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**El Dorado County  
Traffic Impact Mitigation (TIM) Fee Program Update  
Nexus & Funding Model**

**BOS Tentative Approval Date: December 6, 2016**

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**Note: All data entries in BLUE are copied from external sources (see source in appropriate table). All other data is generated internally by the model.**

## **Section 1**

# **New Development and Equivalent Dwelling Unit Projections**

**Table 1: Existing Development (2015)**

Land Use <sup>1</sup>	Dwelling Units / Employment	Sq. Ft. per Employee	Sq. Ft. (1,000s)
<b>Residential</b>			
SFD Not Restricted	53,558	NA	NA
SFD Age Restricted	-	NA	NA
MFD Not Restricted	6,932	NA	NA
MFD Age Restricted	-	NA	NA
Total	60,490		
<b>Nonresidential</b>			
Commercial	15,369	500	7,685
Office	10,110	275	2,780
Medical	1,825	312	569
Industrial	<u>5,339</u>	1,000	<u>5,339</u>
Total	32,643		16,373
Note: Excludes local government employment that is exempt from the TIM Fee.			
Source: El Dorado County Travel Demand Model; Matt Kowta and Nina Miegs (BAE Urban Economics), memorandum to Shawna Purvines (El Dorado County), regarding 2035 Growth Projections, March 14, 2013, Appendix D.			

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**Table 2: Growth Projections (2015-2035)**

	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Zone 7	Zone 8	Total
<b>Residential</b>	<b>(dwelling units)</b>								
Single Family									
Not Restricted	210	2,495	1,029	1,266	565	407	278	4,171	10,421
Age Restricted <sup>2</sup>	-	553	333	-	-	-	-	1,100	1,986
Subtotal	210	3,048	1,362	1,266	565	407	278	5,271	12,407
Multi-family									
Not Restricted	63	1,304	1,357	518	228	124	88	260	3,942
Age Restricted <sup>2</sup>	-	97	59	-	-	-	-	100	256
Subtotal	63	1,401	1,416	518	228	124	88	360	4,198
Total	273	4,449	2,778	1,784	793	531	366	5,631	16,605
<b>Nonresidential<sup>1</sup></b>	<b>(jobs)</b>								
Commercial	17	2,960	991	510	255	246	49	1,442	6,470
Office	60	553	229	75	81	60	-	4,578	5,636
Medical	-	260	75	142	160	72	8	883	1,600
Industrial	-	291	157	(6)	30	9	-	680	1,161
Total	77	4,064	1,452	721	526	387	57	7,583	14,867
<b>Nonresidential<sup>1</sup></b>	<b>(1,000 sq. ft.)</b>								
Commercial	9	1,480	496	255	128	123	25	721	3,237
Office	17	152	63	21	22	17	-	1,259	1,551
Medical	-	81	23	44	50	22	2	275	497
Industrial	-	291	157	(6)	30	9	-	680	1,161
Total	26	2,004	739	314	230	171	27	2,935	6,446
<sup>1</sup> Excludes local government growth that is exempt from the TIM Fee. <sup>2</sup> For zones 2 and 3, age-restricted dwelling unit estimates based on share allocated under current TIM Fee program. For zone 8 estimate based on proposed Carson development project.  Source: El Dorado County Travel Demand Model; Table 1.									

**Table 3: Land Use Categories, Trip Generation Rates & Preliminary EDU Factors**

Land Use	Institute for Transportation Engineers Category	Units	Trip Rate <sup>1</sup>	New Trip Ends	Net New Trip Rate	Preliminary EDU Factor <sup>2</sup>
Residential						
SFD Not Restricted	210: Single Family Detached	Dwelling Units	1.00	100%	1.00	1.00
SFD Age Restricted	251: Senior Adult - Detached	Dwelling Units	0.27	100%	0.27	0.27
MFD Not Restricted	220: Apartment	Dwelling Units	0.62	100%	0.62	0.62
MFD Age Restricted	252: Senior Adult - Attached	Dwelling Units	0.25	100%	0.25	0.25
Nonresidential						
Commercial						
General Commercial	820: Shopping Center	1,000 SqFt	3.71	47%	1.74	1.74
Hotel/Motel/B&B	320: Motel	Rooms	0.47	58%	0.27	0.27
Church	560: Church	1,000 SqFt	0.55	64%	0.35	0.35
Office						
General Office	710: General Office	1,000 SqFt	1.49	77%	1.15	1.15
Medical	720: Medical-Dental Office	1,000 SqFt	3.57	60%	2.14	2.14
Industrial	110: General Light Industrial	1,000 SqFt	0.97	79%	0.77	0.77
<p><sup>1</sup> Evening peak hour trip rate.</p> <p><sup>2</sup> The equivalent dwelling unit (EDU) factor is the net new trip rate normalized so one single family unit is one EDU. Residential EDU factors are per dwelling unit. Nonresidential EDU factors are per 1,000 building square feet except Hotel/Motel/B&amp;B EDU factor is per room.</p> <p>Source: Institute of Transportation Engineers, <i>Trip Generation 9th Edition</i>, 2012; San Diego Association of Governments, <i>Brief Guide of Vehicular Trip Generation Rates</i>, April 2002.</p>						

**Table 4: Final Equivalent Dwelling Units (EDU) Factors**

Land Use	Units	2015 Development	Preliminary EDU Factor <sup>1</sup>	2015 Preliminary EDU	EDU Shift For Local Serving Business <sup>2</sup>	2015 Revised EDU	Revised EDU Factor <sup>1</sup>	Final EDU Factor <sup>1,3</sup>	2015 Final EDU
<b>Residential</b>									
SFD Not Restricted	Dwelling Units	53,558	1.00	53,558	12,974	66,532	1.24	1.00	53,558
SFD Age Restricted	Dwelling Units	-	0.27	-	-	-	0.33	0.27	-
MFD Not Restricted	Dwelling Units	6,932	0.62	4,298	1,041	5,339	0.77	0.62	4,298
MFD Age Restricted	Dwelling Units	-	0.25	-	-	-	0.31	0.25	-
Total Residential	Dwelling Units	60,490		57,856	14,015	71,871			57,856
<i>Local Serving Share of Nonresidential Employment<sup>1</sup></i>					64%				
<b>Nonresidential</b>									
<b>Commercial</b>									
General Commercial	1,000 SqFt	7,685	1.74	13,372	(8,558)	4,814	0.63	0.51	3,919
Hotel/Motel/B&B	Rooms	NA	0.27					0.08	
Church	1,000 SqFt	NA	0.35					0.10	
<b>Office</b>									
General Office	1,000 SqFt	2,780	1.15	3,197	(2,046)	1,151	0.41	0.33	917
Medical	1,000 SqFt	569	2.14	1,218	(780)	438	0.77	0.62	353
Industrial/Warehouse	1,000 SqFt	5,339	0.77	4,111	(2,631)	1,480	0.28	0.23	1,228
Total Nonresidential	1,000 SqFt	16,373		21,898	(14,015)	7,883			6,417
<b>Total Equivalent Dwelling Units (EDU)</b>				79,754	-	79,754			64,273

<sup>1</sup> Residential EDU factors are per dwelling unit. Nonresidential EDU factors are per 1,000 building square feet except Hotel/Motel/B&B EDU factor is per room.

<sup>2</sup> Shift local serving share of total nonresidential EDUs to residential EDUs. The remaining nonresidential EDUs are associated with export based businesses (providing products and services outside the El Dorado County Western Slope unincorporated area).

<sup>3</sup> Final EDU factors are converted from revised EDU factors so that one single family dwelling is 1.0 EDU.

Source: Tim Youmans and Rosanne Helms (Economic & Planning Systems) memorandum to Steve Borroum (El Dorado County) regarding Survey of Major Employers in El Dorado County, July 7, 2005; U.S. Census Bureau, On The Map (<http://onthemap.ces.census.gov>) (2012 employment data); Tables 1 and 3.



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**Table 5: New Equivalent Dwelling Units (2015-2035)**

	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Zone 7	Zone 8	Total
<b>Residential</b>									
SFD Not Restricted	210	2,495	1,029	1,266	565	407	278	4,171	10,421
MFD Not Restricted	39	808	841	321	141	77	55	161	2,443
SFD Age Restricted	<1	149	90	<1	<1	<1	<1	297	536
MFD Age Restricted	<1	24	15	<1	<1	<1	<1	25	64
Subtotal	249	3,476	1,975	1,587	706	484	333	4,654	13,464
<b>Nonresidential</b>									
Commercial	5	755	253	130	65	63	13	368	1,652
Office	6	50	21	7	7	6	<1	415	512
Medical	<1	50	14	27	31	14	1	171	308
Industrial	<1	67	36	<1	7	2	<1	156	268
Subtotal	11	922	324	164	110	85	14	1,110	2,740
Total EDU, 2015-2035	260	4,398	2,299	1,751	816	569	347	5,764	16,204
Total EDU, 2015									64,273
Total EDU, 2035									80,477
Growth Share									20%

Source: Tables 2 and 4.

## **Section 2**

# **TIM Fee CIP Cost Estimates and Cost Allocation By Zone**

**Table 6: Bridge Replacement Projects**

River	Crossing	Cost
Indian Creek	Green Valley Rd	\$ 4,015,769
Mound Springs Creek	Green Valley Rd	4,067,770
Weber Creek	Green Valley Rd	11,616,000
South Fork American River	Salmon Falls Rd	10,500,000
Clear Creek	Sly Park Rd	5,835,000
Weber Creek	Cedar Ravine Rd	4,500,000
Carson Creek	White Rock Rd	4,500,000
North Fork Cosumnes River	Mt. Aukum Rd	4,500,000
North Fork Cosumnes River	Bucks Bar Rd	<u>8,542,357</u>
Total		\$ 58,076,896
New Development Share <sup>1</sup>		<u>11.47%</u>
TIM Fee Program Share		\$ 6,661,420

<sup>1</sup> Development share based on federal funding for 88.53 percent of total costs. The remaining share of 11.47 percent. This share is less than the TIM Fee Program share that could be allocated of 20 percent based on EDUs from new development in 2035 as a percent of total EDUs in 2035.

Sources: County of El Dorado.

