. of AADT, K			%RVs, P _R	0	
Peak-Hr Direction Prop, D			General Terrain:	Level	
DDHV = AADT x K x D		veh/h	Grade %	Length	mi
				Up/Down %	
Calculate Flow Adjustments					
f _p	1.00		E _R	1.2	
E _T	1.5		f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)] 0.990		
Speed Inputs			Calc Speed Adj and FFS		
Lane Width	ft		f _{LW} mph f _{LC} mph TRD Adjustment mph FFS 65.0 mph		
Rt-Side Lat. Clearance	ft				
Number of Lanes, N	3				
Total Ramp Density, TRD	ramps/mi				
FFS (measured)	65.0 mph				
Base free-flow Speed, BFFS	mph				
LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v _p = (V or DDHV) / (PHF x N x f _{HV}) 1178 pc/h/ln			Design LOS		
S 65.0 mph			v _p = (V or DDHV) / (PHF x N x f _{HV}) pc/h/ln		
D = v _p / S 18.1 pc/mi/ln			S mph		
LOS C			D = v _p / S pc/mi/ln		
			Required Number of Lanes, N		
Glossary			Factor Location		
N - Number of lanes			E _R - Exhibits 11-10, 11-12		
V - Hourly volume			f _{LW} - Exhibit 11-8		
v _p - Flow rate			E _T - Exhibits 11-10, 11-11, 11-13		
LOS - Level of service			f _{LC} - Exhibit 11-9		
speed			f _p - Page 11-18		
DDHV - Directional design hour volume			TRD - Page 11-11		
			LOS, S, FFS, v _p - Exhibits 11-2, 11-3		

BASIC FREEWAY SEGMENTS WORKSHEET					
General Information			Site Information		
Analyst	JT		Highway/Direction of Travel I-15 Northbound		
Agency or Company	LLG		From/To North of Railroad Canyon Road		
Date Performed	1/12/17		Jurisdiction		
Analysis Time Period	Weekday AM Peak Hour		Analysis Year Year 2040 with Adopted SP		
Project Description 2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore					
☒ Oper.(LOS) ☐ Des.(N) ☐ Planning Data					
Flow Inputs					
Volume, V	3806	veh/h	Peak-Hour Factor, PHF	0.95	
AADT		veh/day	%Trucks and Buses, P _T	2	
Peak-Hr Prop. of AADT, K			%RVs, P _R	0	
Peak-Hr Direction Prop, D			General Terrain:	Level	
DDHV = AADT x K x D		veh/h	Grade %	Length	mi
			Up/Down %		
Calculate Flow Adjustments					
f _p	1.00		E _R	1.2	
E _T	1.5		f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)] 0.990		
Speed Inputs			Calc Speed Adj and FFS		
Lane Width	ft				
Rt-Side Lat. Clearance	ft				
Number of Lanes, N	4				
Total Ramp Density, TRD	ramps/mi				
FFS (measured)	65.0 mph				
Base free-flow Speed, BFFS	mph		f _{LW}	mph	
			f _{LC}	mph	
			TRD Adjustment	mph	
			FFS	65.0 mph	
LOS and Performance Measures			Design (N)		
<u>Operational (LOS)</u>			<u>Design (N)</u>		
v _p = (V or DDHV) / (PHF x N x f _{HV}) 1012 pc/h/ln			Design LOS		
S 65.0 mph			v _p = (V or DDHV) / (PHF x N x f _{HV}) pc/h/ln		
D = v _p / S 15.6 pc/mi/ln			S mph		
LOS B			D = v _p / S pc/mi/ln		
			Required Number of Lanes, N		
Glossary			Factor Location		
N - Number of lanes			E _R - Exhibits 11-10, 11-12		
V - Hourly volume			f _{LW} - Exhibit 11-8		
v _p - Flow rate			E _T - Exhibits 11-10, 11-11, 11-13		
LOS - Level of service			f _{LC} - Exhibit 11-9		
DDHV - Directional design hour volume			f _p - Page 11-18		
			TRD - Page 11-11		
			LOS, S, FFS, v _p - Exhibits 11-2, 11-3		

BASIC FREEWAY SEGMENTS WORKSHEET					
General Information			Site Information		
Analyst	JT		Highway/Direction of Travel <i>I-15 Southbound</i>		
Agency or Company	LLG		From/To <i>North of Railroad Canyon Road</i>		
Date Performed	1/12/17		Jurisdiction		
Analysis Time Period	Weekday AM Peak Hour		Analysis Year <i>Year 2040 with Adopted SP</i>		
Project Description <i>2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore</i>					
☒ Oper.(LOS) ☐ Des.(N) ☐ Planning Data					
Flow Inputs					
Volume, V	6436	veh/h	Peak-Hour Factor, PHF	0.95	
AADT		veh/day	%Trucks and Buses, P _T	2	
Peak-Hr Prop. of AADT, K			%RVs, P _R	0	
Peak-Hr Direction Prop, D			General Terrain:	Level	
DDHV = AADT x K x D		veh/h	Grade %	Length	mi
			Up/Down %		
Calculate Flow Adjustments					
f _p	1.00		E _R	1.2	
E _T	1.5		f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)] 0.990		
Speed Inputs			Calc Speed Adj and FFS		
Lane Width	ft				
Rt-Side Lat. Clearance	ft				
Number of Lanes, N	4				
Total Ramp Density, TRD	ramps/mi				
FFS (measured)	65.0				
Base free-flow Speed, BFFS	mph		f _{LW}	mph	
			f _{LC}	mph	
			TRD Adjustment	mph	
			FFS	65.0	
			mph		
LOS and Performance Measures			Design (N)		
<u>Operational (LOS)</u>			<u>Design (N)</u>		
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)			Design LOS		
S	63.6	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)		
D = v _p / S	26.9	pc/mi/ln	S		
LOS	D		D = v _p / S		
			Required Number of Lanes, N		
Glossary			Factor Location		
N - Number of lanes	S - Speed		E _R - Exhibits 11-10, 11-12		
V - Hourly volume	D - Density		E _T - Exhibits 11-10, 11-11, 11-13		
v _p - Flow rate	FFS - Free-flow speed		f _{LW} - Exhibit 11-8		
LOS - Level of service	BFFS - Base free-flow speed		f _{LC} - Exhibit 11-9		
DDHV - Directional design hour volume			f _p - Page 11-18		
			TRD - Page 11-11		
			LOS, S, FFS, v _p - Exhibits 11-2, 11-3		

BASIC FREEWAY SEGMENTS WORKSHEET					
General Information			Site Information		
Analyst	JT		Highway/Direction of Travel I-15 Southbound		
Agency or Company	LLG		From/To North of Bundy Canyon Road		
Date Performed	1/12/17		Jurisdiction		
Analysis Time Period	Weekday AM Peak Hour		Analysis Year Year 2040 with Adopted SP		
Project Description 2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore					
☒ Oper.(LOS) ☐ Des.(N) ☐ Planning Data					
Flow Inputs					
Volume, V	6752	veh/h	Peak-Hour Factor, PHF	0.95	
AADT		veh/day	%Trucks and Buses, P _T	2	
Peak-Hr Prop. of AADT, K			%RVs, P _R	0	
Peak-Hr Direction Prop, D			General Terrain:	Level	
DDHV = AADT x K x D		veh/h	Grade %	Length	mi
			Up/Down %		
Calculate Flow Adjustments					
f _p	1.00		E _R	1.2	
E _T	1.5		f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)] 0.990		
Speed Inputs			Calc Speed Adj and FFS		
Lane Width	ft				
Rt-Side Lat. Clearance	ft				
Number of Lanes, N	3				
Total Ramp Density, TRD	ramps/mi				
FFS (measured)	65.0 mph				
Base free-flow Speed, BFFS	mph				
f _{LW}			mph		
f _{LC}			mph		
TRD Adjustment			mph		
FFS			65.0 mph		
LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v _p = (V or DDHV) / (PHF x N x f _{HV})			Design LOS		
2393	pc/h/ln		v _p = (V or DDHV) / (PHF x N x f _{HV})		
x f _p)			pc/h/ln		
S	51.0	mph	x f _p)		
D = v _p / S	46.9	pc/mi/ln	S		
LOS	F		D = v _p / S		
			pc/mi/ln		
			Required Number of Lanes, N		
Glossary			Factor Location		
N - Number of lanes	S - Speed		E _R - Exhibits 11-10, 11-12		
V - Hourly volume	D - Density		f _{LW} - Exhibit 11-8		
v _p - Flow rate	FFS - Free-flow speed		E _T - Exhibits 11-10, 11-11, 11-13		
LOS - Level of service	BFFS - Base free-flow speed		f _{LC} - Exhibit 11-9		
DDHV - Directional design hour volume			f _p - Page 11-18		
			TRD - Page 11-11		
			LOS, S, FFS, v _p - Exhibits 11-2, 11-3		

BASIC FREEWAY SEGMENTS WORKSHEET					
General Information			Site Information		
Analyst	JT		Highway/Direction of Travel <i>I-15 Southbound</i>		
Agency or Company	LLG		From/To <i>South of Bundy Canyon Road</i>		
Date Performed	1/12/17		Jurisdiction		
Analysis Time Period	Weekday AM Peak Hour		Analysis Year <i>Year 2040 with Adopted SP</i>		
Project Description <i>2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore</i>					
☒ Oper.(LOS) ☐ Des.(N) ☐ Planning Data					
Flow Inputs					
Volume, V	7615	veh/h	Peak-Hour Factor, PHF	0.95	
AADT		veh/day	%Trucks and Buses, P _T	2	
Peak-Hr Prop. of AADT, K			%RVs, P _R	0	
Peak-Hr Direction Prop, D			General Terrain:	Level	
DDHV = AADT x K x D		veh/h	Grade %	Length	mi
				Up/Down %	
Calculate Flow Adjustments					
f _p	1.00		E _R	1.2	
E _T	1.5		f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)] 0.990		
Speed Inputs			Calc Speed Adj and FFS		
Lane Width	ft		f _{LW} mph f _{LC} mph TRD Adjustment mph FFS 65.0 mph		
Rt-Side Lat. Clearance	ft				
Number of Lanes, N	3				
Total Ramp Density, TRD	ramps/mi				
FFS (measured)	65.0 mph				
Base free-flow Speed, BFFS	mph				
LOS and Performance Measures			Design (N)		
<u>Operational (LOS)</u> $v_p = (V \text{ or } DDHV) / (PHF \times N \times f_{HV} \times f_p)$ 2699 pc/h/ln S 41.1 mph D = v _p / S 65.7 pc/mi/ln LOS F			<u>Design (N)</u> Design LOS $v_p = (V \text{ or } DDHV) / (PHF \times N \times f_{HV} \times f_p)$ pc/h/ln S mph D = v _p / S pc/mi/ln Required Number of Lanes, N		
Glossary			Factor Location		
N - Number of lanes V - Hourly volume v _p - Flow rate LOS - Level of service DDHV - Directional design hour volume			S - Speed D - Density FFS - Free-flow speed BFFS - Base free-flow speed E _R - Exhibits 11-10, 11-12 E _T - Exhibits 11-10, 11-11, 11-13 f _p - Page 11-18 LOS, S, FFS, v _p - Exhibits 11-2, 11-3		
			f _{LW} - Exhibit 11-8 f _{LC} - Exhibit 11-9 TRD - Page 11-11		

BASIC FREEWAY SEGMENTS WORKSHEET					
General Information			Site Information		
Analyst	JT		Highway/Direction of Travel I-15 Northbound		
Agency or Company	LLG		From/To South of Bundy Canyon Road		
Date Performed	1/12/17		Jurisdiction		
Analysis Time Period	Weekday PM Peak Hour		Analysis Year Year 2040 with Adopted SP		
Project Description 2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore					
☒ Oper.(LOS)		☐ Des.(N)		☐ Planning Data	
Flow Inputs					
Volume, V	6104	veh/h	Peak-Hour Factor, PHF	0.95	
AADT		veh/day	%Trucks and Buses, P _T	2	
Peak-Hr Prop. of AADT, K			%RVs, P _R	0	
Peak-Hr Direction Prop, D			General Terrain:	Level	
DDHV = AADT x K x D		veh/h	Grade %	Length mi	
			Up/Down %		
Calculate Flow Adjustments					
f _p	1.00		E _R	1.2	
E _T	1.5		f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)] 0.990		
Speed Inputs			Calc Speed Adj and FFS		
Lane Width		ft			
Rt-Side Lat. Clearance		ft			
Number of Lanes, N	3				
Total Ramp Density, TRD		ramps/mi			
FFS (measured)	65.0	mph			
Base free-flow Speed, BFFS		mph			
LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v _p = (V or DDHV) / (PHF x N x f _{HV})			Design LOS		
2163 pc/h/ln			v _p = (V or DDHV) / (PHF x N x f _{HV})		
S 56.7 mph			pc/h/ln		
D = v _p / S			S		
38.1 pc/mi/ln			D = v _p / S		
LOS E			pc/mi/ln		
			Required Number of Lanes, N		
Glossary			Factor Location		
N - Number of lanes			E _R - Exhibits 11-10, 11-12		
S - Speed			f _{LW} - Exhibit 11-8		
V - Hourly volume			E _T - Exhibits 11-10, 11-11, 11-13		
D - Density			f _{LC} - Exhibit 11-9		
v _p - Flow rate			f _p - Page 11-18		
FFS - Free-flow speed			TRD - Page 11-11		
LOS - Level of service			LOS, S, FFS, v _p - Exhibits 11-2, 11-3		
BFFS - Base free-flow speed					
DDHV - Directional design hour volume					

BASIC FREEWAY SEGMENTS WORKSHEET					
General Information			Site Information		
Analyst	JT		Highway/Direction of Travel I-15 Northbound		
Agency or Company	LLG		From/To North of Bundy Canyon Road		
Date Performed	1/12/17		Jurisdiction		
Analysis Time Period	Weekday PM Peak Hour		Analysis Year Year 2040 with Adopted SP		
Project Description 2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore					
☒ Oper.(LOS) ☐ Des.(N) ☐ Planning Data					
Flow Inputs					
Volume, V	5425	veh/h	Peak-Hour Factor, PHF	0.95	
AADT		veh/day	%Trucks and Buses, P _T	2	
Peak-Hr Prop. of AADT, K			%RVs, P _R	0	
Peak-Hr Direction Prop, D			General Terrain:	Level	
DDHV = AADT x K x D		veh/h	Grade %	Length	mi
			Up/Down %		
Calculate Flow Adjustments					
f _p	1.00		E _R	1.2	
E _T	1.5		f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)] 0.990		
Speed Inputs			Calc Speed Adj and FFS		
Lane Width	ft				
Rt-Side Lat. Clearance	ft				
Number of Lanes, N	3				
Total Ramp Density, TRD	ramps/mi				
FFS (measured)	65.0 mph				
Base free-flow Speed, BFFS	mph				
f _{LW}			mph		
f _{LC}			mph		
TRD Adjustment			mph		
FFS			65.0 mph		
LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v _p = (V or DDHV) / (PHF x N x f _{HV})			Design LOS		
1923	pc/h/ln		v _p = (V or DDHV) / (PHF x N x f _{HV})		
x f _p)			pc/h/ln		
S	61.1	mph	x f _p)		
D = v _p / S	31.5	pc/mi/ln	S		
LOS	D		D = v _p / S		
			pc/mi/ln		
			Required Number of Lanes, N		
Glossary			Factor Location		
N - Number of lanes	S - Speed		E _R - Exhibits 11-10, 11-12		
V - Hourly volume	D - Density		f _{LW} - Exhibit 11-8		
v _p - Flow rate	FFS - Free-flow speed		E _T - Exhibits 11-10, 11-11, 11-13		
LOS - Level of service	BFFS - Base free-flow speed		f _{LC} - Exhibit 11-9		
DDHV - Directional design hour volume			f _p - Page 11-18		
			TRD - Page 11-11		
			LOS, S, FFS, v _p - Exhibits 11-2, 11-3		

BASIC FREEWAY SEGMENTS WORKSHEET					
General Information			Site Information		
Analyst	JT		Highway/Direction of Travel I-15 Northbound		
Agency or Company	LLG		From/To North of Railroad Canyon Road		
Date Performed	1/12/17		Jurisdiction		
Analysis Time Period	Weekday PM Peak Hour		Analysis Year Year 2040 with Adopted SP		
Project Description 2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore					
☒ Oper.(LOS) ☐ Des.(N) ☐ Planning Data					
Flow Inputs					
Volume, V	5294	veh/h	Peak-Hour Factor, PHF	0.95	
AADT		veh/day	%Trucks and Buses, P _T	2	
Peak-Hr Prop. of AADT, K			%RVs, P _R	0	
Peak-Hr Direction Prop, D			General Terrain:	Level	
DDHV = AADT x K x D		veh/h	Grade %	Length	mi
			Up/Down %		
Calculate Flow Adjustments					
f _p	1.00		E _R	1.2	
E _T	1.5		f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)] 0.990		
Speed Inputs			Calc Speed Adj and FFS		
Lane Width	ft				
Rt-Side Lat. Clearance	ft				
Number of Lanes, N	4				
Total Ramp Density, TRD	ramps/mi				
FFS (measured)	65.0 mph				
Base free-flow Speed, BFFS	mph				
f _{LW}			mph		
f _{LC}			mph		
TRD Adjustment			mph		
FFS			65.0 mph		
LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)			Design LOS		
S			v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)		
D = v _p / S			S		
LOS			D = v _p / S		
			Required Number of Lanes, N		
Glossary			Factor Location		
N - Number of lanes			E _R - Exhibits 11-10, 11-12		
V - Hourly volume			f _{LW} - Exhibit 11-8		
v _p - Flow rate			E _T - Exhibits 11-10, 11-11, 11-13		
LOS - Level of service			f _{LC} - Exhibit 11-9		
DDHV - Directional design hour volume			f _p - Page 11-18		
			TRD - Page 11-11		
			LOS, S, FFS, v _p - Exhibits 11-2, 11-3		

BASIC FREEWAY SEGMENTS WORKSHEET					
General Information			Site Information		
Analyst	JT		Highway/Direction of Travel <i>I-15 Southbound</i>		
Agency or Company	LLG		From/To <i>North of Railroad Canyon Road</i>		
Date Performed	1/12/17		Jurisdiction		
Analysis Time Period	Weekday PM Peak Hour		Analysis Year <i>Year 2040 with Adopted SP</i>		
Project Description <i>2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore</i>					
☒ Oper. (LOS)		☐ Des. (N)		☐ Planning Data	
Flow Inputs					
Volume, V	3640	veh/h	Peak-Hour Factor, PHF	0.95	
AADT		veh/day	% Trucks and Buses, P _T	2	
Peak-Hr Prop. of AADT, K			% RVs, P _R	0	
Peak-Hr Direction Prop, D			General Terrain:	Level	
DDHV = AADT x K x D		veh/h	Grade %	Length	mi
				Up/Down %	
Calculate Flow Adjustments					
f _p	1.00		E _R	1.2	
E _T	1.5		f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.990	
Speed Inputs			Calc Speed Adj and FFS		
Lane Width		ft			
Rt-Side Lat. Clearance		ft	f _{LW}		mph
Number of Lanes, N	4		f _{LC}		mph
Total Ramp Density, TRD		ramps/mi	TRD Adjustment		mph
FFS (measured)	65.0	mph	FFS	65.0	mph
Base free-flow Speed, BFFS		mph			
LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v _p = (V or DDHV) / (PHF x N x f _{HV})			Design LOS		
x f _p)			v _p = (V or DDHV) / (PHF x N x f _{HV})		
S			x f _p)		
D = v _p / S			S		
LOS			D = v _p / S		
			Required Number of Lanes, N		
Glossary			Factor Location		
N - Number of lanes			E _R - Exhibits 11-10, 11-12		
V - Hourly volume			f _{LW} - Exhibit 11-8		
v _p - Flow rate			E _T - Exhibits 11-10, 11-11, 11-13		
LOS - Level of service			f _{LC} - Exhibit 11-9		
DDHV - Directional design hour volume			f _p - Page 11-18		
			TRD - Page 11-11		
			LOS, S, FFS, v _p - Exhibits 11-2, 11-3		

BASIC FREEWAY SEGMENTS WORKSHEET					
General Information			Site Information		
Analyst	JT		Highway/Direction of Travel I-15 Southbound		
Agency or Company	LLG		From/To North of Bundy Canyon Road		
Date Performed	1/12/17		Jurisdiction		
Analysis Time Period	Weekday PM Peak Hour		Analysis Year Year 2040 with Adopted SP		
Project Description 2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore					
☒ Oper.(LOS) ☐ Des.(N) ☐ Planning Data					
Flow Inputs					
Volume, V	3248	veh/h	Peak-Hour Factor, PHF	0.95	
AADT		veh/day	%Trucks and Buses, P _T	2	
Peak-Hr Prop. of AADT, K			%RVs, P _R	0	
Peak-Hr Direction Prop, D			General Terrain:	Level	
DDHV = AADT x K x D		veh/h	Grade %	Length	mi
			Up/Down %		
Calculate Flow Adjustments					
f _p	1.00		E _R	1.2	
E _T	1.5		f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)] 0.990		
Speed Inputs			Calc Speed Adj and FFS		
Lane Width	ft				
Rt-Side Lat. Clearance	ft				
Number of Lanes, N	3				
Total Ramp Density, TRD	ramps/mi				
FFS (measured)	65.0 mph				
Base free-flow Speed, BFFS	mph		f _{LW}	mph	
			f _{LC}	mph	
			TRD Adjustment	mph	
			FFS	65.0 mph	
LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)			Design LOS		
S	65.0	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)		
D = v _p / S	17.7	pc/mi/ln	S		
LOS	B		D = v _p / S		
			Required Number of Lanes, N		
Glossary			Factor Location		
N - Number of lanes	S - Speed		E _R - Exhibits 11-10, 11-12		
V - Hourly volume	D - Density		f _{LW} - Exhibit 11-8		
v _p - Flow rate	FFS - Free-flow speed		E _T - Exhibits 11-10, 11-11, 11-13		
LOS - Level of service	BFFS - Base free-flow speed		f _{LC} - Exhibit 11-9		
DDHV - Directional design hour volume			f _p - Page 11-18		
			TRD - Page 11-11		
			LOS, S, FFS, v _p - Exhibits 11-2, 11-3		

BASIC FREEWAY SEGMENTS WORKSHEET					
General Information			Site Information		
Analyst	JT		Highway/Direction of Travel <i>I-15 Southbound</i>		
Agency or Company	LLG		From/To <i>South of Bundy Canyon Road</i>		
Date Performed	1/12/17		Jurisdiction		
Analysis Time Period	Weekday PM Peak Hour		Analysis Year <i>Year 2040 with Adopted SP</i>		
Project Description <i>2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore</i>					
☒ Oper.(LOS) ☐ Des.(N) ☐ Planning Data					
Flow Inputs					
Volume, V	3922	veh/h	Peak-Hour Factor, PHF	0.95	
AADT		veh/day	%Trucks and Buses, P _T	2	
Peak-Hr Prop. of AADT, K			%RVs, P _R	0	
Peak-Hr Direction Prop, D			General Terrain:	Level	
DDHV = AADT x K x D		veh/h	Grade %	Length	mi
			Up/Down %		
Calculate Flow Adjustments					
f _p	1.00		E _R	1.2	
E _T	1.5		f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)] 0.990		
Speed Inputs			Calc Speed Adj and FFS		
Lane Width	ft				
Rt-Side Lat. Clearance	ft				
Number of Lanes, N	3				
Total Ramp Density, TRD	ramps/mi				
FFS (measured)	65.0				
Base free-flow Speed, BFFS	mph		f _{LW}	mph	
			f _{LC}	mph	
			TRD Adjustment	mph	
			FFS	65.0	
			mph		
LOS and Performance Measures			Design (N)		
<u>Operational (LOS)</u>			<u>Design (N)</u>		
v _p = (V or DDHV) / (PHF x N x f _{HV})			Design LOS		
1390 pc/h/ln			v _p = (V or DDHV) / (PHF x N x f _{HV})		
x f _p)			pc/h/ln		
S			S		
65.0 mph			mph		
D = v _p / S			D = v _p / S		
21.4 pc/mi/ln			pc/mi/ln		
LOS			Required Number of Lanes, N		
C					
Glossary			Factor Location		
N - Number of lanes			E _R - Exhibits 11-10, 11-12		
S - Speed			f _{LW} - Exhibit 11-8		
V - Hourly volume			E _T - Exhibits 11-10, 11-11, 11-13		
D - Density			f _{LC} - Exhibit 11-9		
v _p - Flow rate			f _p - Page 11-18		
FFS - Free-flow speed			TRD - Page 11-11		
LOS - Level of service			LOS, S, FFS, v _p - Exhibits 11-2, 11-3		
BFFS - Base free-flow speed					
DDHV - Directional design hour volume					

APPENDIX L-II

**YEAR 2040 WITH ELSP PROJECT BUILDOUT
TRAFFIC CONDITIONS**

BASIC FREEWAY SEGMENTS WORKSHEET					
General Information			Site Information		
Analyst	JT		Highway/Direction of Travel I-15 Northbound		
Agency or Company	LLG		From/To South of Bundy Canyon Road		
Date Performed	1/12/17		Jurisdiction		
Analysis Time Period	Weekday AM Peak Hour		Analysis Year Year 2040 with Project (BO)		
Project Description 2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore					
☒ Oper. (LOS) ☐ Des. (N) ☐ Planning Data					
Flow Inputs					
Volume, V	3365	veh/h	Peak-Hour Factor, PHF	0.95	
AADT		veh/day	%Trucks and Buses, P _T	2	
Peak-Hr Prop. of AADT, K			%RVs, P _R	0	
Peak-Hr Direction Prop, D			General Terrain:	Level	
DDHV = AADT x K x D		veh/h	Grade %	Length	mi
			Up/Down %		
Calculate Flow Adjustments					
f _p	1.00		E _R	1.2	
E _T	1.5		f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)] 0.990		
Speed Inputs			Calc Speed Adj and FFS		
Lane Width	ft		f_{LW} mph f_{LC} mph TRD Adjustment mph FFS 65.0 mph		
Rt-Side Lat. Clearance	ft				
Number of Lanes, N	3				
Total Ramp Density, TRD	ramps/mi				
FFS (measured)	65.0				
Base free-flow Speed, BFFS	mph				
LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)			Design LOS		
S			v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)		
D = v _p / S			S		
LOS			D = v _p / S		
			Required Number of Lanes, N		
Glossary			Factor Location		
N - Number of lanes			E _R - Exhibits 11-10, 11-12		
V - Hourly volume			E _T - Exhibits 11-10, 11-11, 11-13		
v _p - Flow rate			f _p - Page 11-18		
LOS - Level of service			LOS, S, FFS, v _p - Exhibits 11-2, 11-3		
DDHV - Directional design hour volume			f _{LW} - Exhibit 11-8		
S - Speed			f _{LC} - Exhibit 11-9		
D - Density			TRD - Page 11-11		
FFS - Free-flow speed					
BFFS - Base free-flow speed					

BASIC FREEWAY SEGMENTS WORKSHEET					
General Information			Site Information		
Analyst	JT		Highway/Direction of Travel <i>I-15 Northbound</i>		
Agency or Company	LLG		From/To <i>North of Bundy Canyon Road</i>		
Date Performed	1/17/17		Jurisdiction		
Analysis Time Period	Weekday AM Peak Hour		Analysis Year <i>Year 2040 with Project (BO)</i>		
Project Description <i>2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore</i>					
☒ Oper.(LOS) ☐ Des.(N) ☐ Planning Data					
Flow Inputs					
Volume, V	3327	veh/h	Peak-Hour Factor, PHF	0.95	
AADT		veh/day	%Trucks and Buses, P _T	2	
Peak-Hr Prop. of AADT, K			%RVs, P _R	0	
Peak-Hr Direction Prop, D			General Terrain:	Level	
DDHV = AADT x K x D		veh/h	Grade %	Length	mi
			Up/Down %		
Calculate Flow Adjustments					
f _p	1.00		E _R	1.2	
E _T	1.5		f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)] 0.990		
Speed Inputs			Calc Speed Adj and FFS		
Lane Width	ft				
Rt-Side Lat. Clearance	ft				
Number of Lanes, N	3				
Total Ramp Density, TRD	ramps/mi				
FFS (measured)	65.0 mph				
Base free-flow Speed, BFFS	mph				
f _{LW}			mph		
f _{LC}			mph		
TRD Adjustment			mph		
FFS			65.0 mph		
LOS and Performance Measures			Design (N)		
<u>Operational (LOS)</u>			<u>Design (N)</u>		
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)			Design LOS		
1179 pc/h/ln			v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)		
S			pc/h/ln		
65.0 mph			S		
D = v _p / S			mph		
18.1 pc/mi/ln			D = v _p / S		
LOS			pc/mi/ln		
C			Required Number of Lanes, N		
Glossary			Factor Location		
N - Number of lanes			E _R - Exhibits 11-10, 11-12		
S - Speed			f _{LW} - Exhibit 11-8		
V - Hourly volume			E _T - Exhibits 11-10, 11-11, 11-13		
D - Density			f _{LC} - Exhibit 11-9		
v _p - Flow rate			f _p - Page 11-18		
FFS - Free-flow speed			TRD - Page 11-11		
LOS - Level of service			LOS, S, FFS, v _p - Exhibits 11-2, 11-3		
BFFS - Base free-flow speed					
DDHV - Directional design hour volume					

BASIC FREEWAY SEGMENTS WORKSHEET					
General Information			Site Information		
Analyst	JT		Highway/Direction of Travel <i>I-15 Northbound</i>		
Agency or Company	LLG		From/To <i>North of Railroad Canyon Road</i>		
Date Performed	1/12/17		Jurisdiction		
Analysis Time Period	Weekday AM Peak Hour		Analysis Year <i>Year 2040 with Project (BO)</i>		
Project Description <i>2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore</i>					
☒ Oper.(LOS)		☐ Des.(N)		☐ Planning Data	
Flow Inputs					
Volume, V	3795	veh/h	Peak-Hour Factor, PHF	0.95	
AADT		veh/day	%Trucks and Buses, P _T	2	
Peak-Hr Prop. of AADT, K			%RVs, P _R	0	
Peak-Hr Direction Prop, D			General Terrain:	Level	
DDHV = AADT x K x D		veh/h	Grade %	Length	mi
			Up/Down %		
Calculate Flow Adjustments					
f _p	1.00		E _R	1.2	
E _T	1.5		f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)] 0.990		
Speed Inputs			Calc Speed Adj and FFS		
Lane Width		ft			
Rt-Side Lat. Clearance		ft			
Number of Lanes, N	4				
Total Ramp Density, TRD		ramps/mi			
FFS (measured)	65.0	mph			
Base free-flow Speed, BFFS		mph	f _{LW}		mph
			f _{LC}		mph
			TRD Adjustment		mph
			FFS	65.0	mph
LOS and Performance Measures			Design (N)		
<u>Operational (LOS)</u>			<u>Design (N)</u>		
v _p = (V or DDHV) / (PHF x N x f _{HV}) 1009 pc/h/ln			Design LOS		
x f _p)			v _p = (V or DDHV) / (PHF x N x f _{HV}) pc/h/ln		
S 65.0 mph			x f _p)		
D = v _p / S 15.5 pc/mi/ln			S mph		
LOS B			D = v _p / S pc/mi/ln		
			Required Number of Lanes, N		
Glossary			Factor Location		
N - Number of lanes S - Speed			E _R - Exhibits 11-10, 11-12 f _{LW} - Exhibit 11-8		
V - Hourly volume D - Density			E _T - Exhibits 11-10, 11-11, 11-13 f _{LC} - Exhibit 11-9		
v _p - Flow rate FFS - Free-flow speed			f _p - Page 11-18 TRD - Page 11-11		
LOS - Level of service BFFS - Base free-flow speed			LOS, S, FFS, v _p - Exhibits 11-2, 11-3		
DDHV - Directional design hour volume					

BASIC FREEWAY SEGMENTS WORKSHEET					
General Information			Site Information		
Analyst	JT		Highway/Direction of Travel <i>I-15 Southbound</i>		
Agency or Company	LLG		From/To <i>North of Railroad Canyon Road</i>		
Date Performed	1/12/17		Jurisdiction		
Analysis Time Period	Weekday AM Peak Hour		Analysis Year <i>Year 2040 with Project (BO)</i>		
Project Description <i>2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore</i>					
☒ Oper. (LOS) ☐ Des. (N) ☐ Planning Data					
Flow Inputs					
Volume, V	6432	veh/h	Peak-Hour Factor, PHF	0.95	
AADT		veh/day	% Trucks and Buses, P _T	2	
Peak-Hr Prop. of AADT, K			% RVs, P _R	0	
Peak-Hr Direction Prop, D			General Terrain:	Level	
DDHV = AADT x K x D		veh/h	Grade %	Length	mi
			Up/Down %		
Calculate Flow Adjustments					
f _p	1.00		E _R	1.2	
E _T	1.5		f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)] 0.990		
Speed Inputs			Calc Speed Adj and FFS		
Lane Width	ft				
Rt-Side Lat. Clearance	ft				
Number of Lanes, N	4				
Total Ramp Density, TRD	ramps/mi				
FFS (measured)	65.0 mph				
Base free-flow Speed, BFFS	mph		f _{LW}	mph	
			f _{LC}	mph	
			TRD Adjustment		
			FFS		
			65.0 mph		
LOS and Performance Measures			Design (N)		
<u>Operational (LOS)</u>			<u>Design (N)</u>		
v _p = (V or DDHV) / (PHF x N x f _{HV})			Design LOS		
1710 pc/h/ln			v _p = (V or DDHV) / (PHF x N x f _{HV})		
x f _p)			pc/h/ln		
S			S		
63.6 mph			mph		
D = v _p / S			D = v _p / S		
26.9 pc/mi/ln			pc/mi/ln		
LOS			Required Number of Lanes, N		
D					
Glossary			Factor Location		
N - Number of lanes			E _R - Exhibits 11-10, 11-12		
S - Speed			f _{LW} - Exhibit 11-8		
V - Hourly volume			E _T - Exhibits 11-10, 11-11, 11-13		
D - Density			f _{LC} - Exhibit 11-9		
v _p - Flow rate			f _p - Page 11-18		
FFS - Free-flow speed			TRD - Page 11-11		
LOS - Level of service			LOS, S, FFS, v _p - Exhibits 11-2, 11-3		
BFFS - Base free-flow speed					
DDHV - Directional design hour volume					

BASIC FREEWAY SEGMENTS WORKSHEET					
General Information			Site Information		
Analyst	JT		Highway/Direction of Travel I-15 Southbound		
Agency or Company	LLG		From/To North of Bundy Canyon Road		
Date Performed	1/12/17		Jurisdiction		
Analysis Time Period	Weekday AM Peak Hour		Analysis Year Year 2040 with Project (BO)		
Project Description 2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore					
☒ Oper. (LOS)		☐ Des. (N)		☐ Planning Data	
Flow Inputs					
Volume, V	6746	veh/h	Peak-Hour Factor, PHF	0.95	
AADT		veh/day	% Trucks and Buses, P _T	2	
Peak-Hr Prop. of AADT, K			% RVs, P _R	0	
Peak-Hr Direction Prop, D			General Terrain:	Level	
DDHV = AADT x K x D		veh/h	Grade % Length	mi	
			Up/Down %		
Calculate Flow Adjustments					
f _p	1.00		E _R	1.2	
E _T	1.5		f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.990	
Speed Inputs			Calc Speed Adj and FFS		
Lane Width		ft			
Rt-Side Lat. Clearance		ft	f _{LW}	mph	
Number of Lanes, N	3		f _{LC}	mph	
Total Ramp Density, TRD		ramps/mi	TRD Adjustment	mph	
FFS (measured)	65.0	mph	FFS	65.0	mph
Base free-flow Speed, BFFS		mph			
LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v _p = (V or DDHV) / (PHF x N x f _{HV})			Design LOS		
	2391	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV})		
x f _p)			x f _p)		
S	51.1	mph	S		
D = v _p / S	46.8	pc/mi/ln	D = v _p / S		
LOS	F		Required Number of Lanes, N		
Glossary			Factor Location		
N - Number of lanes	S - Speed		E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8	
V - Hourly volume	D - Density		E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9	
v _p - Flow rate	FFS - Free-flow speed		f _p - Page 11-18	TRD - Page 11-11	
LOS - Level of service	BFFS - Base free-flow speed		LOS, S, FFS, v _p - Exhibits 11-2, 11-3		
DDHV - Directional design hour volume					