**Table 7: Intersection Improvements**

	<b>Cost per Intersection<sup>1</sup></b>	<b>New Development Share<sup>2</sup></b>	<b>New Development Cost per Intersection</b>	<b>Number of Inter- sections</b>	<b>Cost</b>
Tier 1 - Existing Deficiency	\$ 1,800,000	20%	\$ 360,000	3	\$ 1,080,000
Tier 2 - Future Deficiency	1,800,000	100%	1,800,000	19	34,200,000
TIM Fee Program Share					\$ 35,280,000

<sup>1</sup> Based on \$350,000 for signalization plus \$1,450,000 for channelization. Includes intelligent transportation systems (ITS).  
<sup>2</sup> To avoid funding to correct an existing deficiency and to fund only that share that benefits new development, TIM Fee Program share for Tier 1 intersections is based only on EDUs from new development in 2035 as a percent of total EDUs in 2035.

Sources: County of El Dorado; Table 5.

**Table 8: Transit Capital Projects**

	Amount	Unit Cost	Total Cost	New Development Share <sup>1</sup>	TIM Fee Program Share
County Line Transit Center <sup>2</sup>					
Land			\$ 3,500,000		
Construction			<u>5,400,000</u>		
Total			\$ 8,900,000	20%	\$ 1,780,000
Cameron Park Park-and-Ride <sup>2</sup>			\$ 2,350,000	20%	470,000
					270,000
Missouri Flat Transfer Point Expansion <sup>3</sup>			\$ 270,000	100%	
Vehicles Required for Service Expansion <sup>3</sup>					
Dial-A-Ride Vans	10	\$ 42,000	\$ 420,000		
Local Route Buses	7	323,000	2,261,000		
Commuter Bus	1	500,000	<u>500,000</u>		
Total			\$ 3,181,000	100%	<u>3,181,000</u>
Total			\$ 14,701,000		\$ 5,701,000

<sup>1</sup> For capital projects that benefit existing and new development, TIM Fee Program share is based only on EDUs from new development in 2035 as a percent of total EDUs in 2035.

<sup>2</sup> Costs based on Park-and-Ride Master Plan (2007). Facilities serve existing and new development so share assigned to TIM Fee Program based on new EDUs as a percent of total EDUs in 2035.

<sup>3</sup> Costs based on Western El Dorado County Short- and Long-Range Transit Plan (2014). Transfer point and vehicle fleet are expansion projects to serve new development so costs allocated 100 percent to TIM Fee Program.

Sources: El Dorado County Transit Authority; Table 5.

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El Dorado County

TIM Fee Program Update Nexus and Funding Model

**Table 9: TIM Fee Capital Improvement Program (CIP) Project Costs**

Map ID	CIP Project No.	Project Name	From	To	Total Cost	Other Funding <sup>1</sup>	Net Cost
<b>Hwy 50 Auxiliary Lanes</b>							
A-1	53125	Aux. Lane Eastbound	County Line	El Dorado Hills Blvd IC	\$ 6,510,500	\$ -	6,510,500
A-2	GP148	Aux. Lane Eastbound	Bass Lake Rd IC	Cambridge Rd IC	8,830,500	-	\$ 8,830,500
A-3	53126	Aux. Lane Eastbound	Cambridge Rd IC	Cameron Park Dr IC	8,743,500	-	8,743,500
A-4	53127	Aux. Lane Eastbound	Cameron Park Dr IC	Ponderosa Rd IC	8,381,000	-	8,381,000
A-5	53128	Aux. Lane Westbound	Ponderosa Rd IC	Cameron Park Dr IC	8,961,000	-	8,961,000
A-6	GP149	Aux. Lane Westbound	Cambridge Rd IC	Bass Lake Rd IC	8,685,500	-	8,685,500
A-7	53117	Aux. Lane Westbound	Bass Lake Rd IC	Silva Valley Pkwy IC	5,466,500	-	5,466,500
A-8	53115	Aux. Lane Westbound	El Dorado Hills Blvd IC	County Line	5,611,500	-	5,611,500
		Subtotal			\$ 61,190,000	\$ -	\$ 61,190,000
<b>Hwy 50 Interchanges Projects</b>							
I-1	71323	El Dorado Hills Blvd	NA	NA	\$ 8,381,000	\$ 279,434	8,101,566
I-2	71345	Silva Valley Pkwy-Ph 2	NA	NA	7,658,000	-	7,658,000
I-3	71330, GP148	Bass Lake Rd	NA	NA	5,872,500	522,164	\$ 5,350,336
I-4	71332, GP149	Cambridge Rd	NA	NA	8,613,000	38,722	8,574,278
I-5	72361	Cameron Park Dr	NA	NA	87,284,000	1,140,650	86,143,350
I-6	71333, 71338, 71339	Ponderosa Rd	NA	NA	39,417,000	1,047,217	38,369,783
I-7	71347, 71376	El Dorado Rd	NA	NA	15,636,000	181,532	15,454,468
		Subtotal			\$ 172,861,500	\$ 3,209,719	\$ 169,651,781
<b>Roadway Improvements</b>							
R-1	72143	Cameron Park Dr	Palmer	Hacienda Rd	1,324,000	-	1,324,000
R-2	72376	Green Valley Rd	County Line	Sophia Pkwy	2,111,000	1,688,800	422,200
R-3	GP178, GP159	Green Valley Rd	Francisco Dr	Silva Valley Rd	6,029,000	-	6,029,000
R-4	72374	White Rock Rd	Post St	South of Silva Valley Pkwy	5,618,000	-	5,618,000
R-5	72142	Missouri Flat Rd	China Garden Rd	State Route 49	3,920,000	-	3,920,000
R-6	71324, GP147	Saratoga Way	Iron Point Rd	El Dorado Hills Blvd	11,549,000	-	11,549,000
R-7	72377	Country Club Dr	El Dorado Hills Blvd	Silva Valley Pkwy	10,752,000	-	10,752,000
R-8	71335	Country Club Dr	Silva Valley Pkwy	Tong Rd	8,240,000	-	8,240,000
R-9	GP124	Country Club Dr	Tong Rd	Bass Lake Rd	12,449,000	-	12,449,000
R-10	GP126	Country Club Dr	Bass Lake Rd	Tierre de Dios Dr	7,483,000	-	7,483,000
R-11	72334	Diamond Springs Pkwy	Missouri Flat Rd	State Route 49	20,033,000	11,738,125	8,294,875
R-12	66116	Latrobe Connection	White Rock Rd	Golden Foothill Pkwy	370,000	-	370,000
R-13	71375	Headington Rd Extension	El Dorado Rd	Missouri Flat Rd	3,796,000	-	3,796,000
		Subtotal			\$ 93,674,000	\$ 13,426,925	\$ 80,247,075

**Table 9: TIM Fee Capital Improvement Program (CIP) Project Costs**

Map ID	CIP Project No.	Project Name	From	To	Total Cost	Other Funding <sup>1</sup>	Net Cost
<b>Reimbursement Agreements<sup>2</sup></b>							
NA	71352	Bass Lake Rd	South of Serrano Parkway		\$ 3,692,152	\$ -	\$ 3,692,152
NA	72332	Green Valley Rd	Green Valley Marketplace		300,000	-	300,000
NA	66116	Latrobe Connection	Project Study		275,117	-	275,117
NA	66108	Madera Way	Right Turn Lane		125,574	-	125,574
NA	71328	Silva Valley Pkwy	Interchange Phase 1		16,194,966	-	16,194,966
NA	76107	Silver Springs Pkwy	Green Valley Rd Intersection		2,002,509	-	2,002,509
NA	66108	Silver Springs Pkwy	Offsite		3,889,855	-	3,889,855
		Subtotal			\$ 26,480,173	\$ -	\$ 26,480,173
<b>Other Program Costs (new development fair share of total costs only)</b>							
NA	NA	Bridges	Replacement		\$ 6,661,420	\$ -	\$ 6,661,420
NA	NA	Intersection Improvements	Traffic Signals & Intersection Operational Imps.		35,280,000	-	35,280,000
NA	53118	Transit	Capital Improvements		5,701,000	-	5,701,000
NA	See Footnote 3	Fee Program Admin	Program Administration & Updates		11,000,000	-	11,000,000
		Subtotal			\$ 58,642,420	\$ -	\$ 58,642,420
<b>Total</b>					<b>\$ 412,848,093</b>	<b>\$ 16,636,644</b>	<b>\$ 396,211,449</b>
					100%	4%	96%

<sup>1</sup> Amounts represents amounts spent through June 30, 2015 and the following anticipated funding: (1) Bass Lake Rd. interchange includes \$22,164 spent to date and a revised estimate of \$500,000 in funding through the Bass Lake Hills Public Facilities Financing Plan, (2) Green Valley Rd. net cost represents El Dorado County new development share only (20%) with remaining funding from City of Folsom and other sources, and (3) Diamond Springs Parkway project (Phases 1A and 1B) total cost represents 2 additional lanes and anticipated funding to come from state and federal sources.

<sup>2</sup> Based on payments remaining as of July 1, 2015 and excluding reimbursement agreements to be retired in FY 2016 (see Table 13).

<sup>3</sup> Includes ongoing program staff and consultant costs for annual updates, major updates (every five years), and ongoing administration related to the TIM Fee Program.

Sources: Quincy Engineering; El Dorado County; Tables 6, 7, and 8.