BASIC FREEWAY SEGMENTS WORKSHEET					
General Information			Site Information		
Analyst	JT		Highway/Direction of Travel <i>I-15 Southbound</i>		
Agency or Company	LLG		From/To <i>South of Bundy Canyon Road</i>		
Date Performed	1/12/17		Jurisdiction		
Analysis Time Period	Weekday AM Peak Hour		Analysis Year <i>Year 2040 with Project (BO)</i>		
Project Description <i>2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore</i>					
☒ Oper. (LOS) ☐ Des. (N) ☐ Planning Data					
Flow Inputs					
Volume, V	7528	veh/h	Peak-Hour Factor, PHF	0.95	
AADT		veh/day	%Trucks and Buses, P _T	2	
Peak-Hr Prop. of AADT, K			%RVs, P _R	0	
Peak-Hr Direction Prop, D			General Terrain:	Level	
DDHV = AADT x K x D		veh/h	Grade %	Length	mi
			Up/Down %		
Calculate Flow Adjustments					
f _p	1.00		E _R	1.2	
E _T	1.5		f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)] 0.990		
Speed Inputs			Calc Speed Adj and FFS		
Lane Width	ft		f_{LW} mph f_{LC} mph TRD Adjustment mph FFS 65.0 mph		
Rt-Side Lat. Clearance	ft				
Number of Lanes, N	3				
Total Ramp Density, TRD	ramps/mi				
FFS (measured)	65.0				
Base free-flow Speed, BFFS	mph				
LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v _p = (V or DDHV) / (PHF x N x f _{HV})			Design LOS		
x f _p)	2668	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV})		
S	42.2	mph	x f _p)		
D = v _p / S	63.2	pc/mi/ln	S		
LOS	F		D = v _p / S		
			Required Number of Lanes, N		
Glossary			Factor Location		
N - Number of lanes	S - Speed		E _R - Exhibits 11-10, 11-12		
V - Hourly volume	D - Density		f _{LW} - Exhibit 11-8		
v _p - Flow rate	FFS - Free-flow speed		E _T - Exhibits 11-10, 11-11, 11-13		
LOS - Level of service	BFFS - Base free-flow speed		f _{LC} - Exhibit 11-9		
DDHV - Directional design hour volume			f _p - Page 11-18		
			TRD - Page 11-11		
			LOS, S, FFS, v _p - Exhibits 11-2, 11-3		

BASIC FREEWAY SEGMENTS WORKSHEET					
General Information			Site Information		
Analyst	JT		Highway/Direction of Travel I-15 Northbound		
Agency or Company	LLG		From/To South of Bundy Canyon Road		
Date Performed	1/12/17		Jurisdiction		
Analysis Time Period	Weekday PM Peak Hour		Analysis Year Year 2040 with Project (BO)		
Project Description 2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore					
☒ Oper.(LOS) ☐ Des.(N) ☐ Planning Data					
Flow Inputs					
Volume, V	7232	veh/h	Peak-Hour Factor, PHF	0.95	
AADT		veh/day	%Trucks and Buses, P _T	2	
Peak-Hr Prop. of AADT, K			%RVs, P _R	0	
Peak-Hr Direction Prop, D			General Terrain:	Level	
DDHV = AADT x K x D		veh/h	Grade %	Length	mi
			Up/Down %		
Calculate Flow Adjustments					
f _p	1.00		E _R	1.2	
E _T	1.5		f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)] 0.990		
Speed Inputs			Calc Speed Adj and FFS		
Lane Width	ft		f _{LW} mph f _{LC} mph TRD Adjustment mph FFS 65.0 mph		
Rt-Side Lat. Clearance	ft				
Number of Lanes, N	3				
Total Ramp Density, TRD	ramps/mi				
FFS (measured)	65.0 mph				
Base free-flow Speed, BFFS	mph				
LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v _p = (V or DDHV) / (PHF x N x f _{HV}) 2563 pc/h/ln			Design LOS		
S 45.8 mph			v _p = (V or DDHV) / (PHF x N x f _{HV}) pc/h/ln		
D = v _p / S 55.9 pc/mi/ln			S mph		
LOS F			D = v _p / S pc/mi/ln		
			Required Number of Lanes, N		
Glossary			Factor Location		
N - Number of lanes			E _R - Exhibits 11-10, 11-12		
V - Hourly volume			E _T - Exhibits 11-10, 11-11, 11-13		
v _p - Flow rate			f _p - Page 11-18		
LOS - Level of service			LOS, S, FFS, v _p - Exhibits 11-2, 11-3		
DDHV - Directional design hour volume			f _{LW} - Exhibit 11-8		
S - Speed			f _{LC} - Exhibit 11-9		
D - Density			TRD - Page 11-11		
FFS - Free-flow speed					
BFFS - Base free-flow speed					

BASIC FREEWAY SEGMENTS WORKSHEET					
General Information			Site Information		
Analyst	JT		Highway/Direction of Travel <i>I-15 Northbound</i>		
Agency or Company	LLG		From/To <i>North of Bundy Canyon Road</i>		
Date Performed	1/12/17		Jurisdiction		
Analysis Time Period	Weekday PM Peak Hour		Analysis Year <i>Year 2040 with Project (BO)</i>		
Project Description <i>2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore</i>					
☒ Oper.(LOS) ☐ Des.(N) ☐ Planning Data					
Flow Inputs					
Volume, V	6594	veh/h	Peak-Hour Factor, PHF	0.95	
AADT		veh/day	%Trucks and Buses, P _T	2	
Peak-Hr Prop. of AADT, K			%RVs, P _R	0	
Peak-Hr Direction Prop, D			General Terrain:	Level	
DDHV = AADT x K x D		veh/h	Grade %	Length	mi
			Up/Down %		
Calculate Flow Adjustments					
f _p	1.00		E _R	1.2	
E _T	1.5		f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)] 0.990		
Speed Inputs			Calc Speed Adj and FFS		
Lane Width	ft				
Rt-Side Lat. Clearance	ft				
Number of Lanes, N	3				
Total Ramp Density, TRD	ramps/mi				
FFS (measured)	65.0 mph				
Base free-flow Speed, BFFS	mph				
f _{LW}			mph		
f _{LC}			mph		
TRD Adjustment			mph		
FFS			65.0 mph		
LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v _p = (V or DDHV) / (PHF x N x f _{HV})			Design LOS		
2337	pc/h/ln		v _p = (V or DDHV) / (PHF x N x f _{HV})		
x f _p)			pc/h/ln		
S	52.6	mph	S		
D = v _p / S	44.5	pc/mi/ln	D = v _p / S		
LOS	E		pc/mi/ln		
			Required Number of Lanes, N		
Glossary			Factor Location		
N - Number of lanes	S - Speed		E _R - Exhibits 11-10, 11-12		
V - Hourly volume	D - Density		f _{LW} - Exhibit 11-8		
v _p - Flow rate	FFS - Free-flow speed		E _T - Exhibits 11-10, 11-11, 11-13		
LOS - Level of service	BFFS - Base free-flow speed		f _{LC} - Exhibit 11-9		
DDHV - Directional design hour volume			f _p - Page 11-18		
			TRD - Page 11-11		
			LOS, S, FFS, v _p - Exhibits 11-2, 11-3		

BASIC FREEWAY SEGMENTS WORKSHEET					
General Information			Site Information		
Analyst	JT		Highway/Direction of Travel <i>I-15 Northbound</i>		
Agency or Company	LLG		From/To <i>North of Railroad Canyon Road</i>		
Date Performed	1/12/17		Jurisdiction		
Analysis Time Period	Weekday PM Peak Hour		Analysis Year <i>Year 2040 with Project (BO)</i>		
Project Description <i>2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore</i>					
☒ Oper. (LOS)		☐ Des. (N)		☐ Planning Data	
Flow Inputs					
Volume, V	6479	veh/h	Peak-Hour Factor, PHF	0.95	
AADT		veh/day	%Trucks and Buses, P _T	2	
Peak-Hr Prop. of AADT, K			%RVs, P _R	0	
Peak-Hr Direction Prop, D			General Terrain:	Level	
DDHV = AADT x K x D		veh/h	Grade %	Length	mi
			Up/Down %		
Calculate Flow Adjustments					
f _p	1.00		E _R	1.2	
E _T	1.5		f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)] 0.990		
Speed Inputs			Calc Speed Adj and FFS		
Lane Width	ft				
Rt-Side Lat. Clearance	ft				
Number of Lanes, N	4				
Total Ramp Density, TRD	ramps/mi				
FFS (measured)	65.0				
Base free-flow Speed, BFFS	mph		f _{LW}	mph	
			f _{LC}	mph	
			TRD Adjustment	mph	
			FFS	65.0	
			mph		
LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)			Design LOS		
S	63.5	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)		
D = v _p / S	27.1	pc/mi/ln	S		
LOS	D		D = v _p / S		
			Required Number of Lanes, N		
Glossary			Factor Location		
N - Number of lanes	S - Speed		E _R - Exhibits 11-10, 11-12		f _{LW} - Exhibit 11-8
V - Hourly volume	D - Density		E _T - Exhibits 11-10, 11-11, 11-13		f _{LC} - Exhibit 11-9
v _p - Flow rate	FFS - Free-flow speed		f _p - Page 11-18		TRD - Page 11-11
LOS - Level of service	BFFS - Base free-flow speed		LOS, S, FFS, v _p - Exhibits 11-2, 11-3		
DDHV - Directional design hour volume					

BASIC FREEWAY SEGMENTS WORKSHEET					
General Information			Site Information		
Analyst	JT		Highway/Direction of Travel <i>I-15 Southbound</i>		
Agency or Company	LLG		From/To <i>North of Railroad Canyon Road</i>		
Date Performed	1/12/17		Jurisdiction		
Analysis Time Period	Weekday PM Peak Hour		Analysis Year <i>Year 2040 with Project (BO)</i>		
Project Description <i>2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore</i>					
☒ Oper.(LOS)		☐ Des.(N)		☐ Planning Data	
Flow Inputs					
Volume, V	4723	veh/h	Peak-Hour Factor, PHF	0.95	
AADT		veh/day	%Trucks and Buses, P _T	2	
Peak-Hr Prop. of AADT, K			%RVs, P _R	0	
Peak-Hr Direction Prop, D			General Terrain:	Level	
DDHV = AADT x K x D		veh/h	Grade %	Length	mi
			Up/Down %		
Calculate Flow Adjustments					
f _p	1.00		E _R	1.2	
E _T	1.5		f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)] 0.990		
Speed Inputs			Calc Speed Adj and FFS		
Lane Width	ft				
Rt-Side Lat. Clearance	ft				
Number of Lanes, N	4				
Total Ramp Density, TRD	ramps/mi				
FFS (measured)	65.0				
Base free-flow Speed, BFFS	mph		f _{LW}	mph	
			f _{LC}	mph	
			TRD Adjustment	mph	
			FFS	65.0	
			mph		
LOS and Performance Measures			Design (N)		
<u>Operational (LOS)</u>			<u>Design (N)</u>		
v _p = (V or DDHV) / (PHF x N x f _{HV})			Design LOS		
1255	pc/h/ln		v _p = (V or DDHV) / (PHF x N x f _{HV})		
x f _p)			pc/h/ln		
S	65.0	mph	S		
D = v _p / S	19.3	pc/mi/ln	D = v _p / S		
LOS	C		Required Number of Lanes, N		
Glossary			Factor Location		
N - Number of lanes	S - Speed		E _R - Exhibits 11-10, 11-12		
V - Hourly volume	D - Density		f _{LW} - Exhibit 11-8		
v _p - Flow rate	FFS - Free-flow speed		E _T - Exhibits 11-10, 11-11, 11-13		
LOS - Level of service	BFFS - Base free-flow speed		f _{LC} - Exhibit 11-9		
DDHV - Directional design hour volume			f _p - Page 11-18		
			TRD - Page 11-11		
			LOS, S, FFS, v _p - Exhibits 11-2, 11-3		

BASIC FREEWAY SEGMENTS WORKSHEET					
General Information			Site Information		
Analyst	JT		Highway/Direction of Travel <i>I-15 Southbound</i>		
Agency or Company	LLG		From/To <i>North of Bundy Canyon Road</i>		
Date Performed	1/12/17		Jurisdiction		
Analysis Time Period	Weekday PM Peak Hour		Analysis Year <i>Year 2040 with Project (BO)</i>		
Project Description <i>2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore</i>					
☒ Oper.(LOS) ☐ Des.(N) ☐ Planning Data					
Flow Inputs					
Volume, V	4342	veh/h	Peak-Hour Factor, PHF	0.95	
AADT		veh/day	%Trucks and Buses, P _T	2	
Peak-Hr Prop. of AADT, K			%RVs, P _R	0	
Peak-Hr Direction Prop, D			General Terrain:	Level	
DDHV = AADT x K x D		veh/h	Grade %	Length	mi
			Up/Down %		
Calculate Flow Adjustments					
f _p	1.00		E _R	1.2	
E _T	1.5		f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)] 0.990		
Speed Inputs			Calc Speed Adj and FFS		
Lane Width	ft		f_{LW} mph f_{LC} mph TRD Adjustment mph FFS 65.0 mph		
Rt-Side Lat. Clearance	ft				
Number of Lanes, N	3				
Total Ramp Density, TRD	ramps/mi				
FFS (measured)	65.0				
Base free-flow Speed, BFFS	mph				
LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v _p = (V or DDHV) / (PHF x N x f _{HV})			Design LOS		
v _p	1539	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV})		
x f _p)			x f _p)		
S	64.7	mph	S		
D = v _p / S	23.8	pc/mi/ln	D = v _p / S		
LOS	C		Required Number of Lanes, N		
Glossary			Factor Location		
N - Number of lanes	S - Speed		E _R - Exhibits 11-10, 11-12		
V - Hourly volume	D - Density		f _{LW} - Exhibit 11-8		
v _p - Flow rate	FFS - Free-flow speed		E _T - Exhibits 11-10, 11-11, 11-13		
LOS - Level of service	BFFS - Base free-flow speed		f _{LC} - Exhibit 11-9		
DDHV - Directional design hour volume			f _p - Page 11-18		
			TRD - Page 11-11		
			LOS, S, FFS, v _p - Exhibits 11-2, 11-3		

BASIC FREEWAY SEGMENTS WORKSHEET					
General Information			Site Information		
Analyst	JT		Highway/Direction of Travel <i>I-15 Southbound</i>		
Agency or Company	LLG		From/To <i>South of Bundy Canyon Road</i>		
Date Performed	1/12/17		Jurisdiction		
Analysis Time Period	Weekday PM Peak Hour		Analysis Year <i>Year 2040 with Project (BO)</i>		
Project Description <i>2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore</i>					
☒ Oper.(LOS) ☐ Des.(N) ☐ Planning Data					
Flow Inputs					
Volume, V	4977	veh/h	Peak-Hour Factor, PHF	0.95	
AADT		veh/day	%Trucks and Buses, P _T	2	
Peak-Hr Prop. of AADT, K			%RVs, P _R	0	
Peak-Hr Direction Prop, D			General Terrain:	Level	
DDHV = AADT x K x D		veh/h	Grade %	Length	mi
			Up/Down %		
Calculate Flow Adjustments					
f _p	1.00		E _R	1.2	
E _T	1.5		f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)] 0.990		
Speed Inputs			Calc Speed Adj and FFS		
Lane Width	ft				
Rt-Side Lat. Clearance	ft				
Number of Lanes, N	3				
Total Ramp Density, TRD	ramps/mi				
FFS (measured)	65.0 mph				
Base free-flow Speed, BFFS	mph				
f _{LW}			mph		
f _{LC}			mph		
TRD Adjustment			mph		
FFS			65.0 mph		
LOS and Performance Measures			Design (N)		
<u>Operational (LOS)</u>			<u>Design (N)</u>		
v _p = (V or DDHV) / (PHF x N x f _{HV}) 1764 pc/h/ln			Design LOS		
x f _p)			v _p = (V or DDHV) / (PHF x N x f _{HV})		
S 63.1 mph			x f _p)		
D = v _p / S 27.9 pc/mi/ln			S		
LOS D			D = v _p / S		
			Required Number of Lanes, N		
Glossary			Factor Location		
N - Number of lanes			E _R - Exhibits 11-10, 11-12		
S - Speed			f _{LW} - Exhibit 11-8		
V - Hourly volume			E _T - Exhibits 11-10, 11-11, 11-13		
D - Density			f _{LC} - Exhibit 11-9		
v _p - Flow rate			f _p - Page 11-18		
FFS - Free-flow speed			TRD - Page 11-11		
LOS - Level of service			LOS, S, FFS, v _p - Exhibits 11-2, 11-3		
BFFS - Base free-flow speed					
DDHV - Directional design hour volume					

APPENDIX L-III

**YEAR 2040 WITH ELSP PROJECT BUILDOUT
WITH MITIGATION TRAFFIC CONDITIONS**

BASIC FREEWAY SEGMENTS WORKSHEET					
General Information			Site Information		
Analyst	JT		Highway/Direction of Travel I-15 Northbound		
Agency or Company	LLG		From/To South of Bundy Canyon Road		
Date Performed	1/12/17		Jurisdiction [Mitigation]		
Analysis Time Period	Weekday AM Peak Hour		Analysis Year Year 2040 with Project (BO)		
Project Description 2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore					
☒ Oper.(LOS) ☐ Des.(N) ☐ Planning Data					
Flow Inputs					
Volume, V	3365	veh/h	Peak-Hour Factor, PHF	0.95	
AADT		veh/day	%Trucks and Buses, P _T	2	
Peak-Hr Prop. of AADT, K			%RVs, P _R	0	
Peak-Hr Direction Prop, D			General Terrain:	Level	
DDHV = AADT x K x D		veh/h	Grade %	Length	mi
			Up/Down %		
Calculate Flow Adjustments					
f _p	1.00		E _R	1.2	
E _T	1.5		f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)] 0.990		
Speed Inputs			Calc Speed Adj and FFS		
Lane Width	ft				
Rt-Side Lat. Clearance	ft				
Number of Lanes, N	4				
Total Ramp Density, TRD	ramps/mi				
FFS (measured)	65.0 mph				
Base free-flow Speed, BFFS	mph		f _{LW}	mph	
			f _{LC}	mph	
			TRD Adjustment	mph	
			FFS	65.0 mph	
LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)			Design LOS		
S	65.0	mph	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)		
D = v _p / S	13.8	pc/mi/ln	S		
LOS	B		D = v _p / S		
			Required Number of Lanes, N		
Glossary			Factor Location		
N - Number of lanes	S - Speed		E _R - Exhibits 11-10, 11-12		
V - Hourly volume	D - Density		f _{LW} - Exhibit 11-8		
v _p - Flow rate	FFS - Free-flow speed		E _T - Exhibits 11-10, 11-11, 11-13		
LOS - Level of service	BFFS - Base free-flow speed		f _{LC} - Exhibit 11-9		
DDHV - Directional design hour volume			f _p - Page 11-18		
			TRD - Page 11-11		
			LOS, S, FFS, v _p - Exhibits 11-2, 11-3		

BASIC FREEWAY SEGMENTS WORKSHEET					
General Information			Site Information		
Analyst	JT		Highway/Direction of Travel I-15 Northbound		
Agency or Company	LLG		From/To North of Bundy Canyon Road		
Date Performed	1/17/17		Jurisdiction [Mitigation]		
Analysis Time Period	Weekday AM Peak Hour		Analysis Year Year 2040 with Project (BO)		
Project Description 2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore					
☒ Oper.(LOS) ☐ Des.(N) ☐ Planning Data					
Flow Inputs					
Volume, V	3327	veh/h	Peak-Hour Factor, PHF	0.95	
AADT		veh/day	%Trucks and Buses, P _T	2	
Peak-Hr Prop. of AADT, K			%RVs, P _R	0	
Peak-Hr Direction Prop, D			General Terrain:	Level	
DDHV = AADT x K x D		veh/h	Grade %	Length	mi
			Up/Down %		
Calculate Flow Adjustments					
f _p	1.00		E _R	1.2	
E _T	1.5		f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)] 0.990		
Speed Inputs			Calc Speed Adj and FFS		
Lane Width	ft		f_{LW} mph f_{LC} mph TRD Adjustment mph FFS 65.0 mph		
Rt-Side Lat. Clearance	ft				
Number of Lanes, N	4				
Total Ramp Density, TRD	ramps/mi				
FFS (measured)	65.0				
Base free-flow Speed, BFFS	mph				
LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)			Design LOS		
S			v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)		
D = v _p / S			S		
LOS			D = v _p / S		
			Required Number of Lanes, N		
Glossary			Factor Location		
N - Number of lanes			E _R - Exhibits 11-10, 11-12		
V - Hourly volume			E _T - Exhibits 11-10, 11-11, 11-13		
v _p - Flow rate			f _p - Page 11-18		
LOS - Level of service			LOS, S, FFS, v _p - Exhibits 11-2, 11-3		
DDHV - Directional design hour volume			f _{LW} - Exhibit 11-8		
			f _{LC} - Exhibit 11-9		
			TRD - Page 11-11		

BASIC FREEWAY SEGMENTS WORKSHEET					
General Information			Site Information		
Analyst	JT		Highway/Direction of Travel I-15 Southbound		
Agency or Company	LLG		From/To North of Bundy Canyon Road		
Date Performed	1/12/17		Jurisdiction [Mitigation]		
Analysis Time Period	Weekday AM Peak Hour		Analysis Year Year 2040 with Project (BO)		
Project Description 2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore					
☒ Oper.(LOS) ☐ Des.(N) ☐ Planning Data					
Flow Inputs					
Volume, V	6746	veh/h	Peak-Hour Factor, PHF	0.95	
AADT		veh/day	%Trucks and Buses, P _T	2	
Peak-Hr Prop. of AADT, K			%RVs, P _R	0	
Peak-Hr Direction Prop, D			General Terrain:	Level	
DDHV = AADT x K x D		veh/h	Grade %	Length	mi
			Up/Down %		
Calculate Flow Adjustments					
f _p	1.00		E _R	1.2	
E _T	1.5		f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)] 0.990		
Speed Inputs			Calc Speed Adj and FFS		
Lane Width	ft		f_{LW} mph f_{LC} mph TRD Adjustment mph FFS 65.0 mph		
Rt-Side Lat. Clearance	ft				
Number of Lanes, N	4				
Total Ramp Density, TRD	ramps/mi				
FFS (measured)	65.0				
Base free-flow Speed, BFFS	mph				
LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)			Design LOS		
S			v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)		
D = v _p / S			S		
LOS			D = v _p / S		
			Required Number of Lanes, N		
Glossary			Factor Location		
N - Number of lanes			E _R - Exhibits 11-10, 11-12		
V - Hourly volume			E _T - Exhibits 11-10, 11-11, 11-13		
v _p - Flow rate			f _p - Page 11-18		
LOS - Level of service			LOS, S, FFS, v _p - Exhibits 11-2, 11-3		
DDHV - Directional design hour volume			f _{LW} - Exhibit 11-8		
			f _{LC} - Exhibit 11-9		
			TRD - Page 11-11		

BASIC FREEWAY SEGMENTS WORKSHEET					
General Information			Site Information		
Analyst	JT		Highway/Direction of Travel I-15 Southbound		
Agency or Company	LLG		From/To South of Bundy Canyon Road		
Date Performed	1/12/17		Jurisdiction [Mitigation]		
Analysis Time Period	Weekday AM Peak Hour		Analysis Year Year 2040 with Project (BO)		
Project Description 2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore					
☒ Oper.(LOS) ☐ Des.(N) ☐ Planning Data					
Flow Inputs					
Volume, V	7528		veh/h	Peak-Hour Factor, PHF	0.95
AADT			veh/day	%Trucks and Buses, P _T	2
Peak-Hr Prop. of AADT, K				%RVs, P _R	0
Peak-Hr Direction Prop, D				General Terrain:	Level
DDHV = AADT x K x D			veh/h	Grade %	Length mi
				Up/Down %	
Calculate Flow Adjustments					
f _p	1.00			E _R	1.2
E _T	1.5			f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)] 0.990	
Speed Inputs			Calc Speed Adj and FFS		
Lane Width			ft		
Rt-Side Lat. Clearance			ft	f _{LW}	mph
Number of Lanes, N	4			f _{LC}	mph
Total Ramp Density, TRD			ramps/mi	TRD Adjustment	mph
FFS (measured)	65.0		mph	FFS	65.0
Base free-flow Speed, BFFS			mph		mph
LOS and Performance Measures			Design (N)		
<u>Operational (LOS)</u>			<u>Design (N)</u>		
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)			Design LOS		
2001			v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)		
S			pc/h/ln		
59.9			mph		
D = v _p / S			S		
33.4			mph		
pc/mi/ln			D = v _p / S		
D			pc/mi/ln		
LOS			Required Number of Lanes, N		
Glossary			Factor Location		
N - Number of lanes	S - Speed		E _R - Exhibits 11-10, 11-12		
V - Hourly volume	D - Density		f _{LW} - Exhibit 11-8		
v _p - Flow rate	FFS - Free-flow speed		E _T - Exhibits 11-10, 11-11, 11-13		
LOS - Level of service	BFFS - Base free-flow speed		f _{LC} - Exhibit 11-9		
DDHV - Directional design hour volume			f _p - Page 11-18		
			TRD - Page 11-11		
			LOS, S, FFS, v _p - Exhibits 11-2, 11-3		

BASIC FREEWAY SEGMENTS WORKSHEET					
General Information			Site Information		
Analyst	JT		Highway/Direction of Travel I-15 Northbound		
Agency or Company	LLG		From/To South of Bundy Canyon Road		
Date Performed	1/12/17		Jurisdiction [Mitigation]		
Analysis Time Period	Weekday PM Peak Hour		Analysis Year Year 2040 with Project (BO)		
Project Description 2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore					
☒ Oper.(LOS)		☐ Des.(N)		☐ Planning Data	
Flow Inputs					
Volume, V	7232	veh/h	Peak-Hour Factor, PHF	0.95	
AADT		veh/day	%Trucks and Buses, P _T	2	
Peak-Hr Prop. of AADT, K			%RVs, P _R	0	
Peak-Hr Direction Prop, D			General Terrain:	Level	
DDHV = AADT x K x D		veh/h	Grade %	Length	mi
			Up/Down %		
Calculate Flow Adjustments					
f _p	1.00		E _R	1.2	
E _T	1.5		f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)] 0.990		
Speed Inputs			Calc Speed Adj and FFS		
Lane Width	ft		f_{LW} mph f_{LC} mph TRD Adjustment mph FFS 65.0 mph		
Rt-Side Lat. Clearance	ft				
Number of Lanes, N	4				
Total Ramp Density, TRD	ramps/mi				
FFS (measured)	65.0				
Base free-flow Speed, BFFS	mph				
LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v _p = (V or DDHV) / (PHF x N x f _{HV}) 1922			Design LOS		
x f _p)			v _p = (V or DDHV) / (PHF x N x f _{HV})		
S 61.1			x f _p)		
D = v _p / S 31.4			S		
LOS D			D = v _p / S		
			Required Number of Lanes, N		
Glossary			Factor Location		
N - Number of lanes			E _R - Exhibits 11-10, 11-12		
S - Speed			f _{LW} - Exhibit 11-8		
V - Hourly volume			E _T - Exhibits 11-10, 11-11, 11-13		
D - Density			f _{LC} - Exhibit 11-9		
v _p - Flow rate			f _p - Page 11-18		
FFS - Free-flow speed			TRD - Page 11-11		
LOS - Level of service			LOS, S, FFS, v _p - Exhibits 11-2, 11-3		
BFFS - Base free-flow speed					
DDHV - Directional design hour volume					

BASIC FREEWAY SEGMENTS WORKSHEET					
General Information			Site Information		
Analyst	JT		Highway/Direction of Travel	I-15 Northbound	
Agency or Company	LLG		From/To	North of Bundy Canyon Road	
Date Performed	1/12/17		Jurisdiction	[Mitigation]	
Analysis Time Period	Weekday PM Peak Hour		Analysis Year	Year 2040 with Project (BO)	
Project Description 2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore					
☒ Oper.(LOS) ☐ Des.(N) ☐ Planning Data					
Flow Inputs					
Volume, V	6594	veh/h	Peak-Hour Factor, PHF	0.95	
AADT		veh/day	%Trucks and Buses, P _T	2	
Peak-Hr Prop. of AADT, K			%RVs, P _R	0	
Peak-Hr Direction Prop, D			General Terrain:	Level	
DDHV = AADT x K x D		veh/h	Grade % Length	mi	
			Up/Down %		
Calculate Flow Adjustments					
f _p	1.00		E _R	1.2	
E _T	1.5		f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)]	0.990	
Speed Inputs			Calc Speed Adj and FFS		
Lane Width		ft			
Rt-Side Lat. Clearance		ft	f _{LW}	mph	
Number of Lanes, N	4		f _{LC}	mph	
Total Ramp Density, TRD		ramps/mi	TRD Adjustment	mph	
FFS (measured)	65.0	mph	FFS	65.0	mph
Base free-flow Speed, BFFS		mph			
LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)			Design LOS		
	1753	pc/h/ln	v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)		
S	63.2	mph	S		
D = v _p / S	27.7	pc/mi/ln	D = v _p / S		
LOS	D		Required Number of Lanes, N		
Glossary			Factor Location		
N - Number of lanes	S - Speed		E _R - Exhibits 11-10, 11-12	f _{LW} - Exhibit 11-8	
V - Hourly volume	D - Density		E _T - Exhibits 11-10, 11-11, 11-13	f _{LC} - Exhibit 11-9	
v _p - Flow rate	FFS - Free-flow speed		f _p - Page 11-18	TRD - Page 11-11	
LOS - Level of service	BFFS - Base free-flow speed		LOS, S, FFS, v _p - Exhibits 11-2, 11-3		
DDHV - Directional design hour volume					

BASIC FREEWAY SEGMENTS WORKSHEET					
General Information			Site Information		
Analyst	JT		Highway/Direction of Travel I-15 Southbound		
Agency or Company	LLG		From/To North of Bundy Canyon Road		
Date Performed	1/12/17		Jurisdiction [Mitigation]		
Analysis Time Period	Weekday PM Peak Hour		Analysis Year Year 2040 with Project (BO)		
Project Description 2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore					
☒ Oper.(LOS) ☐ Des.(N) ☐ Planning Data					
Flow Inputs					
Volume, V	4342	veh/h	Peak-Hour Factor, PHF	0.95	
AADT		veh/day	%Trucks and Buses, P _T	2	
Peak-Hr Prop. of AADT, K			%RVs, P _R	0	
Peak-Hr Direction Prop, D			General Terrain:	Level	
DDHV = AADT x K x D		veh/h	Grade %	Length	mi
				Up/Down %	
Calculate Flow Adjustments					
f _p	1.00		E _R	1.2	
E _T	1.5		f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)] 0.990		
Speed Inputs			Calc Speed Adj and FFS		
Lane Width	ft		f_{LW} mph f_{LC} mph TRD Adjustment mph FFS 65.0 mph		
Rt-Side Lat. Clearance	ft				
Number of Lanes, N	4				
Total Ramp Density, TRD	ramps/mi				
FFS (measured)	65.0 mph				
Base free-flow Speed, BFFS	mph				
LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)			Design LOS		
S			v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p)		
D = v _p / S			S		
LOS			D = v _p / S		
			Required Number of Lanes, N		
Glossary			Factor Location		
N - Number of lanes			E _R - Exhibits 11-10, 11-12		
V - Hourly volume			E _T - Exhibits 11-10, 11-11, 11-13		
v _p - Flow rate			f _p - Page 11-18		
LOS - Level of service			LOS, S, FFS, v _p - Exhibits 11-2, 11-3		
DDHV - Directional design hour volume			f _{LW} - Exhibit 11-8		
S - Speed			f _{LC} - Exhibit 11-9		
D - Density			TRD - Page 11-11		
FFS - Free-flow speed					
BFFS - Base free-flow speed					

BASIC FREEWAY SEGMENTS WORKSHEET					
General Information			Site Information		
Analyst	JT		Highway/Direction of Travel I-15 Southbound		
Agency or Company	LLG		From/To South of Bundy Canyon Road		
Date Performed	1/12/17		Jurisdiction [Mitigation]		
Analysis Time Period	Weekday PM Peak Hour		Analysis Year Year 2040 with Project (BO)		
Project Description 2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore					
☒ Oper.(LOS)		☐ Des.(N)		☐ Planning Data	
Flow Inputs					
Volume, V	4977	veh/h	Peak-Hour Factor, PHF	0.95	
AADT		veh/day	%Trucks and Buses, P _T	2	
Peak-Hr Prop. of AADT, K			%RVs, P _R	0	
Peak-Hr Direction Prop, D			General Terrain:	Level	
DDHV = AADT x K x D		veh/h	Grade %	Length mi	Up/Down %
Calculate Flow Adjustments					
f _p	1.00		E _R	1.2	
E _T	1.5		f _{HV} = 1/[1+P _T (E _T - 1) + P _R (E _R - 1)] 0.990		
Speed Inputs			Calc Speed Adj and FFS		
Lane Width		ft			
Rt-Side Lat. Clearance		ft			
Number of Lanes, N	4				
Total Ramp Density, TRD		ramps/mi			
FFS (measured)	65.0	mph			
Base free-flow Speed, BFFS		mph			
LOS and Performance Measures			Design (N)		
Operational (LOS)			Design (N)		
v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p) 1323 pc/h/ln			Design LOS		
S 65.0 mph			v _p = (V or DDHV) / (PHF x N x f _{HV} x f _p) pc/h/ln		
D = v _p / S 20.4 pc/mi/ln			S mph		
LOS C			D = v _p / S pc/mi/ln		
			Required Number of Lanes, N		
Glossary			Factor Location		
N - Number of lanes S - Speed			E _R - Exhibits 11-10, 11-12 f _{LW} - Exhibit 11-8		
V - Hourly volume D - Density			E _T - Exhibits 11-10, 11-11, 11-13 f _{LC} - Exhibit 11-9		
v _p - Flow rate FFS - Free-flow speed			f _p - Page 11-18 TRD - Page 11-11		
LOS - Level of service BFFS - Base free-flow speed			LOS, S, FFS, v _p - Exhibits 11-2, 11-3		
DDHV - Directional design hour volume					

APPENDIX M

YEAR 2040 TRAFFIC CONDITIONS FREEWAY MERGE AND DIVERGE SEGMENTS LEVEL OF SERVICE CALCULATION WORKSHEETS

APPENDIX M-1

**YEAR 2040 WITH ADOPTED SPECIFIC PLAN
TRAFFIC CONDITIONS**

RAMPS AND RAMP JUNCTIONS WORKSHEET									
General Information					Site Information				
Analyst		JT		Freeway/Dir of Travel		I-15 Northbound			
Agency or Company		LLG		Junction		Railroad Canyon Road Off-Ramp			
Date Performed		1/12/17		Jurisdiction					
Analysis Time Period		Weekday AM Peak Hour		Analysis Year		Year 2040 with Adopted SP			
Project Description 2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore									
Inputs									
Upstream Adj Ramp ☐ Yes ☐ On ☒ No ☐ Off $L_{up} =$ ft $V_u =$ veh/h		Freeway Number of Lanes, N		3		Downstream Adj Ramp ☒ Yes ☒ On ☐ No ☐ Off $L_{down} =$ 3000 ft $V_D =$ 1288 veh/h			
		Ramp Number of Lanes, N		1					
		Acceleration Lane Length, L_A							
		Deceleration Lane Length L_D		1500					
		Freeway Volume, V_F		3323					
		Ramp Volume, V_R		805					
		Freeway Free-Flow Speed, S_{FF}		65.0					
		Ramp Free-Flow Speed, S_{FR}		35.0					
Conversion to pc/h Under Base Conditions									
(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	$v = V/PHF \times f_{HV} \times f_p$	
Freeway	3323	0.95	Level	2	0	0.990	1.00	3533	
Ramp	805	0.95	Level	2	0	0.990	1.00	856	
UpStream									
DownStream	1288	0.95	Level	2	0	0.990	1.00	1369	
Merge Areas					Diverge Areas				
Estimation of v_{12}					Estimation of v_{12}				
$V_{12} = V_F (P_{FM})$ (Equation 13-6 or 13-7) $P_{FM} =$ using Equation (Exhibit 13-6) $V_{12} =$ pc/h V_3 or V_{av34} pc/h (Equation 13-14 or 13-17) Is V_3 or $V_{av34} > 2,700$ pc/h? ☐ Yes ☐ No Is V_3 or $V_{av34} > 1.5 * V_{12}/2$ ☐ Yes ☐ No If Yes, $V_{12a} =$ pc/h (Equation 13-16, 13-18, or 13-19)					$V_{12} = V_R + (V_F - V_R)P_{FD}$ (Equation 13-12 or 13-13) $P_{FD} =$ 0.632 using Equation (Exhibit 13-7) $V_{12} =$ 2549 pc/h V_3 or V_{av34} 984 pc/h (Equation 13-14 or 13-17) Is V_3 or $V_{av34} > 2,700$ pc/h? ☐ Yes ☒ No Is V_3 or $V_{av34} > 1.5 * V_{12}/2$ ☐ Yes ☒ No If Yes, $V_{12a} =$ pc/h (Equation 13-16, 13-18, or 13-19)				
Capacity Checks					Capacity Checks				
	Actual	Capacity		LOS F?		Actual	Capacity		LOS F?
V_{FO}		Exhibit 13-8			V_F	3533	Exhibit 13-8	7050	No
			$V_{FO} = V_F - V_R$	2677	Exhibit 13-8	7050	No		
			V_R	856	Exhibit 13-10	2000	No		
Flow Entering Merge Influence Area					Flow Entering Diverge Influence Area				
	Actual	Max Desirable		Violation?		Actual	Max Desirable		Violation?
V_{R12}		Exhibit 13-8			V_{12}	2549	Exhibit 13-8	4400:All	No
Level of Service Determination (if not F)					Level of Service Determination (if not F)				
$D_R = 5.475 + 0.00734 v_R + 0.0078 V_{12} - 0.00627 L_A$ $D_R =$ (pc/mi/ln) LOS = (Exhibit 13-2)					$D_R = 4.252 + 0.0086 V_{12} - 0.009 L_D$ $D_R =$ 12.7 (pc/mi/ln) LOS = B (Exhibit 13-2)				
Speed Determination					Speed Determination				
$M_S =$ (Exhibit 13-11) $S_R =$ mph (Exhibit 13-11) $S_0 =$ mph (Exhibit 13-11) $S =$ mph (Exhibit 13-13)					$D_s =$ 0.505 (Exhibit 13-12) $S_R =$ 53.4 mph (Exhibit 13-12) $S_0 =$ 71.3 mph (Exhibit 13-12) $S =$ 57.4 mph (Exhibit 13-13)				