**Table 10: Trip Allocation By Zone**

		Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Zone 7	Zone 8	Internal Subtotal	External	Total
<b>Hwy 50 Auxiliary Lanes</b>												
A-1	Aux. Lane Eastbound	0.04%	17.64%	3.91%	0.00%	0.21%	0.25%	0.00%	27.95%	50.00%	50.00%	100.00%
A-2	Aux. Lane Eastbound	0.12%	51.32%	10.18%	1.20%	0.87%	0.73%	0.03%	10.42%	74.87%	25.13%	100.00%
A-3	Aux. Lane Eastbound	0.47%	24.64%	20.21%	3.09%	2.61%	1.98%	0.27%	12.62%	65.89%	34.11%	100.00%
A-4	Aux. Lane Eastbound	0.43%	31.11%	18.63%	2.85%	2.40%	1.82%	0.24%	10.41%	67.89%	32.11%	100.00%
A-5	Aux. Lane Westbound	0.43%	31.11%	18.63%	2.85%	2.40%	1.82%	0.24%	10.41%	67.89%	32.11%	100.00%
A-6	Aux. Lane Westbound	0.12%	51.32%	10.18%	1.20%	0.87%	0.73%	0.03%	10.42%	74.87%	25.13%	100.00%
A-7	Aux. Lane Westbound	0.11%	41.91%	9.32%	1.06%	0.75%	0.66%	0.03%	22.96%	76.80%	23.20%	100.00%
A-8	Aux. Lane Westbound	0.04%	17.64%	3.91%	0.00%	0.21%	0.25%	0.00%	27.95%	50.00%	50.00%	100.00%
<b>Hwy 50 Interchanges Projects</b>												
I-1	El Dorado Hills Blvd	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.50%	91.73%	92.23%	7.77%	100.00%
I-2	Silva Valley Pkwy-Ph 2	0.23%	21.09%	4.35%	1.54%	1.19%	0.65%	0.60%	53.71%	83.36%	16.64%	100.00%
I-3	Bass Lake Rd	0.03%	15.20%	2.57%	0.29%	0.39%	0.19%	0.27%	65.40%	84.34%	15.66%	100.00%
I-4	Cambridge Rd	0.05%	55.85%	1.26%	0.54%	0.33%	0.20%	0.31%	19.40%	77.94%	22.06%	100.00%
I-5	Cameron Park Dr	0.20%	69.85%	3.09%	0.85%	0.81%	0.56%	0.32%	11.69%	87.37%	12.63%	100.00%
I-6	Ponderosa Rd	0.18%	64.67%	5.16%	4.67%	0.94%	0.36%	0.08%	11.19%	87.25%	12.75%	100.00%
I-7	El Dorado Rd	0.27%	8.33%	64.78%	2.17%	2.52%	0.77%	1.45%	3.41%	83.70%	16.30%	100.00%
<b>Roadway Improvements</b>												
R-1	Cameron Park Dr	0.08%	86.60%	0.83%	0.08%	0.37%	0.40%	0.29%	4.78%	93.43%	6.57%	100.00%
R-2	Green Valley Rd <sup>1</sup>	0.01%	3.61%	0.06%	1.74%	0.01%	0.01%	0.03%	8.53%	14.00%	86.00%	100.00%
R-3	Green Valley Rd	0.00%	25.00%	0.00%	12.15%	0.00%	0.00%	0.00%	14.18%	51.33%	48.67%	100.00%
R-4	White Rock Rd	0.67%	41.07%	9.78%	3.27%	3.08%	1.70%	1.56%	34.23%	95.36%	4.64%	100.00%
R-5	Missouri Flat Rd	0.09%	11.79%	73.84%	1.66%	0.80%	0.98%	0.12%	10.72%	100.00%	0.00%	100.00%
R-6	Saratoga Way	0.08%	1.57%	0.00%	1.17%	0.09%	0.09%	0.00%	46.82%	49.82%	50.18%	100.00%
R-7	Country Club Dr	0.43%	34.32%	7.51%	2.38%	1.94%	1.07%	0.69%	48.32%	96.66%	3.34%	100.00%
R-8	Country Club Dr	0.03%	0.51%	0.05%	0.41%	0.02%	0.01%	0.39%	69.00%	70.42%	29.58%	100.00%
R-9	Country Club Dr	0.20%	0.10%	0.00%	0.38%	0.00%	0.17%	0.41%	83.11%	84.37%	15.63%	100.00%
R-10	Country Club Dr	0.27%	37.37%	2.36%	0.39%	1.02%	0.60%	0.43%	41.30%	83.74%	16.26%	100.00%
R-11	Diamond Springs Pkwy	0.82%	10.44%	68.06%	1.43%	2.24%	9.65%	1.77%	5.59%	100.00%	0.00%	100.00%
R-12	Latrobe Connection	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.18%	41.49%	42.67%	57.33%	100.00%
R-13	Headington Rd Extension	0.38%	1.01%	92.55%	0.00%	0.00%	4.58%	1.31%	0.00%	99.83%	0.17%	100.00%



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**Table 10: Trip Allocation By Zone**

		Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Zone 7	Zone 8	Internal Subtotal	External	Total
<b>Reimbursement Agreements<sup>2</sup></b>												
NA	Bass Lake Rd	0.10%	28.87%	4.01%	0.73%	0.36%	0.11%	0.59%	65.23%	100.00%	0.00%	100.00%
NA	Green Valley Rd	0.01%	33.43%	0.28%	7.91%	0.02%	0.01%	0.01%	58.33%	100.00%	0.00%	100.00%
NA	Latrobe Connection	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.77%	97.23%	100.00%	0.00%	100.00%
NA	Madera Way	0.07%	35.15%	1.36%	3.45%	0.37%	0.07%	0.06%	59.47%	100.00%	0.00%	100.00%
NA	Silva Valley Pkwy	0.28%	25.30%	5.22%	1.85%	1.43%	0.78%	0.72%	64.42%	100.00%	0.00%	100.00%
NA	Silver Springs Pkwy	0.07%	35.15%	1.36%	3.45%	0.37%	0.07%	0.06%	59.47%	100.00%	0.00%	100.00%
NA	Silver Springs Pkwy	0.07%	35.15%	1.36%	3.45%	0.37%	0.07%	0.06%	59.47%	100.00%	0.00%	100.00%

<sup>1</sup> External share includes share associated with correcting existing deficiency.

<sup>2</sup> Cost for reimbursement agreements have no external share so that agreements are fully funded. Cost shares area based on the same project as modeled by the 2004 El Dorado County Travel Demand Model, except shares for Latrobe Rd. and Silva Valley Parkway use shares for similar projects included in 2015 TIM Fee update (projects with map ID R-12 and I-2, respectively).

Source: 2015 El Dorado County Travel Demand Model, Kittelson & Associates, Inc.

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**Table 11: Cost Allocation By Zone**

		Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Zone 7	Zone 8	Internal Subtotal	External	Total
<b>Hwy 50 Auxiliary Lanes<sup>1</sup></b>												
A-1	Aux. Lane Eastbound	2,604	1,148,452	254,561	-	13,672	16,276	-	1,819,685	3,255,250	3,255,250	6,510,500
A-2	Aux. Lane Eastbound	10,597	4,531,813	898,945	105,966	76,825	64,463	2,649	920,137	6,611,395	2,219,105	8,830,500
A-3	Aux. Lane Eastbound	41,094	2,154,398	1,767,061	270,174	228,205	173,121	23,607	1,103,432	5,761,092	2,982,408	8,743,500
A-4	Aux. Lane Eastbound	36,038	2,607,329	1,561,380	238,859	201,144	152,534	20,114	872,463	5,689,861	2,691,139	8,381,000
A-5	Aux. Lane Westbound	38,532	2,787,767	1,669,434	255,389	215,064	163,090	21,506	932,841	6,083,623	2,877,377	8,961,000
A-6	Aux. Lane Westbound	10,423	4,457,399	884,184	104,226	75,564	63,404	2,606	905,028	6,502,834	2,182,666	8,685,500
A-7	Aux. Lane Westbound	6,013	2,291,010	509,478	57,945	40,999	36,079	1,640	1,255,108	4,198,272	1,268,228	5,466,500
A-8	Aux. Lane Westbound	2,245	989,869	219,410	-	11,784	14,029	-	1,568,413	2,805,750	2,805,750	5,611,500
	Subtotal	147,546	20,968,037	7,764,453	1,032,559	863,257	682,996	72,122	9,377,107	40,908,077	20,281,923	61,190,000
<b>Hwy 50 Interchanges Projects<sup>1,2</sup></b>												
I-1	El Dorado Hills Blvd	-	-	-	-	-	-	40,508	7,431,566	7,472,074	629,492	8,101,566
I-2	Silva Valley Pkwy-Ph 2	17,613	1,615,072	333,123	117,933	91,130	49,777	45,948	4,113,113	6,383,709	1,274,291	7,658,000
I-3	Bass Lake Rd	1,605	813,251	137,504	15,516	20,866	10,166	14,446	3,499,119	4,512,473	837,863	5,350,336
I-4	Cambridge Rd	4,287	4,788,734	108,036	46,301	28,295	17,149	26,580	1,663,410	6,682,792	1,891,486	8,574,278
I-5	Cameron Park Dr	172,287	60,171,130	2,661,830	732,218	697,761	482,403	275,659	10,070,157	75,263,445	10,879,905	86,143,350
I-6	Ponderosa Rd	69,066	24,813,739	1,979,881	1,791,869	360,676	138,131	30,696	4,293,578	33,477,636	4,892,147	38,369,783
I-7	El Dorado Rd	41,727	1,287,357	10,011,404	335,362	389,453	118,999	224,090	526,998	12,935,390	2,519,078	15,454,468
	Subtotal	306,585	93,489,283	15,231,778	3,039,199	1,588,181	816,625	657,927	31,597,941	146,727,519	22,924,262	169,651,781
<b>Roadway Improvements<sup>2</sup></b>												
R-1	Cameron Park Dr	1,059	1,146,584	10,989	1,059	4,899	5,296	3,840	63,287	1,237,013	86,987	1,324,000
R-2	Green Valley Rd	42	15,241	253	7,346	42	42	127	36,015	59,108	363,092	422,200
R-3	Green Valley Rd	-	1,507,250	-	732,524	-	-	-	854,912	3,094,686	2,934,314	6,029,000
R-4	White Rock Rd	37,641	2,307,313	549,440	183,709	173,034	95,506	87,641	1,923,041	5,357,325	260,675	5,618,000
R-5	Missouri Flat Rd	3,528	462,168	2,894,528	65,072	31,360	38,416	4,704	420,224	3,920,000	-	3,920,000
R-6	Saratoga Way	9,239	181,319	-	135,123	10,394	10,394	-	5,407,243	5,753,712	5,795,288	11,549,000
R-7	Country Club Dr	46,234	3,690,086	807,475	255,898	208,589	115,046	74,189	5,195,366	10,392,883	359,117	10,752,000
R-8	Country Club Dr	2,472	42,024	4,120	33,784	1,648	824	32,136	5,685,600	5,802,608	2,437,392	8,240,000
R-9	Country Club Dr	24,898	12,449	-	47,306	-	21,163	51,041	10,346,364	10,503,221	1,945,779	12,449,000
R-10	Country Club Dr	20,204	2,796,397	176,599	29,184	76,327	44,898	32,177	3,090,478	6,266,264	1,216,736	7,483,000
R-11	Diamond Springs Pkwy	68,018	865,985	5,645,492	118,617	185,805	800,455	146,819	463,684	8,294,875	(0)	8,294,875
R-12	Latrobe Connection	-	-	-	-	-	-	4,366	153,513	157,879	212,121	370,000
R-13	Headington Rd Extensio	14,425	38,340	3,513,198	-	-	173,857	49,727	-	3,789,547	6,453	3,796,000
	Subtotal	227,760	13,065,156	13,602,094	1,609,622	692,098	1,305,897	486,767	33,639,727	64,629,121	15,617,954	80,247,075

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TIM Fee Program Update Nexus and Funding Model

**Table 11: Cost Allocation By Zone**

		Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Zone 7	Zone 8	Internal Subtotal	External	Total
<b>Reimbursements<sup>2</sup></b>												
NA	Bass Lake Rd	3,692	1,065,924	148,055	26,953	13,292	4,061	21,784	2,408,391	3,692,152	NA	3,692,152
NA	Green Valley Rd	30	100,290	840	23,730	60	30	30	174,990	300,000	NA	300,000
NA	Latrobe Connection	-	-	-	-	-	-	7,621	267,496	275,117	NA	275,117
NA	Madera Way	88	44,139	1,708	4,332	465	88	75	74,679	125,574	NA	125,574
NA	Silva Valley Pkwy	45,346	4,097,326	845,377	299,607	231,588	126,321	116,604	10,432,797	16,194,966	NA	16,194,966
NA	Silver Springs Pkwy	1,402	703,882	27,234	69,087	7,409	1,402	1,202	1,190,891	2,002,509	NA	2,002,509
NA	Silver Springs Pkwy	2,723	1,367,284	52,902	134,200	14,392	2,723	2,334	2,313,297	3,889,855	NA	3,889,855
	Subtotal	53,281	7,378,845	1,076,116	557,909	267,206	134,625	149,650	16,862,541	26,480,173	NA	26,480,173
<b>Other Program Costs<sup>2,3</sup></b>												
NA	Bridges	18,000	3,367,000	967,000	150,000	83,000	74,000	32,000	1,970,420	6,661,420	NA	6,661,420
NA	Intersection Imps.	95,000	17,834,000	5,119,000	794,000	441,000	392,000	169,000	10,436,000	35,280,000	NA	35,280,000
NA	Transit	15,000	2,882,000	827,000	128,000	71,000	63,000	27,000	1,688,000	5,701,000	NA	5,701,000
NA	Fee Program Admin	30,000	5,561,000	1,596,000	248,000	138,000	122,000	53,000	3,252,000	11,000,000	NA	11,000,000
	Subtotal	158,000	29,644,000	8,509,000	1,320,000	733,000	651,000	281,000	17,346,420	58,642,420	NA	58,642,420
<b>Total Program Costs</b>												
	Total	893,172	164,545,321	46,183,441	7,559,289	4,143,742	3,591,143	1,647,466	108,823,736	337,387,310	58,824,139	396,211,449
	Hwy 50 TIM Fee <sup>1</sup>	436,518	112,842,248	22,663,108	3,953,825	2,360,308	1,449,844	643,593	29,430,369	173,779,813	41,302,402	215,082,215
	Local TIM Fee <sup>2</sup>	456,654	51,703,073	23,520,333	3,605,464	1,783,434	2,141,299	1,003,873	79,393,367	163,607,497	17,521,737	181,129,234

<sup>1</sup> Highway 50 TIM Fee component includes all Highway 50 auxilliary lands and all interchanges except the El Dorado Hills Boulevard and Silva Valley Parkway - Phase II interchanges. See note 2.

<sup>2</sup> Local TIM Fee component includes all roadway improvements, reimbursements, and other program costs, plus the El Dorado Hills Boulevard and Silva Valley Parkway - Phase II interchanges. These two interchanges are included in the Local TIM Fee component to provide consistency with outstanding fee credits associated with the Blackstone development project (see Table 14).

<sup>3</sup> Other program costs are allocated by zone based on cost shares by zone for all other TIM Fee Program costs except reimbursement agreements.

Source: Tables 9 and 10.

## **Section 3**

# **Non-TIM Fee Funding Estimates**

**Table 12: Federal, State & Local Grant Funding for TIM Fee Program**

<b>Funding Source</b>	<b>Annual Estimate (2015 \$)</b>	<b>Total 20-Year Estimate (2015 \$)</b>	<b>Estimated Unincorporated Share<sup>1</sup></b>	<b>Unincorporated 20-Yr. Estimate (2015 \$)</b>
<b>Federal</b>				
Congestion Mitigation and Air Quality (CMAQ)	\$ 1,938,000	\$ 38,760,000	86%	\$ 33,339,000
Regional Surface Transportation Program (RSTP)	1,576,000	31,520,000	86%	27,112,000
Federal Discretionary Programs	<u>1,619,000</u>	<u>32,380,000</u>	86%	<u>27,852,000</u>
Subtotal	\$ 5,133,000	\$ 102,660,000		\$ 88,303,000
<b>State</b>				
State Transportation Improvement Program				
Interregional Transportation Improvement Program (ITIP)	783,000	15,660,000	86%	13,470,000
Regional Transportation Improvement Program (RTIP)	<u>2,927,000</u>	<u>58,540,000</u>	86%	<u>50,353,000</u>
Subtotal	\$ 3,710,000	\$ 74,200,000		\$ 63,823,000
<b>Local</b>				
Caltrans Discretionary	<u>2,058,000</u>	<u>41,160,000</u>	86%	<u>35,404,000</u>
<b>Total</b>	\$ 10,901,000	\$ 218,020,000		\$ 187,530,000

Note: Funding sources applicable to TIM Fee CIP projects only. Excludes sources restricted to roadways maintenance, transit, or airport projects. Transit funding sources excluded because transit projects cost shares included in the TIM Fee CIP would be funded solely by TIM Fee revenues.  
Note: Missouri Flats Master Circulation & Financing Plan (MC&FP) funding is not included because funds are restricted to specific projects not included in TIM Fee Program Update.  
<sup>1</sup> Unincorporated share of total grant funding could be 93 percent (\$203 mil.) based on western slope unincorporated population as a share of total western slope population (including Placerville) so estimated share for unincorporated area is conservative.

Source: El Dorado County Transportation Commission.

**Table 13: TIM Fee Program Fund Balances**

<b>Hwy 50 TIM Fee</b>		
Hwy 50 TIM Fee Zones 1-8 Fund Balance 6/30/2015	\$	3,560,943
04 GP Hwy 50 TIM-Blackstone Fund Balance 6/30/2015		<u>3,719,520</u>
<b>Available Hwy 50 TIM Fee Fund Balance</b>	<b>\$</b>	<b>7,280,463</b>
<b>TIM Fee Zones 1-7</b>		
TIM Fee Zones 1-7 Fund Balance 6/30/2015	\$	10,181,144
Silver Springs Parkway Right-of-Way	\$	(1,040,282)
Pleasant Valley Rd (SR 49)/Patterson Dr Intersection Signalization		(70,000)
Pleasant Valley Rd at Oak Hill Rd Intersection Improvements		(159,000)
Green Valley Road at Tennessee Creek Bridge Replacement Project		(23,161)
Reimbursement Agreements Retired During FY 2015-16		
Green Valley Rd & Silver Springs Parkway Overlay and Signal Interconnect		(124,101)
Green Valley Rd & Deer Valley Rd Intersection		<u>(379,560)</u>
Subtotal		<u>(1,796,104)</u>
<b>Available TIM Fee Zones 1-7 Fund Balance</b>	<b>\$</b>	<b>8,385,040</b>
<b>EDH TIM Fee Zone 8<sup>1</sup></b>		
TIM Fee Zone 8 Fund Balance 6/30/2015		3,179,756
Blackstone Pre-Paid TIM Fee 6/30/2015 <sup>2</sup>		(9,580,527)
Reimbursement Agreements Retired During FY 2015-16		
White Rock Rd West		(504,486)
White Rock Rd East		(37,921)
Post St / White Rock Rd Signalization		<u>(85,000)</u>
Subtotal		<u>(10,207,934)</u>
<b>Available EDH TIM Fee Zone 8 Fund Balance</b>	<b>\$</b>	<b>(7,028,178)</b>
<b>Total Available TIM Fee Program Fund Balances</b>	<b>\$</b>	<b>8,637,325</b>
<sup>1</sup> Excludes Silva Valley Interchange Set-aside fund balance because amount is restricted to Phase 1 of the project and the 2015 TIM Fee Program Update is only responsible for Phase 2. <sup>2</sup> Blackstone development project pre-paid local TIM Fee component and not Hwy. 50 TIM Fee component. As of 6/30/2015, 639 single family dwelling units have not been issued building permits and remain to claim fee credit. Adjustment represents loss of revenue from pre-payment of fee based on updated Zone 8 local TIM Fee rate.  Sources: El Dorado County.		

## **Section 4**

# **TIM Fee Schedules and Budget Summaries**

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**Table 14: Hwy 50 TIM Fee Cost Per Equivalent Dwelling Unit - 2016 Update**

	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Zone 7	Zone 8	Total
<b>TIM Fee Program Cost</b>									
Hwy 50 TIM Fee Cost Share	436,518	112,842,248	22,663,108	3,953,825	2,360,308	1,449,844	643,593	29,430,369	173,779,813
Fund Balances (6/30/2015) <sup>1</sup>	18,288	4,727,499	949,465	165,645	98,885	60,741	26,963	1,232,977	7,280,463
Net TIM Fee Program Cost	418,230	108,114,749	21,713,643	3,788,180	2,261,423	1,389,103	616,630	28,197,392	166,499,350
<b>Equivalent Dwelling Units</b>									
Residential	249	3,476	1,975	1,587	706	484	333	4,654	13,464
Nonresidential	11	922	324	164	110	85	14	1,110	2,740
Total	260	4,398	2,299	1,751	816	569	347	5,764	16,204
<b>Cost per EDU</b>									
Residential	1,609	19,386	19,386	2,163	2,771	2,441	1,777	4,892	
Nonresidential	933	11,244	11,244	1,255	1,607	1,416	1,031	2,837	
Nonresidential Offset <sup>2</sup>	42%	42%	42%	42%	42%	42%	42%	42%	
<b>Revenue</b>									
TIM Fee Residential	400,641	67,385,736	38,287,350	3,432,681	1,956,326	1,181,444	591,741	22,767,368	136,003,287
TIM Fee Nonresidential	10,263	10,366,968	3,643,056	205,820	176,770	120,360	14,434	3,149,070	17,686,741
Subtotal TIM Fee Program	410,904	77,752,704	41,930,406	3,638,501	2,133,096	1,301,804	606,175	25,916,438	153,690,028
Nonresidential Offset	7,326	30,362,045	(20,216,763)	149,679	128,327	87,299	10,455	2,280,954	12,809,322
Fund Balances (6/30/2015) <sup>1</sup>	18,288	4,727,499	949,465	165,645	98,885	60,741	26,963	1,232,977	7,280,463
Total TIM Fee Cost	436,518	112,842,248	22,663,108	3,953,825	2,360,308	1,449,844	643,593	29,430,369	173,779,813

<sup>1</sup> Fund balance allocated based on total cost shares by zone.