RAMPS AND RAMP JUNCTIONS WORKSHEET									
General Information					Site Information				
Analyst	JT		Freeway/Dir of Travel	I-15 Northbound					
Agency or Company	LLG		Junction	Railroad Canyon Road On-Ramp					
Date Performed	1/12/17		Jurisdiction						
Analysis Time Period	Weekday AM Peak Hour		Analysis Year	Year 2040 with Adopted SP					
Project Description 2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore									
Inputs									
Upstream Adj Ramp	Freeway Number of Lanes, N		4		Downstream Adj Ramp				
☒ Yes ☐ On	Ramp Number of Lanes, N		1		☐ Yes ☐ On				
☐ No ☒ Off	Acceleration Lane Length, L_A		1500		☒ No ☐ Off				
$L_{up} =$ 3000 ft	Deceleration Lane Length L_D				$L_{down} =$ ft				
$V_u =$ 805 veh/h	Freeway Volume, V_F		2518		$V_D =$ veh/h				
	Ramp Volume, V_R		1288						
	Freeway Free-Flow Speed, S_{FF}		65.0						
	Ramp Free-Flow Speed, S_{FR}		35.0						
Conversion to pc/h Under Base Conditions									
(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	$v = V/PHF \times f_{HV} \times f_p$	
Freeway	2518	0.95	Level	2	0	0.990	1.00	2677	
Ramp	1288	0.95	Level	2	0	0.990	1.00	1369	
UpStream	805	0.95	Level	2	0	0.990	1.00	856	
DownStream									
Merge Areas					Diverge Areas				
Estimation of v_{12}					Estimation of v_{12}				
$V_{12} = V_F (P_{FM})$ (Equation 13-6 or 13-7) $P_{FM} =$ 0.047 using Equation (Exhibit 13-6) $V_{12} =$ 125 pc/h V_3 or V_{av34} 1276 pc/h (Equation 13-14 or 13-17) Is V_3 or $V_{av34} > 2,700$ pc/h? ☐ Yes ☒ No Is V_3 or $V_{av34} > 1.5 \times V_{12}/2$ ☒ Yes ☐ No If Yes, $V_{12a} =$ 1070 pc/h (Equation 13-16, 13-18, or 13-19)					$V_{12} = V_R + (V_F - V_R)P_{FD}$ (Equation 13-12 or 13-13) $P_{FD} =$ using Equation (Exhibit 13-7) $V_{12} =$ pc/h V_3 or V_{av34} pc/h (Equation 13-14 or 13-17) Is V_3 or $V_{av34} > 2,700$ pc/h? ☐ Yes ☐ No Is V_3 or $V_{av34} > 1.5 \times V_{12}/2$ ☐ Yes ☐ No If Yes, $V_{12a} =$ pc/h (Equation 13-16, 13-18, or 13-19)				
Capacity Checks					Capacity Checks				
	Actual	Capacity		LOS F?		Actual	Capacity		LOS F?
V_{FO}	4046	Exhibit 13-8		No	V_F		Exhibit 13-8		
					$V_{FO} = V_F - V_R$		Exhibit 13-8		
					V_R		Exhibit 13-10		
Flow Entering Merge Influence Area					Flow Entering Diverge Influence Area				
	Actual	Max Desirable		Violation?		Actual	Max Desirable		Violation?
V_{R12}	2439	Exhibit 13-8	4600:All	No	V_{12}		Exhibit 13-8		
Level of Service Determination (if not F)					Level of Service Determination (if not F)				
$D_R = 5.475 + 0.00734 v_R + 0.0078 V_{12} - 0.00627 L_A$ $D_R =$ 14.5 (pc/mi/ln) LOS = B (Exhibit 13-2)					$D_R = 4.252 + 0.0086 V_{12} - 0.009 L_D$ $D_R =$ (pc/mi/ln) LOS = (Exhibit 13-2)				
Speed Determination					Speed Determination				
$M_S =$ 0.261 (Exhibit 13-11) $S_R =$ 59.0 mph (Exhibit 13-11) $S_0 =$ 63.9 mph (Exhibit 13-11) $S =$ 60.9 mph (Exhibit 13-13)					$D_S =$ (Exhibit 13-12) $S_R =$ mph (Exhibit 13-12) $S_0 =$ mph (Exhibit 13-12) $S =$ mph (Exhibit 13-13)				

RAMPS AND RAMP JUNCTIONS WORKSHEET									
General Information					Site Information				
Analyst		JT		Freeway/Dir of Travel		I-15 Southbound			
Agency or Company		LLG		Junction		Railroad Canyon Road Off-Ramp			
Date Performed		1/12/17		Jurisdiction					
Analysis Time Period		Weekday AM Peak Hour		Analysis Year		Year 2040 with Adopted SP			
Project Description 2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore									
Inputs									
Upstream Adj Ramp ☐ Yes ☐ On ☒ No ☐ Off $L_{up} =$ ft $V_u =$ veh/h		Freeway Number of Lanes, N				4		Downstream Adj Ramp ☒ Yes ☒ On ☐ No ☐ Off $L_{down} =$ 3000 ft $V_D =$ 1245 veh/h	
		Ramp Number of Lanes, N				2			
		Acceleration Lane Length, L_A							
		Deceleration Lane Length L_D				170			
		Freeway Volume, V_F				6436			
		Ramp Volume, V_R				929			
Freeway Free-Flow Speed, S_{FF}				65.0					
Ramp Free-Flow Speed, S_{FR}				35.0					
Conversion to pc/h Under Base Conditions									
(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	$v = V/PHF \times f_{HV} \times f_p$	
Freeway	6436	0.95	Level	2	0	0.990	1.00	6842	
Ramp	929	0.95	Level	2	0	0.990	1.00	988	
UpStream									
DownStream	1245	0.95	Level	2	0	0.990	1.00	1324	
Merge Areas					Diverge Areas				
Estimation of v_{12}					Estimation of v_{12}				
$V_{12} = V_F (P_{FM})$ $L_{EQ} =$ (Equation 13-6 or 13-7) $P_{FM} =$ using Equation (Exhibit 13-6) $V_{12} =$ pc/h V_3 or V_{av34} pc/h (Equation 13-14 or 13-17) Is V_3 or $V_{av34} > 2,700$ pc/h? ☐ Yes ☐ No Is V_3 or $V_{av34} > 1.5 * V_{12}/2$ ☐ Yes ☐ No If Yes, $V_{12a} =$ pc/h (Equation 13-16, 13-18, or 13-19)					$V_{12} = V_R + (V_F - V_R)P_{FD}$ $L_{EQ} =$ (Equation 13-12 or 13-13) $P_{FD} =$ 0.260 using Equation (Exhibit 13-7) $V_{12} =$ 2510 pc/h V_3 or V_{av34} 2166 pc/h (Equation 13-14 or 13-17) Is V_3 or $V_{av34} > 2,700$ pc/h? ☐ Yes ☒ No Is V_3 or $V_{av34} > 1.5 * V_{12}/2$ ☒ Yes ☐ No If Yes, $V_{12a} =$ 2736 pc/h (Equation 13-16, 13-18, or 13-19)				
Capacity Checks					Capacity Checks				
	Actual	Capacity		LOS F?		Actual	Capacity		LOS F?
V_{FO}		Exhibit 13-8			V_F	6842	Exhibit 13-8	9400	No
			$V_{FO} = V_F - V_R$	5854	Exhibit 13-8	9400	No		
			V_R	988	Exhibit 13-10	4000	No		
Flow Entering Merge Influence Area					Flow Entering Diverge Influence Area				
	Actual	Max Desirable		Violation?		Actual	Max Desirable		Violation?
V_{R12}		Exhibit 13-8			V_{12}	2510	Exhibit 13-8	4400:All	No
Level of Service Determination (if not F)					Level of Service Determination (if not F)				
$D_R = 5.475 + 0.00734 v_R + 0.0078 V_{12} - 0.00627 L_A$ $D_R =$ (pc/mi/ln) LOS = (Exhibit 13-2)					$D_R = 4.252 + 0.0086 V_{12} - 0.009 L_D$ $D_R =$ 11.2 (pc/mi/ln) LOS = B (Exhibit 13-2)				
Speed Determination					Speed Determination				
$M_S =$ (Exhibit 13-11) $S_R =$ mph (Exhibit 13-11) $S_0 =$ mph (Exhibit 13-11) $S =$ mph (Exhibit 13-13)					$D_s =$ 0.517 (Exhibit 13-12) $S_R =$ 53.1 mph (Exhibit 13-12) $S_0 =$ 67.2 mph (Exhibit 13-12) $S =$ 60.8 mph (Exhibit 13-13)				

RAMPS AND RAMP JUNCTIONS WORKSHEET									
General Information					Site Information				
Analyst		JT		Freeway/Dir of Travel		I-15 Southbound			
Agency or Company		LLG		Junction		Railroad Canyon Road On-Ramp			
Date Performed		1/12/17		Jurisdiction					
Analysis Time Period		Weekday AM Peak Hour		Analysis Year		Year 2040 with Adopted SP			
Project Description 2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore									
Inputs									
Upstream Adj Ramp		Freeway Number of Lanes, N				3		Downstream Adj Ramp	
☒ Yes ☐ On		Ramp Number of Lanes, N				1		☐ Yes ☐ On	
☐ No ☒ Off		Acceleration Lane Length, L_A				1500		☒ No ☐ Off	
		Deceleration Lane Length L_D						$L_{down} =$ ft	
$L_{up} =$ 3000 ft		Freeway Volume, V_F				5507		$V_D =$ veh/h	
$V_u =$ 929 veh/h		Ramp Volume, V_R				1245			
		Freeway Free-Flow Speed, S_{FF}				65.0			
		Ramp Free-Flow Speed, S_{FR}				35.0			
Conversion to pc/h Under Base Conditions									
(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	$v = V/PHF \times f_{HV} \times f_p$	
Freeway	5507	0.95	Level	2	0	0.990	1.00	5855	
Ramp	1245	0.95	Level	2	0	0.990	1.00	1324	
UpStream	929	0.95	Level	2	0	0.990	1.00	988	
DownStream									
Merge Areas					Diverge Areas				
Estimation of v_{12}					Estimation of v_{12}				
$V_{12} = V_F (P_{FM})$ $L_{EQ} =$ 1630.51 (Equation 13-6 or 13-7) $P_{FM} =$ 0.619 using Equation (Exhibit 13-6) $V_{12} =$ 3627 pc/h V_3 or V_{av34} 2228 pc/h (Equation 13-14 or 13-17) Is V_3 or $V_{av34} > 2,700$ pc/h? ☐ Yes ☒ No Is V_3 or $V_{av34} > 1.5 * V_{12}/2$ ☒ Yes ☐ No If Yes, $V_{12a} =$ 3627 pc/h (Equation 13-16, 13-18, or 13-19)					$V_{12} = V_R + (V_F - V_R)P_{FD}$ $L_{EQ} =$ (Equation 13-12 or 13-13) $P_{FD} =$ using Equation (Exhibit 13-7) $V_{12} =$ pc/h V_3 or V_{av34} pc/h (Equation 13-14 or 13-17) Is V_3 or $V_{av34} > 2,700$ pc/h? ☐ Yes ☐ No Is V_3 or $V_{av34} > 1.5 * V_{12}/2$ ☐ Yes ☐ No If Yes, $V_{12a} =$ pc/h (Equation 13-16, 13-18, or 13-19)				
Capacity Checks					Capacity Checks				
	Actual	Capacity		LOS F?		Actual	Capacity		LOS F?
V_{FO}	7179	Exhibit 13-8		Yes	V_F		Exhibit 13-8		
					$V_{FO} = V_F - V_R$		Exhibit 13-8		
					V_R		Exhibit 13-10		
Flow Entering Merge Influence Area					Flow Entering Diverge Influence Area				
	Actual	Max Desirable		Violation?		Actual	Max Desirable		Violation?
V_{R12}	4951	Exhibit 13-8	4600:All	Yes	V_{12}		Exhibit 13-8		
Level of Service Determination (if not F)					Level of Service Determination (if not F)				
$D_R = 5.475 + 0.00734 v_R + 0.0078 V_{12} - 0.00627 L_A$ $D_R =$ 34.1 (pc/mi/ln) LOS = F (Exhibit 13-2)					$D_R = 4.252 + 0.0086 V_{12} - 0.009 L_D$ $D_R =$ (pc/mi/ln) LOS = (Exhibit 13-2)				
Speed Determination					Speed Determination				
$M_S =$ 0.767 (Exhibit 13-11) $S_R =$ 47.4 mph (Exhibit 13-11) $S_0 =$ 58.8 mph (Exhibit 13-11) $S =$ 50.4 mph (Exhibit 13-13)					$D_s =$ (Exhibit 13-12) $S_R =$ mph (Exhibit 13-12) $S_0 =$ mph (Exhibit 13-12) $S =$ mph (Exhibit 13-13)				

RAMPS AND RAMP JUNCTIONS WORKSHEET									
General Information					Site Information				
Analyst		JT		Freeway/Dir of Travel		I-15 Northbound			
Agency or Company		LLG		Junction		Railroad Canyon Road Off-Ramp			
Date Performed		1/12/17		Jurisdiction					
Analysis Time Period		Weekday PM Peak Hour		Analysis Year		Year 2040 with Adopted SP			
Project Description 2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore									
Inputs									
Upstream Adj Ramp ☐ Yes ☐ On ☒ No ☐ Off $L_{up} =$ ft $V_u =$ veh/h		Freeway Number of Lanes, N				3		Downstream Adj Ramp ☒ Yes ☒ On ☐ No ☐ Off $L_{down} =$ 3000 ft $V_D =$ 1141 veh/h	
		Ramp Number of Lanes, N				1			
		Acceleration Lane Length, L_A							
		Deceleration Lane Length L_D				1500			
		Freeway Volume, V_F				5425			
		Ramp Volume, V_R				1272			
Freeway Free-Flow Speed, S_{FF}				65.0					
Ramp Free-Flow Speed, S_{FR}				35.0					
Conversion to pc/h Under Base Conditions									
(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	$v = V/PHF \times f_{HV} \times f_p$	
Freeway	5425	0.95	Level	2	0	0.990	1.00	5768	
Ramp	1272	0.95	Level	2	0	0.990	1.00	1352	
UpStream									
DownStream	1141	0.95	Level	2	0	0.990	1.00	1213	
Merge Areas					Diverge Areas				
Estimation of v_{12}					Estimation of v_{12}				
$V_{12} = V_F (P_{FM})$ $L_{EQ} =$ (Equation 13-6 or 13-7) $P_{FM} =$ using Equation (Exhibit 13-6) $V_{12} =$ pc/h V_3 or V_{av34} pc/h (Equation 13-14 or 13-17) Is V_3 or $V_{av34} > 2,700$ pc/h? ☐ Yes ☐ No Is V_3 or $V_{av34} > 1.5 * V_{12}/2$ ☐ Yes ☐ No If Yes, $V_{12a} =$ pc/h (Equation 13-16, 13-18, or 13-19)					$V_{12} = V_R + (V_F - V_R)P_{FD}$ $L_{EQ} =$ (Equation 13-12 or 13-13) $P_{FD} =$ 0.554 using Equation (Exhibit 13-7) $V_{12} =$ 3797 pc/h V_3 or V_{av34} 1971 pc/h (Equation 13-14 or 13-17) Is V_3 or $V_{av34} > 2,700$ pc/h? ☐ Yes ☒ No Is V_3 or $V_{av34} > 1.5 * V_{12}/2$ ☐ Yes ☒ No If Yes, $V_{12a} =$ pc/h (Equation 13-16, 13-18, or 13-19)				
Capacity Checks					Capacity Checks				
	Actual	Capacity		LOS F?		Actual	Capacity		LOS F?
V_{FO}		Exhibit 13-8			V_F	5768	Exhibit 13-8	7050	No
			$V_{FO} = V_F - V_R$	4416	Exhibit 13-8	7050	No		
			V_R	1352	Exhibit 13-10	2000	No		
Flow Entering Merge Influence Area					Flow Entering Diverge Influence Area				
	Actual	Max Desirable		Violation?		Actual	Max Desirable		Violation?
V_{R12}		Exhibit 13-8			V_{12}	3797	Exhibit 13-8	4400:All	No
Level of Service Determination (if not F)					Level of Service Determination (if not F)				
$D_R = 5.475 + 0.00734 v_R + 0.0078 V_{12} - 0.00627 L_A$ $D_R =$ (pc/mi/ln) LOS = (Exhibit 13-2)					$D_R = 4.252 + 0.0086 V_{12} - 0.009 L_D$ $D_R =$ 23.4 (pc/mi/ln) LOS = C (Exhibit 13-2)				
Speed Determination					Speed Determination				
$M_S =$ (Exhibit 13-11) $S_R =$ mph (Exhibit 13-11) $S_0 =$ mph (Exhibit 13-11) $S =$ mph (Exhibit 13-13)					$D_s =$ 0.550 (Exhibit 13-12) $S_R =$ 52.4 mph (Exhibit 13-12) $S_0 =$ 67.5 mph (Exhibit 13-12) $S =$ 56.7 mph (Exhibit 13-13)				