<sup>2</sup> "Nonresidential Offset" is the share of the nonresidential cost per EDU allocated to other funding, resulting in a reduction in the nonresidential TIM fee.

Sources: Tables 5, 11, and 13.



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**Table 15: Local Roads TIM Fee Cost Per Equivalent Dwelling Unit - 2016 Update**

	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Zone 7	Zone 8	Total
<b>TIM Fee Program Cost</b>									
Local TIM Fee Cost Share	456,654	51,703,073	23,520,333	3,605,464	1,783,434	2,141,299	1,003,873	79,393,367	163,607,497
Fund Balances (6/30/2015) <sup>1</sup>	45,468	5,147,976	2,341,875	358,989	177,573	213,205	99,954	(7,028,178)	1,356,862
Net TIM Fee Program Cost	411,186	46,555,097	21,178,458	3,246,475	1,605,861	1,928,094	903,919	86,421,545	162,250,635
<b>Equivalent Dwelling Units</b>									
Residential	249	3,476	1,975	1,587	706	484	333	4,654	13,464
Nonresidential	11	922	324	164	110	85	14	1,110	2,740
Total	260	4,398	2,299	1,751	816	569	347	5,764	16,204
<b>Cost per EDU</b>									
Residential	1,581	10,114	10,114	1,854	1,968	3,389	2,605	14,993	
Nonresidential	917	5,866	5,866	1,075	1,141	1,966	1,511	8,696	
Nonresidential Offset <sup>2</sup>	42%	42%	42%	42%	42%	42%	42%	42%	
<b>Revenue</b>									
TIM Fee Residential	393,669	35,156,264	19,975,150	2,942,298	1,389,408	1,640,276	867,465	69,777,422	132,141,952
TIM Fee Nonresidential	10,087	5,408,452	1,900,584	176,300	125,510	167,110	21,154	9,652,560	17,461,757
Subtotal TIM Fee Program	403,756	40,564,716	21,875,734	3,118,598	1,514,918	1,807,386	888,619	79,429,982	149,603,709
Nonresidential Offset	7,430	5,990,381	(697,276)	127,877	90,943	120,708	15,300	6,991,563	12,646,926
Fund Balances (6/30/2015) <sup>1</sup>	45,468	5,147,976	2,341,875	358,989	177,573	213,205	99,954	(7,028,178)	1,356,862
Total TIM Fee Cost	456,654	51,703,073	23,520,333	3,605,464	1,783,434	2,141,299	1,003,873	79,393,367	163,607,497

<sup>1</sup> TIM Fee Zones 1-7 fund balance allocated based on zones 1-7 total cost shares by zone. EDH TIM Fee Zone 8 fund balance allocated to zone 8.

<sup>2</sup> "Nonresidential Offset" is the share of the nonresidential cost per EDU allocated to other funding, resulting in a reduction in the nonresidential TIM fee.

Sources: Tables 5, 11, and 13.

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**Table 16: Total TIM Fee Cost Per Equivalent Dwelling Unit - 2016 Update**

	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Zone 7	Zone 8	Total
<b>TIM Fee Program Cost</b>									
Total TIM Fee Cost Share	893,172	164,545,321	46,183,441	7,559,289	4,143,742	3,591,143	1,647,466	108,823,736	337,387,310
Fund Balances (6/30/2015)	63,756	9,875,475	3,291,340	524,634	276,458	273,946	126,917	(5,795,201)	8,637,325
Net TIM Fee Program Cost	829,416	154,669,846	42,892,101	7,034,655	3,867,284	3,317,197	1,520,549	114,618,937	328,749,985
<b>Equivalent Dwelling Units</b>									
Residential	249	3,476	1,975	1,587	706	484	333	4,654	13,464
Nonresidential	11	922	324	164	110	85	14	1,110	2,740
Total	260	4,398	2,299	1,751	816	569	347	5,764	16,204
<b>Cost per EDU</b>									
Residential	3,190	29,500	29,500	4,017	4,739	5,830	4,382	19,885	
Nonresidential	1,850	17,110	17,110	2,330	2,748	3,382	2,542	11,533	
Nonresidential Offset	42%	42%	42%	42%	42%	42%	42%	42%	
<b>Revenue</b>									
TIM Fee Residential	794,310	102,542,000	58,262,500	6,374,979	3,345,734	2,821,720	1,459,206	92,544,790	268,145,239
TIM Fee Nonresidential	20,350	15,775,420	5,543,640	382,120	302,280	287,470	35,588	12,801,630	35,148,498
Subtotal TIM Fee Program	814,660	118,317,420	63,806,140	6,757,099	3,648,014	3,109,190	1,494,794	105,346,420	303,293,737
Nonresidential Offset	14,756	36,352,426	(20,914,039)	277,556	219,270	208,007	25,755	9,272,517	25,456,248
Fund Balances (6/30/2015) <sup>1</sup>	63,756	9,875,475	3,291,340	524,634	276,458	273,946	126,917	(5,795,201)	8,637,325
Total TIM Fee Cost	893,172	164,545,321	46,183,441	7,559,289	4,143,742	3,591,143	1,647,466	108,823,736	337,387,310

Sources: Tables 14 and 15.

**Exhibit D  
26 of 175**

**Table 17: Hwy 50 TIM Fee Schedule - 2016 Update**

	EDU <sup>1</sup>	Fee per:	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Zone 7	Zone 8
<b>Residential</b>		<i>Cost per EDU<sup>1</sup> &gt;&gt;</i>	1,609	19,386	19,386	2,163	2,771	2,441	1,777	4,892
SFD Not Age Restricted	1.00	Dwelling Unit	1,609	19,386	19,386	2,163	2,771	2,441	1,777	4,892
MFD Not Age Restricted	0.62	Dwelling Unit	998	12,019	12,019	1,341	1,718	1,513	1,102	3,033
SFD Age Restricted	0.27	Dwelling Unit	NA	5,234	5,234	NA	NA	NA	NA	1,321
MFD Age Restricted	0.25	Dwelling Unit	NA	4,847	4,847	NA	NA	NA	NA	1,223
<b>Nonresidential</b>		<i>Cost per EDU<sup>1</sup> &gt;&gt;</i>	933	11,244	11,244	1,255	1,607	1,416	1,031	2,837
General Commercial	0.51	Bldg. Sq. Ft.	0.48	5.73	5.73	0.64	0.82	0.72	0.53	1.45
Hotel/Motel/B&B	0.08	Room	75	900	900	100	129	113	82	227
Church	0.10	Bldg. Sq. Ft.	0.09	1.12	1.12	0.13	0.16	0.14	0.10	0.28
Office/Medical	0.33	Bldg. Sq. Ft.	0.31	3.71	3.71	0.41	0.53	0.47	0.34	0.94
Industrial/Warehouse	0.23	Bldg. Sq. Ft.	0.21	2.59	2.59	0.29	0.37	0.33	0.24	0.65

<sup>1</sup> "EDU" (equivalent dwelling unit) equals the demand placed on the transportation network relative to one single family detached dwelling unit. EDU factors are expressed per dwelling unit for residential development, per room for hotel/motel/B&B, and per 1,000 square feet for all other nonresidential development. Source: Tables 4 and 14.

**Table 18: Local Roads TIM Fee Schedule - 2016 Update**

	EDU <sup>1</sup>	Fee per:	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Zone 7	Zone 8
<b>Residential</b>		<i>Cost per EDU<sup>1</sup> &gt;&gt;</i>	1,581	10,114	10,114	1,854	1,968	3,389	2,605	14,993
SFD Not Age Restricted	1.00	Dwelling Unit	1,581	10,114	10,114	1,854	1,968	3,389	2,605	14,993
MFD Not Age Restricted	0.62	Dwelling Unit	980	6,271	6,271	1,149	1,220	2,101	1,615	9,296
SFD Age Restricted	0.27	Dwelling Unit	NA	2,731	2,731	NA	NA	NA	NA	4,048
MFD Age Restricted	0.25	Dwelling Unit	NA	2,529	2,529	NA	NA	NA	NA	3,748
<b>Nonresidential</b>		<i>Cost per EDU<sup>1</sup> &gt;&gt;</i>	917	5,866	5,866	1,075	1,141	1,966	1,511	8,696
General Commercial	0.51	Bldg. Sq. Ft.	0.47	2.99	2.99	0.55	0.58	1.00	0.77	4.43
Hotel/Motel/B&B	0.08	Room	73	469	469	86	91	157	121	696
Church	0.10	Bldg. Sq. Ft.	0.09	0.59	0.59	0.11	0.11	0.20	0.15	0.87
Office/Medical	0.33	Bldg. Sq. Ft.	0.30	1.94	1.94	0.35	0.38	0.65	0.50	2.87
Industrial/Warehouse	0.23	Bldg. Sq. Ft.	0.21	1.35	1.35	0.25	0.26	0.45	0.35	2.00

<sup>1</sup> "EDU" (equivalent dwelling unit) equals the demand placed on the transportation network relative to one single family detached dwelling unit. EDU factors are expressed per dwelling unit for residential development, per room for hotel/motel/B&B, and per 1,000 square feet for all other nonresidential development. Source: Tables 4 and 14.

**Table 19: Total TIM Fee Schedule - 2016 Update**

	EDU <sup>1</sup>	Fee per:	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Zone 7	Zone 8
<b>Residential</b>		<i>Cost per EDU<sup>1</sup> &gt;&gt;</i>	3,190	29,500	29,500	4,017	4,739	5,830	4,382	19,885
SFD Not Age Restricted	1.00	Dwelling Unit	3,190	29,500	29,500	4,017	4,739	5,830	4,382	19,885
MFD Not Age Restricted	0.62	Dwelling Unit	1,978	18,290	18,290	2,490	2,938	3,614	2,717	12,329
SFD Age Restricted	0.27	Dwelling Unit	NA	7,965	7,965	NA	NA	NA	NA	5,369
MFD Age Restricted	0.25	Dwelling Unit	NA	7,376	7,376	NA	NA	NA	NA	4,971
<b>Nonresidential</b>		<i>Cost per EDU<sup>1</sup> &gt;&gt;</i>	1,850	17,110	17,110	2,330	2,748	3,382	2,542	11,533
General Commercial	0.51	Bldg. Sq. Ft.	0.95	8.72	8.72	1.19	1.40	1.72	1.30	5.88
Hotel/Motel/B&B	0.08	Room	148	1,369	1,369	186	220	270	203	923
Church	0.10	Bldg. Sq. Ft.	0.18	1.71	1.71	0.24	0.27	0.34	0.25	1.15
Office/Medical	0.33	Bldg. Sq. Ft.	0.61	5.65	5.65	0.76	0.91	1.12	0.84	3.81
Industrial/Warehouse	0.23	Bldg. Sq. Ft.	0.42	3.94	3.94	0.54	0.63	0.78	0.59	2.65

<sup>1</sup> "EDU" (equivalent dwelling unit) equals the demand placed on the transportation network relative to one single family detached dwelling unit. EDU factors are expressed per dwelling unit for residential development, per room for hotel/motel/B&B, and per 1,000 square feet for all other nonresidential development. Source: Tables 4 and 14.

**Table 20: Federal, State & Local Grant Funding Summary**

	<b>Amount</b>	<b>Share</b>
<b>Allocation of Grant Funding</b>		
Total Federal, State & Local Grant Funding (Table 12) <sup>1</sup>	\$ 187,530,000	100%
TIM Fee Program Allocation		
External Trip Share (Table 11)	\$ 58,820,000	31%
Affordable Housing Subsidy <sup>2</sup>	17,700,000	9%
Nonresidential Offset		
Hwy. 50 TIM Fee (Table 14)	\$ 12,810,000	7%
Local TIM Fee (Table 15)	<u>12,650,000</u>	<u>7%</u>
Subtotal	\$ 25,460,000	14%
<b>Total TIM Fee Program Allocation</b>	<b><u>101,980,000</u></b>	<b><u>54%</u></b>
Net Available Grant Funding After TIM Fee CIP Allocation	\$ 85,550,000	46%
<b>Grant Funding Share of TIM Fee Program Costs</b>		
Total TIM Fee Program Costs (Table 9)	\$ 412,850,000	
Allocation of Federal, State & Local Grant Funding	<u>101,980,000</u>	
<b>Grant Funding Share of TIM Fee Program Costs</b>	<b>25%</b>	
<sup>1</sup> Excludes grant funding sources that are restricted to uses that do not overlap with TIM Fee Program projects. <sup>2</sup> Affordable housing subsidy used to fully offset TIM Fees on affordable housing and is based on 20-year estimate of future affordable housing units.  Source: Tables 9, 11, 12, 14 and 15.		

**Table 21: TIM Fee Program Budget Summary**

	Amount	Share of Total
<b>Total Budget Allocation</b>		
TIM Fee CIP Total Costs (Table 9)	\$ 412,850,000	100%
Existing Alternative Funding		
Local Funding Currently Programmed in CIP (Table 9)	\$ 16,640,000	4%
Fund Balances (6/30/2015) (Table 13)	<u>8,640,000</u>	<u>2%</u>
Subtotal	25,280,000	6%
Federal, State & Local Grant Funding <sup>1</sup>		
External Trip Share (Table 11)	\$ 58,820,000	14%
Nonresidential Fee Offset (Table 16)	<u>25,460,000</u>	<u>6%</u>
Subtotal	<u>84,280,000</u>	<u>20%</u>
Required TIM Fee Revenue (Table 18)	<u>\$ 303,290,000</u>	<u>73%</u>
Residential Development Share (Table 16)	268,150,000	65%
Nonresidential Development Share (Table 16)	35,150,000	9%
<b>TIM Fee Revenue Allocation Including Nonresidential Offset</b>		
Residential Development TIM Fee Revenue (Table 16)	268,150,000	82%
Nonresidential Development		
TIM Fee Revenue (Table 16)	35,150,000	11%
Fee Offset (Table 16)	<u>25,460,000</u>	<u>8%</u>
Total TIM Fee Revenue Including Nonresidential Offset	\$ 328,760,000	100%
<sup>1</sup> The affordable housing subsidy shown in Table 24 does not reduce total required TIM fee program revenue so is not included here. The affordable housing subsidy only replaces TIM fees that would be owed by affordable housing projects.		
Source: Tables 9, 11, 13, and 16.		

**TIM Fee Project Cost**  
**With Right-of-Way (ROW), Sidewalk (SW), Curb and Gutter (C&G) Cost Review**

Updated 11-30-16

*The County can consider removing ROW, SW, and C&G from the TIM Fee program where future development could provide ROW and construct frontage improvements at their own cost and without reimbursement. The following table and legend shows staff's preliminary assessment.*

CIP Segment	From	To	Cost	Cost w/o ROW costs; with SW and C&G	Cost w/o SW or C&G costs; with ROW	Cost w/o ROW, SW, C&G costs	
EB US 50 Aux Lane	County Line (Empire Ranch Rd IC)	El Dorado Hills Blvd IC	\$ 6,510,500	N/A	N/A	N/A	
EB US 50 Aux Lane	Bass Lake Rd IC	Cambridge Rd IC	\$ 8,830,500	N/A	N/A	N/A	
EB US 50 Aux Lane	Cambridge Rd IC	Cameron Park Dr IC	\$ 8,743,500	N/A	N/A	N/A	
EB US 50 Aux Lane	Cameron Park Dr IC	Ponderosa Rd IC	\$ 8,381,000	N/A	N/A	N/A	
WB US 50 Aux Lane	Ponderosa Rd IC	Cameron Park Dr IC	\$ 8,961,000	N/A	N/A	N/A	
WB US 50 Aux Lane	Cambridge Rd IC	Bass Lake Rd IC	\$ 8,685,500	N/A	N/A	N/A	
WB US 50 Aux Lane	Bass Lake Rd IC	Silva Valley Rd IC	\$ 5,466,500	N/A	N/A	N/A	
WB US 50 Aux Lane	El Dorado Hills Blvd IC	County Line (Empire Ranch Rd IC)	\$ 5,611,500	N/A	N/A	N/A	
Bass Lake Rd IC	NA	NA	\$ 5,872,500	N/A	N/A	N/A	
Cambridge Rd IC	NA	NA	\$ 8,613,000	N/A	N/A	N/A	
Cameron Park Drive IC	NA	NA	\$ 87,284,000	N/A	N/A	N/A	
El Dorado Hills Blvd IC	NA	NA	\$ 8,381,000	N/A	N/A	N/A	
El Dorado Rd IC	NA	NA	\$ 15,636,000	N/A	N/A	N/A	
Ponderosa Rd IC	NA	NA	\$ 39,417,000	N/A	N/A	N/A	
Silva Valley Pkwy IC-Ph2	NA	NA	\$ 7,658,000	N/A	N/A	N/A	Potential Savings
<b>Cameron Park Drive</b>	Palmer Dr	Hacienda Rd	\$ 1,599,000	\$ 1,599,000	\$ 1,324,000	\$ 1,324,000	\$ 275,000
<b>Country Club Drive</b>	El Dorado Hills Blvd	Silva Valley Pkwy	\$ 10,752,000	\$ 7,371,000	\$ 9,032,000	\$ 5,650,000	\$ -
<b>Country Club Drive</b>	Silva Valley Pkwy (future)	Tong Road	\$ 8,240,000	\$ 5,798,000	\$ 6,991,000	\$ 4,549,000	\$ -
<b>Country Club Drive</b>	Tong Rd	Bass Lake Rd	\$ 12,449,000	\$ 8,489,000	\$ 11,776,000	\$ 7,816,000	\$ -
<b>Country Club Drive</b>	Bass Lake Rd	Tierre de Dios Drive	\$ 8,056,000	\$ 5,350,000	\$ 7,483,000	\$ 4,777,000	\$ 573,000
<b>Diamond Springs Pkwy-Ph.1B</b>	Missouri Flat Rd	Route 49	\$ 20,033,000	\$ 13,539,000	\$ 18,441,000	\$ 11,947,000	\$ -
<b>Green Valley Rd</b>	County Line	Sophia Pkwy	\$ 422,200	\$ 325,400	\$ 345,800	\$ 251,200	\$ -
<b>Green Valley Rd</b>	Francisco Dr	Silva Valley Rd	\$ 6,029,000	\$ 6,026,000	\$ 5,423,000	\$ 5,421,000	\$ -
<b>Headington Rd Connector</b>	El Dorado Rd	Missouri Flat Rd	\$ 4,852,000	\$ 3,796,000	\$ 4,285,000	\$ 3,229,000	\$ 1,056,000
<b>Latrobe Rd Connector</b>	Sac/El Dorado County Line	Golden Foothill Pkwy	\$ 379,000	\$ 379,000	\$ 370,000	\$ 370,000	\$ 9,000
<b>Missouri Flat Road</b>	SR 49 (Pleasant Valley Road)	China Garden Road	\$ 3,920,000	\$ 3,920,000	\$ 3,470,000	\$ 3,470,000	\$ -
<b>Saratoga Way</b>	Iron Point Rd	El Dorado Hills Blvd	\$ 11,549,000	\$ 8,829,000	\$ 10,754,000	\$ 8,715,000	\$ -
<b>White Rock Rd</b>	Post St	Silva Valley Rd	\$ 5,618,000	\$ 5,070,000	\$ 4,508,000	\$ 3,961,000	\$ -
<b>Total</b>							\$ 1,913,000



Projects where ROW, SW, and C&G should be included in TIM Fee program



Projects where **SW and C&G can be removed** from the TIM Fee program, but ROW should be included in TIM Fee program



Projects where **ROW can be removed** from TIM Fee program, but SW and C&G should be included in TIM Fee program



Projects where **SW and C&G can be removed** from the TIM Fee program, no ROW costs are assumed in the TIM Fee program

Diamond Springs Parkway Phase 1B - includes construction of 2 lanes, plus full intersections improvements at SR 49/DSP and Missouri Flat Rd/DSP.  
Green Valley Road - County Line to Sophia Parkway cost is only 20% of total to account for improvements as the result of growth.