RAMPS AND RAMP JUNCTIONS WORKSHEET									
General Information					Site Information				
Analyst	JT		Freeway/Dir of Travel	I-15 Northbound					
Agency or Company	LLG		Junction	Railroad Canyon Road On-Ramp					
Date Performed	1/12/17		Jurisdiction						
Analysis Time Period	Weekday PM Peak Hour		Analysis Year	Year 2040 with Adopted SP					
Project Description 2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore									
Inputs									
Upstream Adj Ramp	Freeway Number of Lanes, N		4		Downstream Adj Ramp				
☒ Yes ☐ On	Ramp Number of Lanes, N		1		☐ Yes ☐ On				
☐ No ☒ Off	Acceleration Lane Length, L_A		1500		☒ No ☐ Off				
$L_{up} =$ 3000 ft	Deceleration Lane Length L_D				$L_{down} =$ ft				
$V_u =$ 1272 veh/h	Freeway Volume, V_F		4153		$V_D =$ veh/h				
	Ramp Volume, V_R		1141						
	Freeway Free-Flow Speed, S_{FF}		65.0						
	Ramp Free-Flow Speed, S_{FR}		35.0						
Conversion to pc/h Under Base Conditions									
(pc/h)	V	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	$v = V/PHF \times f_{HV} \times f_p$	
Freeway	4153	0.95	Level	2	0	0.990	1.00	4415	
Ramp	1141	0.95	Level	2	0	0.990	1.00	1213	
UpStream	1272	0.95	Level	2	0	0.990	1.00	1352	
DownStream									
Merge Areas					Diverge Areas				
Estimation of v_{12}					Estimation of v_{12}				
$V_{12} = V_F (P_{FM})$ (Equation 13-6 or 13-7) $L_{EQ} =$ $P_{FM} =$ 0.066 using Equation (Exhibit 13-6) $V_{12} =$ 292 pc/h V_3 or V_{av34} 2061 pc/h (Equation 13-14 or 13-17) Is V_3 or $V_{av34} > 2,700$ pc/h? ☐ Yes ☒ No Is V_3 or $V_{av34} > 1.5 * V_{12}/2$ ☒ Yes ☐ No If Yes, $V_{12a} =$ 1766 pc/h (Equation 13-16, 13-18, or 13-19)					$V_{12} = V_R + (V_F - V_R)P_{FD}$ (Equation 13-12 or 13-13) $L_{EQ} =$ $P_{FD} =$ using Equation (Exhibit 13-7) $V_{12} =$ pc/h V_3 or V_{av34} pc/h (Equation 13-14 or 13-17) Is V_3 or $V_{av34} > 2,700$ pc/h? ☐ Yes ☐ No Is V_3 or $V_{av34} > 1.5 * V_{12}/2$ ☐ Yes ☐ No If Yes, $V_{12a} =$ pc/h (Equation 13-16, 13-18, or 13-19)				
Capacity Checks					Capacity Checks				
	Actual	Capacity		LOS F?		Actual	Capacity		LOS F?
V_{FO}	5628	Exhibit 13-8		No	V_F		Exhibit 13-8		
					$V_{FO} = V_F - V_R$		Exhibit 13-8		
					V_R		Exhibit 13-10		
Flow Entering Merge Influence Area					Flow Entering Diverge Influence Area				
	Actual	Max Desirable		Violation?		Actual	Max Desirable		Violation?
V_{R12}	2979	Exhibit 13-8	4600:All	No	V_{12}		Exhibit 13-8		
Level of Service Determination (if not F)					Level of Service Determination (if not F)				
$D_R = 5.475 + 0.00734 v_R + 0.0078 V_{12} - 0.00627 L_A$ $D_R =$ 18.7 (pc/mi/ln) $LOS =$ B (Exhibit 13-2)					$D_R = 4.252 + 0.0086 V_{12} - 0.009 L_D$ $D_R =$ (pc/mi/ln) $LOS =$ (Exhibit 13-2)				
Speed Determination					Speed Determination				
$M_S =$ 0.293 (Exhibit 13-11)					$D_S =$ (Exhibit 13-12)				
$S_R =$ 58.3 mph (Exhibit 13-11)					$S_R =$ mph (Exhibit 13-12)				
$S_0 =$ 62.0 mph (Exhibit 13-11)					$S_0 =$ mph (Exhibit 13-12)				
$S =$ 60.0 mph (Exhibit 13-13)					$S =$ mph (Exhibit 13-13)				

RAMPS AND RAMP JUNCTIONS WORKSHEET									
General Information					Site Information				
Analyst		JT		Freeway/Dir of Travel		I-15 Southbound			
Agency or Company		LLG		Junction		Railroad Canyon Road Off-Ramp			
Date Performed		1/12/17		Jurisdiction					
Analysis Time Period		Weekday PM Peak Hour		Analysis Year		Year 2040 with Adopted SP			
Project Description 2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore									
Inputs									
Upstream Adj Ramp ☐ Yes ☐ On ☒ No ☐ Off $L_{up} =$ ft $V_u =$ veh/h		Freeway Number of Lanes, N		4		Downstream Adj Ramp ☒ Yes ☒ On ☐ No ☐ Off $L_{down} =$ 3000 ft $V_D =$ 862 veh/h			
		Ramp Number of Lanes, N		2					
		Acceleration Lane Length, L_A							
		Deceleration Lane Length L_D		170					
		Freeway Volume, V_F		3640					
		Ramp Volume, V_R		1254					
		Freeway Free-Flow Speed, S_{FF}		65.0					
		Ramp Free-Flow Speed, S_{FR}		35.0					
Conversion to pc/h Under Base Conditions									
(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	$v = V/PHF \times f_{HV} \times f_p$	
Freeway	3640	0.95	Level	2	0	0.990	1.00	3870	
Ramp	1254	0.95	Level	2	0	0.990	1.00	1333	
UpStream									
DownStream	862	0.95	Level	2	0	0.990	1.00	916	
Merge Areas					Diverge Areas				
Estimation of v_{12}					Estimation of v_{12}				
$V_{12} = V_F (P_{FM})$ $L_{EQ} =$ (Equation 13-6 or 13-7) $P_{FM} =$ using Equation (Exhibit 13-6) $V_{12} =$ pc/h V_3 or V_{av34} pc/h (Equation 13-14 or 13-17) Is V_3 or $V_{av34} > 2,700$ pc/h? ☐ Yes ☐ No Is V_3 or $V_{av34} > 1.5 * V_{12}/2$ ☐ Yes ☐ No If Yes, $V_{12a} =$ pc/h (Equation 13-16, 13-18, or 13-19)					$V_{12} = V_R + (V_F - V_R)P_{FD}$ $L_{EQ} =$ (Equation 13-12 or 13-13) $P_{FD} =$ 0.260 using Equation (Exhibit 13-7) $V_{12} =$ 1993 pc/h V_3 or V_{av34} 938 pc/h (Equation 13-14 or 13-17) Is V_3 or $V_{av34} > 2,700$ pc/h? ☐ Yes ☒ No Is V_3 or $V_{av34} > 1.5 * V_{12}/2$ ☐ Yes ☒ No If Yes, $V_{12a} =$ pc/h (Equation 13-16, 13-18, or 13-19)				
Capacity Checks					Capacity Checks				
	Actual	Capacity		LOS F?		Actual	Capacity		LOS F?
V_{FO}		Exhibit 13-8			V_F	3870	Exhibit 13-8	9400	No
			$V_{FO} = V_F - V_R$	2537	Exhibit 13-8	9400	No		
			V_R	1333	Exhibit 13-10	4000	No		
Flow Entering Merge Influence Area					Flow Entering Diverge Influence Area				
	Actual	Max Desirable		Violation?		Actual	Max Desirable		Violation?
V_{R12}		Exhibit 13-8			V_{12}	1993	Exhibit 13-8	4400:All	No
Level of Service Determination (if not F)					Level of Service Determination (if not F)				
$D_R = 5.475 + 0.00734 v_R + 0.0078 V_{12} - 0.00627 L_A$ $D_R =$ (pc/mi/ln) LOS = (Exhibit 13-2)					$D_R = 4.252 + 0.0086 V_{12} - 0.009 L_D$ $D_R =$ 4.8 (pc/mi/ln) LOS = A (Exhibit 13-2)				
Speed Determination					Speed Determination				
$M_S =$ (Exhibit 13-11) $S_R =$ mph (Exhibit 13-11) $S_0 =$ mph (Exhibit 13-11) $S =$ mph (Exhibit 13-13)					$D_s =$ 0.548 (Exhibit 13-12) $S_R =$ 52.4 mph (Exhibit 13-12) $S_0 =$ 71.3 mph (Exhibit 13-12) $S =$ 60.1 mph (Exhibit 13-13)				

RAMPS AND RAMP JUNCTIONS WORKSHEET									
General Information					Site Information				
Analyst	JT		Freeway/Dir of Travel	I-15 Southbound					
Agency or Company	LLG		Junction	Railroad Canyon Road On-Ramp					
Date Performed	1/12/17		Jurisdiction						
Analysis Time Period	Weekday PM Peak Hour		Analysis Year	Year 2040 with Adopted SP					
Project Description 2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore									
Inputs									
Upstream Adj Ramp		Freeway Number of Lanes, N			3		Downstream Adj Ramp		
☒ Yes ☐ On		Ramp Number of Lanes, N			1		☐ Yes ☐ On		
☐ No ☒ Off		Acceleration Lane Length, L_A			1500		☒ No ☐ Off		
$L_{up} = 3000$ ft		Deceleration Lane Length L_D					$L_{down} =$ ft		
$V_u = 1254$ veh/h		Freeway Volume, V_F			2386		$V_D =$ veh/h		
		Ramp Volume, V_R			862				
		Freeway Free-Flow Speed, S_{FF}			65.0				
		Ramp Free-Flow Speed, S_{FR}			35.0				
Conversion to pc/h Under Base Conditions									
(pc/h)	V	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	$v = V/PHF \times f_{HV} \times f_p$	
Freeway	2386	0.95	Level	2	0	0.990	1.00	2537	
Ramp	862	0.95	Level	2	0	0.990	1.00	916	
UpStream	1254	0.95	Level	2	0	0.990	1.00	1333	
DownStream									
Merge Areas					Diverge Areas				
Estimation of v_{12}					Estimation of v_{12}				
$V_{12} = V_F (P_{FM})$					$V_{12} = V_R + (V_F - V_R)P_{FD}$				
$L_{EQ} = 833.14$ (Equation 13-6 or 13-7)					$L_{EQ} =$ (Equation 13-12 or 13-13)				
$P_{FM} = 0.619$ using Equation (Exhibit 13-6)					$P_{FD} =$ using Equation (Exhibit 13-7)				
$V_{12} = 1572$ pc/h					$V_{12} =$ pc/h				
V_3 or $V_{av34} = 965$ pc/h (Equation 13-14 or 13-17)					V_3 or $V_{av34} =$ pc/h (Equation 13-14 or 13-17)				
Is V_3 or $V_{av34} > 2,700$ pc/h? ☐ Yes ☒ No					Is V_3 or $V_{av34} > 2,700$ pc/h? ☐ Yes ☐ No				
Is V_3 or $V_{av34} > 1.5 * V_{12}/2$ ☒ Yes ☐ No					Is V_3 or $V_{av34} > 1.5 * V_{12}/2$ ☐ Yes ☐ No				
If Yes, $V_{12a} = 1572$ pc/h (Equation 13-16, 13-18, or 13-19)					If Yes, $V_{12a} =$ pc/h (Equation 13-16, 13-18, or 13-19)				
Capacity Checks					Capacity Checks				
	Actual	Capacity		LOS F?		Actual	Capacity		LOS F?
V_{FO}	3453	Exhibit 13-8		No	V_F		Exhibit 13-8		
					$V_{FO} = V_F - V_R$		Exhibit 13-8		
					V_R		Exhibit 13-10		
Flow Entering Merge Influence Area					Flow Entering Diverge Influence Area				
	Actual	Max Desirable		Violation?		Actual	Max Desirable		Violation?
V_{R12}	2488	Exhibit 13-8	4600:All	No	V_{12}		Exhibit 13-8		
Level of Service Determination (if not F)					Level of Service Determination (if not F)				
$D_R = 5.475 + 0.00734 v_R + 0.0078 V_{12} - 0.00627 L_A$					$D_R = 4.252 + 0.0086 V_{12} - 0.009 L_D$				
$D_R = 15.1$ (pc/mi/ln)					$D_R =$ (pc/mi/ln)				
LOS = B (Exhibit 13-2)					LOS = (Exhibit 13-2)				
Speed Determination					Speed Determination				
$M_S = 0.263$ (Exhibit 13-11)					$D_S =$ (Exhibit 13-12)				
$S_R = 59.0$ mph (Exhibit 13-11)					$S_R =$ mph (Exhibit 13-12)				
$S_0 = 63.3$ mph (Exhibit 13-11)					$S_0 =$ mph (Exhibit 13-12)				
$S = 60.1$ mph (Exhibit 13-13)					$S =$ mph (Exhibit 13-13)				

APPENDIX M-II

**YEAR 2040 WITH ELSP PROJECT BUILDOUT
TRAFFIC CONDITIONS**

RAMPS AND RAMP JUNCTIONS WORKSHEET									
General Information					Site Information				
Analyst		JT		Freeway/Dir of Travel		I-15 Northbound			
Agency or Company		LLG		Junction		Railroad Canyon Road Off-Ramp			
Date Performed		1/12/17		Jurisdiction					
Analysis Time Period		Weekday AM Peak Hour		Analysis Year		Year 2040 with Project (BO)			
Project Description 2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore									
Inputs									
Upstream Adj Ramp ☐ Yes ☐ On ☒ No ☐ Off $L_{up} =$ ft $V_u =$ veh/h		Freeway Number of Lanes, N		3		Downstream Adj Ramp ☒ Yes ☒ On ☐ No ☐ Off $L_{down} =$ 3000 ft $V_D =$ 1273 veh/h			
		Ramp Number of Lanes, N		1					
		Acceleration Lane Length, L_A							
		Deceleration Lane Length L_D		1500					
		Freeway Volume, V_F		3327					
		Ramp Volume, V_R		805					
		Freeway Free-Flow Speed, S_{FF}		65.0					
		Ramp Free-Flow Speed, S_{FR}		35.0					
Conversion to pc/h Under Base Conditions									
(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	$v = V/PHF \times f_{HV} \times f_p$	
Freeway	3327	0.95	Level	2	0	0.990	1.00	3537	
Ramp	805	0.95	Level	2	0	0.990	1.00	856	
UpStream									
DownStream	1273	0.95	Level	2	0	0.990	1.00	1353	
Merge Areas					Diverge Areas				
Estimation of v_{12}					Estimation of v_{12}				
$V_{12} = V_F (P_{FM})$ (Equation 13-6 or 13-7) $P_{FM} =$ using Equation (Exhibit 13-6) $V_{12} =$ pc/h V_3 or V_{av34} pc/h (Equation 13-14 or 13-17) Is V_3 or $V_{av34} > 2,700$ pc/h? ☐ Yes ☐ No Is V_3 or $V_{av34} > 1.5 * V_{12}/2$ ☐ Yes ☐ No If Yes, $V_{12a} =$ pc/h (Equation 13-16, 13-18, or 13-19)					$V_{12} = V_R + (V_F - V_R)P_{FD}$ (Equation 13-12 or 13-13) $P_{FD} =$ 0.632 using Equation (Exhibit 13-7) $V_{12} =$ 2551 pc/h V_3 or V_{av34} 986 pc/h (Equation 13-14 or 13-17) Is V_3 or $V_{av34} > 2,700$ pc/h? ☐ Yes ☒ No Is V_3 or $V_{av34} > 1.5 * V_{12}/2$ ☐ Yes ☒ No If Yes, $V_{12a} =$ pc/h (Equation 13-16, 13-18, or 13-19)				
Capacity Checks					Capacity Checks				
	Actual	Capacity		LOS F?		Actual	Capacity		LOS F?
V_{FO}		Exhibit 13-8			V_F	3537	Exhibit 13-8	7050	No
			$V_{FO} = V_F - V_R$	2681	Exhibit 13-8	7050	No		
			V_R	856	Exhibit 13-10	2000	No		
Flow Entering Merge Influence Area					Flow Entering Diverge Influence Area				
	Actual	Max Desirable		Violation?		Actual	Max Desirable		Violation?
V_{R12}		Exhibit 13-8			V_{12}	2551	Exhibit 13-8	4400:All	No
Level of Service Determination (if not F)					Level of Service Determination (if not F)				
$D_R = 5.475 + 0.00734 v_R + 0.0078 V_{12} - 0.00627 L_A$ $D_R =$ (pc/mi/ln) LOS = (Exhibit 13-2)					$D_R = 4.252 + 0.0086 V_{12} - 0.009 L_D$ $D_R =$ 12.7 (pc/mi/ln) LOS = B (Exhibit 13-2)				
Speed Determination					Speed Determination				
$M_S =$ (Exhibit 13-11) $S_R =$ mph (Exhibit 13-11) $S_0 =$ mph (Exhibit 13-11) $S =$ mph (Exhibit 13-13)					$D_s =$ 0.505 (Exhibit 13-12) $S_R =$ 53.4 mph (Exhibit 13-12) $S_0 =$ 71.3 mph (Exhibit 13-12) $S =$ 57.4 mph (Exhibit 13-13)				