## MEMORANDUM

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Date: September 9, 2016

Project #: 17666.0

To: Claudia Wade  
County of El Dorado  
2850 Fairlane Court  
Placerville, CA 95667



From: Chirag Safi, Vasin Kiattikomol

Project: CIP & TIM Fee Update: Western Slope

Subject: Final Technical Memorandum 2-3: Existing and Future Deficiency and Nexus Assessment

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This memorandum summarizes the existing and future deficiency analysis including the Mitigation Fee Act (MFA) nexus justification for the improvement concepts to be advanced as part of the Major Capital Improvement Program (CIP) & Traffic Impact Mitigation (TIM) Fee Update. The analysis includes results for: the existing conditions and future year Amended General Plan (GP) deficiency assessments; a capacity threshold analysis to determine the timing of when the improvements will be needed; the nexus fair share assessments for each recommended capital improvement category; and, per Assembly Bill (AB) 1600, a fair share discount for developments that meet Smart Growth criteria.

The subsequent sections in this memorandum describe the following:

- Introduction
- Traffic Analysis Methodology
- Traffic Analysis Assumptions
- Level of Service Standards
- Roadway Segment Analysis
- Interchange Analysis
- Parallel Facility Analysis
- Existing Operations Results
- Amended General Plan Operations Results
- Recommended TIM Fee CIP Improvements
- Capacity Threshold Analysis
- AB1600 Nexus: Trip Allocation
- AB1600 Nexus: Other Programs
- Discounted Fair Share



## INTRODUCTION

The existing and future deficiency analysis was performed based on the tools, methodologies and assumptions described in this memorandum. These are also described as part of Draft Technical Memorandum 2-1: Analysis Methodology. The same tools and methodologies were applied, as applicable, to the capacity threshold analysis and fair share nexus trip allocation analysis described in subsequent sections of this memorandum.

## TRAFFIC ANALYSIS METHODOLOGY

This section describes the approaches, tools, and methods used in the analysis.

### Level of Service (LOS)

Circulation Policy TC-Xd of the El Dorado County General Plan provides level of service standards for County-maintained roads and state highways. LOS is a grading system that indicates the quality of service motorists experience on roadway facilities such as intersections or along roadway segments. LOS is a qualitative measure of the effect of a number of factors, including delay, vehicle speeds and travel time, traffic interruptions, freedom to maneuver, driving comfort and convenience. Levels of Service are designated "A" through "F" from best to worst, which cover the entire range of traffic operations that might occur. Level of Service (LOS) "A" through "E" generally represents traffic volumes less than or at roadway capacity, while LOS "F" represents over capacity and/or forced flow conditions.

### County Roadways

Roadway segment LOS was determined by comparing traffic volumes on the study roadway segments with peak hour LOS capacity thresholds. The planning level capacity thresholds for different roadway classifications are shown in **Table 1**. These capacity thresholds are calculated based on the methodology contained in the Highway Capacity Manual (Transportation Research Board, 2010) (HCM 2010).

**Table 1. Local Roadways Level of Service LOS Criteria**

Functional Classification	Number of Lanes	Planning Level Volume Threshold (vehicles per hour)				
		LOS A	LOS B	LOS C	LOS D	LOS E
Arterial, Divided	4	-	-	1,850	3,220	3,290
	6	-	-	2,760	4,680	4,710
Arterial, Undivided	2	-	-	850	1,540	1,650
	4	-	-	1,760	3,070	3,130
Multi-Lane Highway	4	-	2,240	3,230	4,250	4,970

Notes:  
Two-lane highway (and arterial 2-lane) thresholds are based on HCM 2010, Exhibit 15-30, Class II Rolling, .09 K-factor, and D-factor of 0.6  
Arterial volume thresholds are based on HCM 2010, Exhibit 16-14, K-factor of 0.09, posted speed 45 mi/h  
Volumes are for both directions

Volume thresholds for 3-lane and 5-lane arterials were derived by linear interpolation between the 2- and 4-lane and between 4- and 6-lane thresholds, respectively. Similarly, the volume thresholds for a 7-lane or more arterial will be calculated by linear extrapolation between 4-lane and 6-lane volumes.

**State Highways**

State highway LOS was determined using the methodologies for freeway and multilane highways and two-lane highways outlined in the HCM 2010, Chapters 11, 14, and 15, respectively. For freeway and multilane highways density of the traffic stream determines LOS. Density measures the average proximity of vehicles to each other in the traffic stream expressed in passenger cars per mile per lane (pcpmpl) of roadway. Freeway and multilane highways were evaluated using the HCM 2010 compatible spreadsheet models.

For two-lane highways, the LOS calculation is dependent on the class of the roadway. Class I two-lane highways are highways where motorists expect to travel at high speeds. Class II two-lane highways are lower speed highways and serve scenic routes or areas of rugged terrain. Class III two-lane highways serve moderately developed areas with higher densities of local traffic and side-street access. For Class II highways, LOS is determined based on the percent time spent following (PTSF). This measure is calculated as the percentage of vehicles traveling at headways of less than three seconds. For Class III highways, the percent of vehicles traveling at free-flow speed (PFFS) conditions is used to determine LOS. This measure represents the ability of vehicles to travel at the posted speed limit. The two-lane highway analysis will be performed using the Highway Capacity Software (HCS).

**Table 2** and **Table 3** show the segment LOS criteria for multilane and two-lane highways, respectively.

**Table 2. Multi-Lane State Highways LOS Criteria**

LOS	Free Flow Speed (mi/h)	Density (pcpmpl)
A	All	>0 -11
B	All	>11-18
C	All	>18-26
D	All	>26-35
E	60	>35-40
	55	>35-41
	50	>35-43
	45	>35-45
F	Demand Exceeds Capacity	
	60	>40
	55	>41
	50	>43
	45	>45

Based on *Highway Capacity Manual*, Transportation Research Board, Washington D.C, 2010, Exhibit 14-4

**Table 3. Two-Lane State Highways LOS Criteria**

LOS	Class II Highways: Percent Time Spent Following (%)	Class III Highways: Percent Free-Flow Speed (%)
A	0-40	>91.7
B	>40-55	>83.3-91.7
C	>55-70	>75.0-83.3
D	>70-85	>66.7-75.0
E	>85	≤66.7

Based on *Highway Capacity Manual*, Transportation Research Board, Washington D.C., 2010, Exhibit 15-3

US 50 mainline segments were evaluated using the basic freeway methodologies contained in the HCM 2010. As previously described, the US 50 LOS will be reported for each freeway segment based on density and expressed in passenger cars per mile per lane (pcpmpl) of roadway.

Given a limitation of the latest Highway Capacity Software (HCS 2010) for evaluating special purpose lanes (e.g., HOV lanes, auxiliary lanes, truck climbing lanes) freeway mainline segments were evaluated using the HCS 2010 software compatible spreadsheet models. The freeway LOS criteria are provided in **Table 4**.

**Table 4. Freeway Mainline Level of Service (LOS) Criteria**

LOS	Density (pcpmpl)
A	≤11
B	>11-18
C	>18-26
D	>26-35
E	>35-45
F	>45 or Demand > Capacity

Based on *Highway Capacity Manual*, Transportation Research Board, Washington D.C., 2010, Exhibit 11-5

As description of all key generalized operational parameters and operational analysis assumptions are listed in the following section.

## TRAFFIC ANALYSIS ASSUMPTIONS

Generalized operational parameters that will be used for the traffic analysis are provided below:

Ideal Saturation Flow Rate:	Freeway General Purpose Lanes: 2,350 vehicles per hour per lane (vphpl); HCM 2010 Exhibit 10-5; Freeway HOV Lanes: 1,650 <sup>1</sup> vehicles per hour per lane (vphpl); Freeway Auxiliary Lanes > 1 mile: 900 <sup>2</sup> vphpl Freeway Auxiliary Lanes < 1 mile: 400 vphpl
Base Free Flow Speeds:	All: Posted speed limit plus 5 mph
Peak Hour Factor (PHF):	Freeway mainline: Existing: where counts exist: Caltrans Performance Measurement System (PeMS) and Caltrans Published Volumes; where counts do not exist: 0.92; Future: 0.92  State Highways: Existing: where counts exist: PeMS and Caltrans Published Volumes; where counts do not exist: 0.92; Future: 0.92
Peak Hour Directional (D) Factor:	Existing: Caltrans PeMS or Caltrans/County published reports (average weekday) Future: Same as Existing average weekday if available – other: El Dorado County travel demand model projected D Factor
Peak Hour (K) Factor:	Existing: PeMS or Caltrans/County published reports (average weekday) Future: Same as Existing average weekday if available – other: El Dorado County travel demand model projected K Factor
Analysis Conditions:	Annual Average Weekday Conditions
Traffic Volumes:	Existing: Freeways/State Highways: Caltrans Annual Average Daily Traffic (AADT) published volumes adjusted to average weekday peak hour condition via published K and D factors. US

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<sup>1</sup> Caltrans High-Occupancy Vehicle Guidelines, Caltrans 2003.

<sup>2</sup> 900 vphpl is a typical default assumption for auxiliary lanes greater than 1 mile and has been accepted by Caltrans in previous reports. See SC101 HOV Report June 2010.

50 between County line and Ponderosa Road: higher volumes between Caltrans AADT published volumes adjusted to average weekday and Caltrans PeMS average weekday (April)  
Existing: Local Roadways: County published data  
Future: Counts adjusted based on El Dorado County travel demand model growth between 2015 baseline to 2035 forecast horizon per National Cooperative Highway Research Program 255 method (NCHRP 255) (NCHRP, 1982)

Lane Width: All: 12 feet, or consult Caltrans or County Staff

Driver Population Factor: All: 1.00 – local drivers

Ramp Density (ramps/mi): Freeway mainline: Aerial measured

Access Density (points/mi): State Highways/Local Roadways: Aerial measured

Heavy Vehicles: Freeway/State Highways– Caltrans published Truck AADT data, or 5 percent default (4% on US 50);  
State Highways/Local Roadways – 5 percent default, or consult Caltrans or County staff

## LEVEL OF SERVICE STANDARDS

The following criteria are established to determine whether the vehicular traffic on a roadway facility exceeds the standard operating conditions.