RAMPS AND RAMP JUNCTIONS WORKSHEET									
General Information					Site Information				
Analyst	JT		Freeway/Dir of Travel	I-15 Northbound					
Agency or Company	LLG		Junction	Railroad Canyon Road On-Ramp					
Date Performed	1/12/17		Jurisdiction						
Analysis Time Period	Weekday AM Peak Hour		Analysis Year	Year 2040 with Project (BO)					
Project Description 2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore									
Inputs									
Upstream Adj Ramp ☒ Yes ☐ On ☐ No ☒ Off L _{up} = 3000 ft V _u = 805 veh/h		Freeway Number of Lanes, N				4		Downstream Adj Ramp ☐ Yes ☐ On ☒ No ☐ Off L _{down} = ft V _D = veh/h	
		Ramp Number of Lanes, N				1			
		Acceleration Lane Length, L _A				1500			
		Deceleration Lane Length L _D							
		Freeway Volume, V _F				2522			
		Ramp Volume, V _R				1273			
		Freeway Free-Flow Speed, S _{FF}				65.0			
		Ramp Free-Flow Speed, S _{FR}				35.0			
Conversion to pc/h Under Base Conditions									
(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f _{HV}	f _p	v = V/PHF × f _{HV} × f _p	
Freeway	2522	0.95	Level	2	0	0.990	1.00	2681	
Ramp	1273	0.95	Level	2	0	0.990	1.00	1353	
UpStream	805	0.95	Level	2	0	0.990	1.00	856	
DownStream									
Merge Areas					Diverge Areas				
Estimation of v₁₂					Estimation of v₁₂				
$V_{12} = V_F (P_{FM})$ (Equation 13-6 or 13-7) L _{EQ} = P _{FM} = 0.049 using Equation (Exhibit 13-6) V ₁₂ = 130 pc/h V ₃ or V _{av34} = 1275 pc/h (Equation 13-14 or 13-17) Is V ₃ or V _{av34} > 2,700 pc/h? ☐ Yes ☒ No Is V ₃ or V _{av34} > 1.5 * V ₁₂ /2 ☒ Yes ☐ No If Yes, V _{12a} = 1072 pc/h (Equation 13-16, 13-18, or 13-19)					$V_{12} = V_R + (V_F - V_R)P_{FD}$ (Equation 13-12 or 13-13) L _{EQ} = P _{FD} = using Equation (Exhibit 13-7) V ₁₂ = pc/h V ₃ or V _{av34} = pc/h (Equation 13-14 or 13-17) Is V ₃ or V _{av34} > 2,700 pc/h? ☐ Yes ☐ No Is V ₃ or V _{av34} > 1.5 * V ₁₂ /2 ☐ Yes ☐ No If Yes, V _{12a} = pc/h (Equation 13-16, 13-18, or 13-19)				
Capacity Checks					Capacity Checks				
	Actual	Capacity		LOS F?		Actual	Capacity		LOS F?
V _{FO}	4034	Exhibit 13-8		No	V _F		Exhibit 13-8		
					V _{FO} = V _F - V _R		Exhibit 13-8		
					V _R		Exhibit 13-10		
Flow Entering Merge Influence Area					Flow Entering Diverge Influence Area				
	Actual	Max Desirable		Violation?		Actual	Max Desirable		Violation?
V _{R12}	2425	Exhibit 13-8	4600:All	No	V ₁₂		Exhibit 13-8		
Level of Service Determination (if not F)					Level of Service Determination (if not F)				
$D_R = 5.475 + 0.00734 v_R + 0.0078 V_{12} - 0.00627 L_A$ D _R = 14.4 (pc/mi/ln) LOS = B (Exhibit 13-2)					$D_R = 4.252 + 0.0086 V_{12} - 0.009 L_D$ D _R = (pc/mi/ln) LOS = (Exhibit 13-2)				
Speed Determination					Speed Determination				
M _S = 0.260 (Exhibit 13-11) S _R = 59.0 mph (Exhibit 13-11) S ₀ = 63.9 mph (Exhibit 13-11) S = 60.9 mph (Exhibit 13-13)					D _S = (Exhibit 13-12) S _R = mph (Exhibit 13-12) S ₀ = mph (Exhibit 13-12) S = mph (Exhibit 13-13)				

RAMPS AND RAMP JUNCTIONS WORKSHEET									
General Information					Site Information				
Analyst	JT		Freeway/Dir of Travel	I-15 Southbound					
Agency or Company	LLG		Junction	Railroad Canyon Road Off-Ramp					
Date Performed	1/12/17		Jurisdiction						
Analysis Time Period	Weekday AM Peak Hour		Analysis Year	Year 2040 with Project (BO)					
Project Description 2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore									
Inputs									
Upstream Adj Ramp	Freeway Number of Lanes, N		4		Downstream Adj Ramp				
☐ Yes ☐ On	Ramp Number of Lanes, N		2		☒ Yes ☒ On				
☒ No ☐ Off	Acceleration Lane Length, L_A				☐ No ☐ Off				
L_{up} = ft	Deceleration Lane Length L_D		170		L_{down} = 3000 ft				
V_u = veh/h	Freeway Volume, V_F		6432		V_D = 1234 veh/h				
	Ramp Volume, V_R		920						
	Freeway Free-Flow Speed, S_{FF}		65.0						
	Ramp Free-Flow Speed, S_{FR}		35.0						
Conversion to pc/h Under Base Conditions									
(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	$v = V/PHF \times f_{HV} \times f_p$	
Freeway	6432	0.95	Level	2	0	0.990	1.00	6838	
Ramp	920	0.95	Level	2	0	0.990	1.00	978	
UpStream									
DownStream	1234	0.95	Level	2	0	0.990	1.00	1312	
Merge Areas					Diverge Areas				
Estimation of v_{12}					Estimation of v_{12}				
$V_{12} = V_F (P_{FM})$ $L_{EQ} =$ (Equation 13-6 or 13-7) $P_{FM} =$ using Equation (Exhibit 13-6) $V_{12} =$ pc/h V_3 or V_{av34} pc/h (Equation 13-14 or 13-17) Is V_3 or $V_{av34} > 2,700$ pc/h? ☐ Yes ☐ No Is V_3 or $V_{av34} > 1.5 * V_{12}/2$ ☐ Yes ☐ No If Yes, $V_{12a} =$ pc/h (Equation 13-16, 13-18, or 13-19)					$V_{12} = V_R + (V_F - V_R)P_{FD}$ $L_{EQ} =$ (Equation 13-12 or 13-13) $P_{FD} =$ 0.260 using Equation (Exhibit 13-7) $V_{12} =$ 2502 pc/h V_3 or V_{av34} 2168 pc/h (Equation 13-14 or 13-17) Is V_3 or $V_{av34} > 2,700$ pc/h? ☐ Yes ☒ No Is V_3 or $V_{av34} > 1.5 * V_{12}/2$ ☒ Yes ☐ No If Yes, $V_{12a} =$ 2735 pc/h (Equation 13-16, 13-18, or 13-19)				
Capacity Checks					Capacity Checks				
	Actual	Capacity		LOS F?		Actual	Capacity		LOS F?
V_{FO}		Exhibit 13-8			V_F	6838	Exhibit 13-8	9400	No
					$V_{FO} = V_F - V_R$	5860	Exhibit 13-8	9400	No
					V_R	978	Exhibit 13-10	4000	No
Flow Entering Merge Influence Area					Flow Entering Diverge Influence Area				
	Actual	Max Desirable		Violation?		Actual	Max Desirable		Violation?
V_{R12}		Exhibit 13-8			V_{12}	2502	Exhibit 13-8	4400:All	No
Level of Service Determination (if not F)					Level of Service Determination (if not F)				
$D_R = 5.475 + 0.00734 v_R + 0.0078 V_{12} - 0.00627 L_A$ $D_R =$ (pc/mi/ln) LOS = (Exhibit 13-2)					$D_R = 4.252 + 0.0086 V_{12} - 0.009 L_D$ $D_R =$ 11.2 (pc/mi/ln) LOS = B (Exhibit 13-2)				
Speed Determination					Speed Determination				
$M_S =$ (Exhibit 13-11) $S_R =$ mph (Exhibit 13-11) $S_0 =$ mph (Exhibit 13-11) $S =$ mph (Exhibit 13-13)					$D_s =$ 0.516 (Exhibit 13-12) $S_R =$ 53.1 mph (Exhibit 13-12) $S_0 =$ 67.2 mph (Exhibit 13-12) $S =$ 60.8 mph (Exhibit 13-13)				

RAMPS AND RAMP JUNCTIONS WORKSHEET									
General Information					Site Information				
Analyst	JT		Freeway/Dir of Travel	I-15 Southbound					
Agency or Company	LLG		Junction	Railroad Canyon Road On-Ramp					
Date Performed	1/12/17		Jurisdiction						
Analysis Time Period	Weekday AM Peak Hour		Analysis Year	Year 2040 with Project (BO)					
Project Description 2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore									
Inputs									
Upstream Adj Ramp	Freeway Number of Lanes, N		3		Downstream Adj Ramp				
☒ Yes ☐ On	Ramp Number of Lanes, N		1		☐ Yes ☐ On				
☐ No ☒ Off	Acceleration Lane Length, L_A		1500		☒ No ☐ Off				
$L_{up} =$ 3000 ft	Deceleration Lane Length L_D				$L_{down} =$ ft				
$V_u =$ 920 veh/h	Freeway Volume, V_F		5512		$V_D =$ veh/h				
	Ramp Volume, V_R		1234						
	Freeway Free-Flow Speed, S_{FF}		65.0						
	Ramp Free-Flow Speed, S_{FR}		35.0						
Conversion to pc/h Under Base Conditions									
(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	$v = V/PHF \times f_{HV} \times f_p$	
Freeway	5512	0.95	Level	2	0	0.990	1.00	5860	
Ramp	1234	0.95	Level	2	0	0.990	1.00	1312	
UpStream	920	0.95	Level	2	0	0.990	1.00	978	
DownStream									
Merge Areas					Diverge Areas				
Estimation of v_{12}					Estimation of v_{12}				
$V_{12} = V_F (P_{FM})$ $L_{EQ} =$ 1629.01 (Equation 13-6 or 13-7) $P_{FM} =$ 0.619 using Equation (Exhibit 13-6) $V_{12} =$ 3630 pc/h V_3 or V_{av34} 2230 pc/h (Equation 13-14 or 13-17) Is V_3 or $V_{av34} > 2,700$ pc/h? ☐ Yes ☒ No Is V_3 or $V_{av34} > 1.5 \times V_{12}/2$ ☒ Yes ☐ No If Yes, $V_{12a} =$ 3630 pc/h (Equation 13-16, 13-18, or 13-19)					$V_{12} = V_R + (V_F - V_R)P_{FD}$ $L_{EQ} =$ (Equation 13-12 or 13-13) $P_{FD} =$ using Equation (Exhibit 13-7) $V_{12} =$ pc/h V_3 or V_{av34} pc/h (Equation 13-14 or 13-17) Is V_3 or $V_{av34} > 2,700$ pc/h? ☐ Yes ☐ No Is V_3 or $V_{av34} > 1.5 \times V_{12}/2$ ☐ Yes ☐ No If Yes, $V_{12a} =$ pc/h (Equation 13-16, 13-18, or 13-19)				
Capacity Checks					Capacity Checks				
	Actual	Capacity		LOS F?		Actual	Capacity		LOS F?
V_{FO}	7172	Exhibit 13-8		Yes	V_F		Exhibit 13-8		
					$V_{FO} = V_F - V_R$		Exhibit 13-8		
					V_R		Exhibit 13-10		
Flow Entering Merge Influence Area					Flow Entering Diverge Influence Area				
	Actual	Max Desirable		Violation?		Actual	Max Desirable		Violation?
V_{R12}	4942	Exhibit 13-8	4600:All	Yes	V_{12}		Exhibit 13-8		
Level of Service Determination (if not F)					Level of Service Determination (if not F)				
$D_R = 5.475 + 0.00734 v_R + 0.0078 V_{12} - 0.00627 L_A$ $D_R =$ 34.0 (pc/mi/ln) LOS = F (Exhibit 13-2)					$D_R = 4.252 + 0.0086 V_{12} - 0.009 L_D$ $D_R =$ (pc/mi/ln) LOS = (Exhibit 13-2)				
Speed Determination					Speed Determination				
$M_S =$ 0.762 (Exhibit 13-11) $S_R =$ 47.5 mph (Exhibit 13-11) $S_0 =$ 58.8 mph (Exhibit 13-11) $S =$ 50.5 mph (Exhibit 13-13)					$D_S =$ (Exhibit 13-12) $S_R =$ mph (Exhibit 13-12) $S_0 =$ mph (Exhibit 13-12) $S =$ mph (Exhibit 13-13)				

RAMPS AND RAMP JUNCTIONS WORKSHEET									
General Information					Site Information				
Analyst		JT		Freeway/Dir of Travel		I-15 Northbound			
Agency or Company		LLG		Junction		Railroad Canyon Road Off-Ramp			
Date Performed		1/12/17		Jurisdiction					
Analysis Time Period		Weekday PM Peak Hour		Analysis Year		Year 2040 with Project (BO)			
Project Description 2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore									
Inputs									
Upstream Adj Ramp ☐ Yes ☐ On ☒ No ☐ Off $L_{up} =$ ft $V_u =$ veh/h		Freeway Number of Lanes, N		3		Downstream Adj Ramp ☒ Yes ☒ On ☐ No ☐ Off $L_{down} =$ 3000 ft $V_D =$ 1145 veh/h			
		Ramp Number of Lanes, N		1					
		Acceleration Lane Length, L_A							
		Deceleration Lane Length L_D		1500					
		Freeway Volume, V_F		6594					
		Ramp Volume, V_R		1260					
		Freeway Free-Flow Speed, S_{FF}		65.0					
		Ramp Free-Flow Speed, S_{FR}		35.0					
Conversion to pc/h Under Base Conditions									
(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	$v = V/PHF \times f_{HV} \times f_p$	
Freeway	6594	0.95	Level	2	0	0.990	1.00	7010	
Ramp	1260	0.95	Level	2	0	0.990	1.00	1340	
UpStream									
DownStream	1145	0.95	Level	2	0	0.990	1.00	1217	
Merge Areas					Diverge Areas				
Estimation of v_{12}					Estimation of v_{12}				
$V_{12} = V_F (P_{FM})$ (Equation 13-6 or 13-7) $L_{EQ} =$ $P_{FM} =$ using Equation (Exhibit 13-6) $V_{12} =$ pc/h V_3 or V_{av34} pc/h (Equation 13-14 or 13-17) Is V_3 or $V_{av34} > 2,700$ pc/h? ☐ Yes ☐ No Is V_3 or $V_{av34} > 1.5 \times V_{12}/2$ ☐ Yes ☐ No If Yes, $V_{12a} =$ pc/h (Equation 13-16, 13-18, or 13-19)					$V_{12} = V_R + (V_F - V_R)P_{FD}$ (Equation 13-12 or 13-13) $L_{EQ} =$ $P_{FD} =$ 0.523 using Equation (Exhibit 13-7) $V_{12} =$ 4306 pc/h V_3 or V_{av34} 2704 pc/h (Equation 13-14 or 13-17) Is V_3 or $V_{av34} > 2,700$ pc/h? ☒ Yes ☐ No Is V_3 or $V_{av34} > 1.5 \times V_{12}/2$ ☐ Yes ☒ No If Yes, $V_{12a} =$ 4310 pc/h (Equation 13-16, 13-18, or 13-19)				
Capacity Checks					Capacity Checks				
	Actual	Capacity		LOS F?		Actual	Capacity		LOS F?
V_{FO}		Exhibit 13-8			V_F	7010	Exhibit 13-8	7050	No
					$V_{FO} = V_F - V_R$	5670	Exhibit 13-8	7050	No
					V_R	1340	Exhibit 13-10	2000	No
Flow Entering Merge Influence Area					Flow Entering Diverge Influence Area				
	Actual	Max Desirable		Violation?		Actual	Max Desirable		Violation?
V_{R12}		Exhibit 13-8			V_{12}	4306	Exhibit 13-8	4400:All	No
Level of Service Determination (if not F)					Level of Service Determination (if not F)				
$D_R = 5.475 + 0.00734 v_R + 0.0078 V_{12} - 0.00627 L_A$ $D_R =$ (pc/mi/ln) LOS = (Exhibit 13-2)					$D_R = 4.252 + 0.0086 V_{12} - 0.009 L_D$ $D_R =$ 27.8 (pc/mi/ln) LOS = C (Exhibit 13-2)				
Speed Determination					Speed Determination				
$M_S =$ (Exhibit 13-11) $S_R =$ mph (Exhibit 13-11) $S_0 =$ mph (Exhibit 13-11) $S =$ mph (Exhibit 13-13)					$D_s =$ 0.549 (Exhibit 13-12) $S_R =$ 52.4 mph (Exhibit 13-12) $S_0 =$ 64.7 mph (Exhibit 13-12) $S =$ 56.5 mph (Exhibit 13-13)				

RAMPS AND RAMP JUNCTIONS WORKSHEET									
General Information					Site Information				
Analyst		JT		Freeway/Dir of Travel		I-15 Northbound			
Agency or Company		LLG		Junction		Railroad Canyon Road On-Ramp			
Date Performed		1/12/17		Jurisdiction					
Analysis Time Period		Weekday PM Peak Hour		Analysis Year		Year 2040 with Project (BO)			
Project Description 2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore									
Inputs									
Upstream Adj Ramp ☒ Yes ☐ On ☐ No ☒ Off L _{up} = 3000 ft V _u = 1260 veh/h		Freeway Number of Lanes, N 4				Downstream Adj Ramp ☐ Yes ☐ On ☒ No ☐ Off L _{down} = ft V _D = veh/h			
		Ramp Number of Lanes, N 1							
		Acceleration Lane Length, L _A 1500							
		Deceleration Lane Length L _D							
		Freeway Volume, V _F 5334							
		Ramp Volume, V _R 1145							
		Freeway Free-Flow Speed, S _{FF} 65.0							
		Ramp Free-Flow Speed, S _{FR} 35.0							
Conversion to pc/h Under Base Conditions									
(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f _{HV}	f _p	v = V/PHF × f _{HV} × f _p	
Freeway	5334	0.95	Level	2	0	0.990	1.00	5671	
Ramp	1145	0.95	Level	2	0	0.990	1.00	1217	
UpStream	1260	0.95	Level	2	0	0.990	1.00	1340	
DownStream									
Merge Areas					Diverge Areas				
Estimation of v ₁₂					Estimation of v ₁₂				
$V_{12} = V_F (P_{FM})$ (Equation 13-6 or 13-7) L _{EQ} = P _{FM} = 0.066 using Equation (Exhibit 13-6) V ₁₂ = 372 pc/h V ₃ or V _{av34} = 2649 pc/h (Equation 13-14 or 13-17) Is V ₃ or V _{av34} > 2,700 pc/h? ☐ Yes ☒ No Is V ₃ or V _{av34} > 1.5 * V ₁₂ /2 ☒ Yes ☐ No If Yes, V _{12a} = 2268 pc/h (Equation 13-16, 13-18, or 13-19)					$V_{12} = V_R + (V_F - V_R)P_{FD}$ (Equation 13-12 or 13-13) L _{EQ} = P _{FD} = using Equation (Exhibit 13-7) V ₁₂ = pc/h V ₃ or V _{av34} = pc/h (Equation 13-14 or 13-17) Is V ₃ or V _{av34} > 2,700 pc/h? ☐ Yes ☐ No Is V ₃ or V _{av34} > 1.5 * V ₁₂ /2 ☐ Yes ☐ No If Yes, V _{12a} = pc/h (Equation 13-16, 13-18, or 13-19)				
Capacity Checks					Capacity Checks				
	Actual	Capacity		LOS F?		Actual	Capacity		LOS F?
V _{FO}	6888	Exhibit 13-8		No	V _F		Exhibit 13-8		
					V _{FO} = V _F - V _R		Exhibit 13-8		
					V _R		Exhibit 13-10		
Flow Entering Merge Influence Area					Flow Entering Diverge Influence Area				
	Actual	Max Desirable		Violation?		Actual	Max Desirable		Violation?
V _{R12}	3485	Exhibit 13-8	4600:All	No	V ₁₂		Exhibit 13-8		
Level of Service Determination (if not F)					Level of Service Determination (if not F)				
$D_R = 5.475 + 0.00734 v_R + 0.0078 V_{12} - 0.00627 L_A$ D _R = 22.7 (pc/mi/ln) LOS = C (Exhibit 13-2)					$D_R = 4.252 + 0.0086 V_{12} - 0.009 L_D$ D _R = (pc/mi/ln) LOS = (Exhibit 13-2)				
Speed Determination					Speed Determination				
M _S = 0.343 (Exhibit 13-11) S _R = 57.1 mph (Exhibit 13-11) S ₀ = 60.7 mph (Exhibit 13-11) S = 58.8 mph (Exhibit 13-13)					D _S = (Exhibit 13-12) S _R = mph (Exhibit 13-12) S ₀ = mph (Exhibit 13-12) S = mph (Exhibit 13-13)				

RAMPS AND RAMP JUNCTIONS WORKSHEET									
General Information					Site Information				
Analyst		JT		Freeway/Dir of Travel		I-15 Southbound			
Agency or Company		LLG		Junction		Railroad Canyon Road Off-Ramp			
Date Performed		1/12/17		Jurisdiction					
Analysis Time Period		Weekday PM Peak Hour		Analysis Year		Year 2040 with Project (BO)			
Project Description 2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore									
Inputs									
Upstream Adj Ramp ☐ Yes ☐ On ☒ No ☐ Off L _{up} = ft V _u = veh/h		Freeway Number of Lanes, N 4				Downstream Adj Ramp ☒ Yes ☒ On ☐ No ☐ Off L _{down} = 3000 ft V _D = 846 veh/h			
		Ramp Number of Lanes, N 2							
		Acceleration Lane Length, L _A							
		Deceleration Lane Length L _D 170							
		Freeway Volume, V _F 4723							
		Ramp Volume, V _R 1227							
Freeway Free-Flow Speed, S _{FF} 65.0									
Ramp Free-Flow Speed, S _{FR} 35.0									
Conversion to pc/h Under Base Conditions									
(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f _{HV}	f _p	v = V/PHF x f _{HV} x f _p	
Freeway	4723	0.95	Level	2	0	0.990	1.00	5021	
Ramp	1227	0.95	Level	2	0	0.990	1.00	1304	
UpStream									
DownStream	846	0.95	Level	2	0	0.990	1.00	899	
Merge Areas					Diverge Areas				
Estimation of v₁₂					Estimation of v₁₂				
V ₁₂ = V _F (P _{FM}) L _{EQ} = (Equation 13-6 or 13-7) P _{FM} = using Equation (Exhibit 13-6) V ₁₂ = pc/h V ₃ or V _{av34} pc/h (Equation 13-14 or 13-17) Is V ₃ or V _{av34} > 2,700 pc/h? ☐ Yes ☐ No Is V ₃ or V _{av34} > 1.5 * V ₁₂ /2 ☐ Yes ☐ No If Yes, V _{12a} = pc/h (Equation 13-16, 13-18, or 13-19)					V ₁₂ = V _R + (V _F - V _R)P _{FD} L _{EQ} = (Equation 13-12 or 13-13) P _{FD} = 0.260 using Equation (Exhibit 13-7) V ₁₂ = 2270 pc/h V ₃ or V _{av34} 1375 pc/h (Equation 13-14 or 13-17) Is V ₃ or V _{av34} > 2,700 pc/h? ☐ Yes ☒ No Is V ₃ or V _{av34} > 1.5 * V ₁₂ /2 ☐ Yes ☒ No If Yes, V _{12a} = pc/h (Equation 13-16, 13-18, or 13-19)				
Capacity Checks					Capacity Checks				
	Actual	Capacity		LOS F?		Actual	Capacity		LOS F?
V _{FO}		Exhibit 13-8			V _F	5021	Exhibit 13-8	9400	No
				V _{FO} = V _F - V _R	3717	Exhibit 13-8	9400	No	
				V _R	1304	Exhibit 13-10	4000	No	
Flow Entering Merge Influence Area					Flow Entering Diverge Influence Area				
	Actual	Max Desirable		Violation?		Actual	Max Desirable		Violation?
V _{R12}		Exhibit 13-8			V ₁₂	2270	Exhibit 13-8	4400:All	No
Level of Service Determination (if not F)					Level of Service Determination (if not F)				
D _R = 5.475 + 0.00734 v _R + 0.0078 V ₁₂ - 0.00627 L _A					D _R = 4.252 + 0.0086 V ₁₂ - 0.009 L _D				
D _R = (pc/mi/ln)					D _R = 7.2 (pc/mi/ln)				
LOS = (Exhibit 13-2)					LOS = A (Exhibit 13-2)				
Speed Determination					Speed Determination				
M _S = (Exhibit 13-11)					D _s = 0.545 (Exhibit 13-12)				
S _R = mph (Exhibit 13-11)					S _R = 52.5 mph (Exhibit 13-12)				
S ₀ = mph (Exhibit 13-11)					S ₀ = 69.8 mph (Exhibit 13-12)				
S = mph (Exhibit 13-13)					S = 60.7 mph (Exhibit 13-13)				

RAMPS AND RAMP JUNCTIONS WORKSHEET									
General Information					Site Information				
Analyst	JT		Freeway/Dir of Travel	I-15 Southbound					
Agency or Company	LLG		Junction	Railroad Canyon Road On-Ramp					
Date Performed	1/12/17		Jurisdiction						
Analysis Time Period	Weekday PM Peak Hour		Analysis Year	Year 2040 with Project (BO)					
Project Description 2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore									
Inputs									
Upstream Adj Ramp ☒ Yes ☐ On ☐ No ☒ Off L _{up} = 3000 ft V _u = 1227 veh/h		Freeway Number of Lanes, N				3		Downstream Adj Ramp ☐ Yes ☐ On ☒ No ☐ Off L _{down} = ft V _D = veh/h	
		Ramp Number of Lanes, N				1			
		Acceleration Lane Length, L _A				1500			
		Deceleration Lane Length L _D							
		Freeway Volume, V _F				3496			
		Ramp Volume, V _R				846			
Freeway Free-Flow Speed, S _{FF}				65.0					
Ramp Free-Flow Speed, S _{FR}				35.0					
Conversion to pc/h Under Base Conditions									
(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f _{HV}	f _p	v = V/PHF x f _{HV} x f _p	
Freeway	3496	0.95	Level	2	0	0.990	1.00	3717	
Ramp	846	0.95	Level	2	0	0.990	1.00	899	
UpStream	1227	0.95	Level	2	0	0.990	1.00	1304	
DownStream									
Merge Areas					Diverge Areas				
Estimation of v ₁₂					Estimation of v ₁₂				
$V_{12} = V_F (P_{FM})$ L _{EQ} = 1082.02 (Equation 13-6 or 13-7) P _{FM} = 0.619 using Equation (Exhibit 13-6) V ₁₂ = 2303 pc/h V ₃ or V _{av34} = 1414 pc/h (Equation 13-14 or 13-17) Is V ₃ or V _{av34} > 2,700 pc/h? ☐ Yes ☒ No Is V ₃ or V _{av34} > 1.5 * V ₁₂ /2 ☒ Yes ☐ No If Yes, V _{12a} = 2303 pc/h (Equation 13-16, 13-18, or 13-19)					$V_{12} = V_R + (V_F - V_R)P_{FD}$ L _{EQ} = (Equation 13-12 or 13-13) P _{FD} = using Equation (Exhibit 13-7) V ₁₂ = pc/h V ₃ or V _{av34} = pc/h (Equation 13-14 or 13-17) Is V ₃ or V _{av34} > 2,700 pc/h? ☐ Yes ☐ No Is V ₃ or V _{av34} > 1.5 * V ₁₂ /2 ☐ Yes ☐ No If Yes, V _{12a} = pc/h (Equation 13-16, 13-18, or 13-19)				
Capacity Checks					Capacity Checks				
	Actual	Capacity		LOS F?		Actual	Capacity		LOS F?
V _{FO}	4616	Exhibit 13-8		No	V _F		Exhibit 13-8		
					V _{FO} = V _F - V _R		Exhibit 13-8		
					V _R		Exhibit 13-10		
Flow Entering Merge Influence Area					Flow Entering Diverge Influence Area				
	Actual	Max Desirable		Violation?		Actual	Max Desirable		Violation?
V _{R12}	3202	Exhibit 13-8	4600:All	No	V ₁₂		Exhibit 13-8		
Level of Service Determination (if not F)					Level of Service Determination (if not F)				
$D_R = 5.475 + 0.00734 v_R + 0.0078 V_{12} - 0.00627 L_A$ D _R = 20.6 (pc/mi/ln) LOS = C (Exhibit 13-2)					$D_R = 4.252 + 0.0086 V_{12} - 0.009 L_D$ D _R = (pc/mi/ln) LOS = (Exhibit 13-2)				
Speed Determination					Speed Determination				
M _S = 0.312 (Exhibit 13-11) S _R = 57.8 mph (Exhibit 13-11) S ₀ = 61.7 mph (Exhibit 13-11) S = 59.0 mph (Exhibit 13-13)					D _s = (Exhibit 13-12) S _R = mph (Exhibit 13-12) S ₀ = mph (Exhibit 13-12) S = mph (Exhibit 13-13)				

APPENDIX M-III

**YEAR 2040 WITH ELSP PROJECT BUILDOUT
WITH MITIGATION TRAFFIC CONDITIONS**

RAMPS AND RAMP JUNCTIONS WORKSHEET									
General Information					Site Information				
Analyst		JT		Freeway/Dir of Travel		I-15 Southbound			
Agency or Company		LLG		Junction		Railroad Canyon Road On-Ramp			
Date Performed		1/12/17		Jurisdiction		[Mitigation]			
Analysis Time Period		Weekday AM Peak Hour		Analysis Year		Year 2040 with Project (BO)			
Project Description 2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore									
Inputs									
Upstream Adj Ramp ☒ Yes ☐ On ☐ No ☒ Off L _{up} = 3000 ft V _u = 920 veh/h		Freeway Number of Lanes, N 4				Downstream Adj Ramp ☐ Yes ☐ On ☒ No ☐ Off L _{down} = ft V _D = veh/h			
		Ramp Number of Lanes, N 1							
		Acceleration Lane Length, L _A 1500							
		Deceleration Lane Length L _D							
		Freeway Volume, V _F 5512							
		Ramp Volume, V _R 1234							
		Freeway Free-Flow Speed, S _{FF} 65.0							
		Ramp Free-Flow Speed, S _{FR} 35.0							
Conversion to pc/h Under Base Conditions									
(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f _{HV}	f _p	v = V/PHF x f _{HV} x f _p	
Freeway	5512	0.95	Level	2	0	0.990	1.00	5860	
Ramp	1234	0.95	Level	2	0	0.990	1.00	1312	
UpStream	920	0.95	Level	2	0	0.990	1.00	978	
DownStream									
Merge Areas					Diverge Areas				
Estimation of v ₁₂					Estimation of v ₁₂				
$V_{12} = V_F (P_{FM})$ L _{EQ} = 1629.01 (Equation 13-6 or 13-7) P _{FM} = 0.054 using Equation (Exhibit 13-6) V ₁₂ = 315 pc/h V ₃ or V _{av34} = 2772 pc/h (Equation 13-14 or 13-17) Is V ₃ or V _{av34} > 2,700 pc/h? ☒ Yes ☐ No Is V ₃ or V _{av34} > 1.5 * V ₁₂ /2 ☒ Yes ☐ No If Yes, V _{12a} = 2344 pc/h (Equation 13-16, 13-18, or 13-19)					$V_{12} = V_R + (V_F - V_R)P_{FD}$ L _{EQ} = (Equation 13-12 or 13-13) P _{FD} = using Equation (Exhibit 13-7) V ₁₂ = pc/h V ₃ or V _{av34} = pc/h (Equation 13-14 or 13-17) Is V ₃ or V _{av34} > 2,700 pc/h? ☐ Yes ☐ No Is V ₃ or V _{av34} > 1.5 * V ₁₂ /2 ☐ Yes ☐ No If Yes, V _{12a} = pc/h (Equation 13-16, 13-18, or 13-19)				
Capacity Checks					Capacity Checks				
	Actual	Capacity		LOS F?		Actual	Capacity		LOS F?
V _{FO}	7172	Exhibit 13-8		No	V _F		Exhibit 13-8		
					V _{FO} = V _F - V _R		Exhibit 13-8		
					V _R		Exhibit 13-10		
Flow Entering Merge Influence Area					Flow Entering Diverge Influence Area				
	Actual	Max Desirable		Violation?		Actual	Max Desirable		Violation?
V _{R12}	3656	Exhibit 13-8	4600:All	No	V ₁₂		Exhibit 13-8		
Level of Service Determination (if not F)					Level of Service Determination (if not F)				
$D_R = 5.475 + 0.00734 V_R + 0.0078 V_{12} - 0.00627 L_A$ D _R = 24.0 (pc/mi/ln) LOS = C (Exhibit 13-2)					$D_R = 4.252 + 0.0086 V_{12} - 0.009 L_D$ D _R = (pc/mi/ln) LOS = (Exhibit 13-2)				
Speed Determination					Speed Determination				
M _S = 0.367 (Exhibit 13-11) S _R = 56.6 mph (Exhibit 13-11) S ₀ = 60.5 mph (Exhibit 13-11) S = 58.4 mph (Exhibit 13-13)					D _s = (Exhibit 13-12) S _R = mph (Exhibit 13-12) S ₀ = mph (Exhibit 13-12) S = mph (Exhibit 13-13)				

RAMPS AND RAMP JUNCTIONS WORKSHEET									
General Information					Site Information				
Analyst	JT	Freeway/Dir of Travel	I-15 Southbound						
Agency or Company	LLG	Junction	Railroad Canyon Road On-Ramp						
Date Performed	1/12/17	Jurisdiction	[Mitigation]						
Analysis Time Period	Weekday PM Peak Hour	Analysis Year	Year 2040 with Project (BO)						
Project Description 2-14-3544 - East Lake Specific Plan EIR, Lake Elsinore									
Inputs									
Upstream Adj Ramp	Freeway Number of Lanes, N		4		Downstream Adj Ramp				
☒ Yes ☐ On	Ramp Number of Lanes, N		1		☐ Yes ☐ On				
☐ No ☒ Off	Acceleration Lane Length, L_A		1500		☒ No ☐ Off				
$L_{up} =$ 3000 ft	Deceleration Lane Length L_D				$L_{down} =$ ft				
$V_u =$ 1227 veh/h	Freeway Volume, V_F		3496		$V_D =$ veh/h				
	Ramp Volume, V_R		846						
	Freeway Free-Flow Speed, S_{FF}		65.0						
	Ramp Free-Flow Speed, S_{FR}		35.0						
Conversion to pc/h Under Base Conditions									
(pc/h)	V (Veh/hr)	PHF	Terrain	%Truck	%Rv	f_{HV}	f_p	$v = V/PHF \times f_{HV} \times f_p$	
Freeway	3496	0.95	Level	2	0	0.990	1.00	3717	
Ramp	846	0.95	Level	2	0	0.990	1.00	899	
UpStream	1227	0.95	Level	2	0	0.990	1.00	1304	
DownStream									
Merge Areas					Diverge Areas				
Estimation of v_{12}					Estimation of v_{12}				
$V_{12} = V_F (P_{FM})$					$V_{12} = V_R + (V_F - V_R)P_{FD}$				
$L_{EQ} =$	1082.02 (Equation 13-6 or 13-7)				$L_{EQ} =$	(Equation 13-12 or 13-13)			
$P_{FM} =$	0.105 using Equation (Exhibit 13-6)				$P_{FD} =$	using Equation (Exhibit 13-7)			
$V_{12} =$	392 pc/h				$V_{12} =$	pc/h			
V_3 or V_{av34}	1662 pc/h (Equation 13-14 or 13-17)				V_3 or V_{av34}	pc/h (Equation 13-14 or 13-17)			
Is V_3 or $V_{av34} > 2,700$ pc/h?	☐ Yes ☒ No				Is V_3 or $V_{av34} > 2,700$ pc/h?	☐ Yes ☐ No			
Is V_3 or $V_{av34} > 1.5 * V_{12}/2$	☒ Yes ☐ No				Is V_3 or $V_{av34} > 1.5 * V_{12}/2$	☐ Yes ☐ No			
If Yes, $V_{12a} =$	1486 pc/h (Equation 13-16, 13-18, or 13-19)				If Yes, $V_{12a} =$	pc/h (Equation 13-16, 13-18, or 13-19)			
Capacity Checks					Capacity Checks				
	Actual	Capacity		LOS F?		Actual	Capacity		LOS F?
V_{FO}	4616	Exhibit 13-8		No	V_F		Exhibit 13-8		
					$V_{FO} = V_F - V_R$		Exhibit 13-8		
					V_R		Exhibit 13-10		
Flow Entering Merge Influence Area					Flow Entering Diverge Influence Area				
	Actual	Max Desirable		Violation?		Actual	Max Desirable		Violation?
V_{R12}	2385	Exhibit 13-8	4600:All	No	V_{12}		Exhibit 13-8		
Level of Service Determination (if not F)					Level of Service Determination (if not F)				
$D_R = 5.475 + 0.00734 v_R + 0.0078 V_{12} - 0.00627 L_A$					$D_R = 4.252 + 0.0086 V_{12} - 0.009 L_D$				
$D_R =$	14.3 (pc/mi/ln)				$D_R =$	(pc/mi/ln)			
LOS =	B (Exhibit 13-2)				LOS =	(Exhibit 13-2)			
Speed Determination					Speed Determination				
$M_S =$	0.258 (Exhibit 13-11)				$D_S =$	(Exhibit 13-12)			
$S_R =$	59.1 mph (Exhibit 13-11)				$S_R =$	mph (Exhibit 13-12)			
$S_0 =$	62.8 mph (Exhibit 13-11)				$S_0 =$	mph (Exhibit 13-12)			
$S =$	60.8 mph (Exhibit 13-13)				$S =$	mph (Exhibit 13-13)			