### County Roadways

Circulation Policy TC-Xd of the El Dorado County General Plan provides level of service standards for County-maintained roads and state highways as follows:

*Level of Service (LOS) for County-maintained roads and state highways within the unincorporated areas of the county shall not be worse than LOS E in the Community Regions or LOS D in the Rural Centers and Rural Regions except as specified in Table TC-2. The volume to capacity ratio of the roadway segments listed in Table TC-2 shall not exceed the ratio specified in that table.*

Roadways in the community regions are evaluated against LOS E standard, while those in the rural regions and rural centers are analyzed against LOS D. **Figure 1** shows the level of service thresholds for local roadways, with exceptions listed in the Table TC-2 of the County’s Circulation Element.

**State Facilities**

County’s Policy TC-Xd is applicable not only to the County roadways, but also to the state facilities. As such, traffic conditions for state facilities within the unincorporated areas of the County shall not be worse than LOS E in the community regions and LOS D in the rural center and rural regions, except to the locations specified in Table TC-2.

**U.S. Highway 50**

**Table 5** presents LOS thresholds used for US 50. These standards are consistent with the concept LOS established by Caltrans in the Transportation Concept Report and Corridor System Management Plan, the County, and Table TC-2 of the 2004 El Dorado County General Plan.

**Table 5. US 50: Level of Service Thresholds**

Location Description	Begin Post Mile	End Post Mile	Level of Service Threshold
Sacramento/El Dorado County Line to Latrobe Road	0	0.857	LOS E
Latrobe Road to Cambridge Road	0.857	4.962	LOS D
Cambridge Road to Shingle Springs Drive	4.962	8.564	LOS E
Shingle Springs Drive to El Dorado Road	8.564	14.011	LOS D
El Dorado Road to Canal Street	14.011	17.52	LOS E
Canal Street to Mosquito Road	17.52	18.517	LOS F
Mosquito Road to Point View Drive	18.517	20.296	LOS E
Point View Drive to Old Highway, Camino	20.296	23.957	LOS D
Old Highway, Camino to Old Carson Road	23.957	34.219	LOS E
Old Carson Road to Ice House Road	34.219	39.772	LOS D
Ice House Road to Echo Lake Road	39.772	65.619	LOS F

Source: US 50 Transportation Concept Report and Corridor System Management Plan, Caltrans District 3, June 2014, 2004 El Dorado County General Plan, July 2004.

**State Route 49**

In the State Route 49 Transportation Concept Report (Caltrans, 2000), the concept LOS is F south of the community of El Dorado and through the City of Placerville. All other segments have a concept LOS E. Since the County adopted exceptions for this roadway, the County’s LOS standard for rural community (LOS D) was used as the operational criteria for segments from Amador/El Dorado County Line to Union Mine Road and from SR 193 (south) to SR 193 (north).

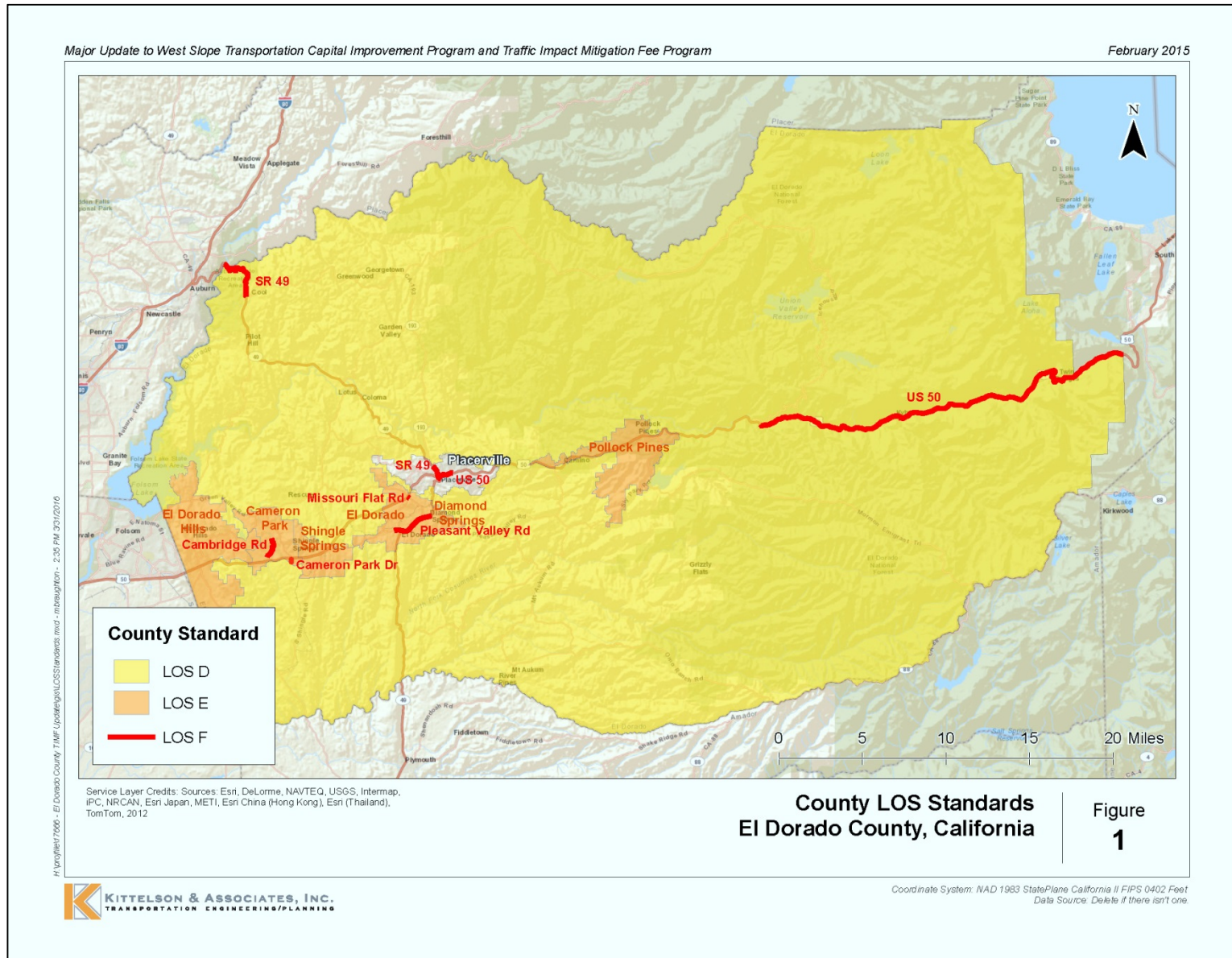
**State Route 193**

In the State Route 193 Transportation Concept Report (Caltrans, 2011), the concept LOS through El Dorado County is LOS D. This Caltrans concept LOS is consistent with the County standard.

**State Route 153**

The State Route 153 Transportation Concept Report (Caltrans, 2011) established a concept LOS of E for SR 153 within El Dorado County. Since the roadway runs through a defined rural community, the County’s LOS D standard was used as the operational standard for this analysis.

Figure 1. Level of Service Thresholds for Roadways



## ROADWAY SEGMENT ANALYSIS

This section provides the operations results by facility type. The facility types include County arterial roadways and state highways including freeways, multilane highways, and two-lane highways. A total of 57 County roadways were analyzed spanning nearly 150 segments. The entire state highway system was analyzed (i.e., US 50, SR 49, SR 193, SR 153) spanning 60 segments. Selection of roadways and roadway segmentation was based on a number of criteria including:

- roadway/segment was analyzed in previous TIM fee analysis;
- roadway/segment is currently listed in the County's current Capital Improvement Program;
- roadway/segment was included as part of the County's Travel Demand Model baseline validation analysis;
- roadway/segment is a critical high volume location with known congestion issues; and,
- roadway/segment is considered to have future importance for accommodating planned development growth.

Given the need for all future traffic projections to be adjusted based on the NCHRP 255<sup>3</sup> guidance principles, the choice of County roadway segments to analyze was contingent upon the availability of weekday (Tuesday-Thursday) daily and peak hour traffic counts (less than 3 years old). To ensure that "raw" model volumes would not form the basis for determining roadway operations, new traffic counts were performed by the County for all roadways that met the above criteria but did not have a recent traffic count. For US 50, average weekday bi-directional peak hour volumes were based on the most recent Caltrans PeMS counts taken during April/May 2014 including AM/PM peak directional splits (D Factor).

All state facilities were analyzed based on the HCM 2010 operational analysis methodology and LOS criteria described in the previous section. All local County roadways were analyzed based the HCM 2010 planning method and LOS criteria, also described in the previous section.

The analysis scenarios include:

- **2015 Baseline (Existing) Scenario** - To ensure that the future traffic growth resulting from new development growth is not double counted, all built and occupied permits between 2010 (model validation baseline year) and January 1<sup>st</sup> 2015 were reflected in the baseline travel demand model land use to establish an updated model analysis baseline. The 2010 baseline model network was also modified to include only infrastructure improvements open and operational by January 1<sup>st</sup> 2015.
- **2035 Amended General Plan Land Use Scenario** - This scenario reflects the approved allocation of growth in the County's General Plan, including the recently adopted Targeted

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<sup>3</sup> For a description of the NCHRP 255 adjustments process – see subsequent Roadway Segment Volume discussion.



General Plan Amendment and Zoning Ordinance Update (TGPA-ZOU) project. This assumes growth occurring at approximately 1 percent annual average growth rate over the 20-year planning horizon (2015-2035) with a 75% allocation to community regions and 25% allocation to rural regions (75/25 split). To establish a 2035 baseline network, the 2015 baseline model network was modified to only include infrastructure improvements either completed or under construction by January 1<sup>st</sup> 2015.

## **Roadway Segment Volumes**

Before “raw” model output is considered suitable for operational determinations, post-processing adjustments must be performed. The recommended procedure is based on the NCHRP 255. NCHRP 255 adjustments entail using model generated link-based growth factors (computed variation between base year and forecast year model link volumes) to adjust baseline traffic counts to reflect future conditions. For each count location, traffic growth estimates were generated using both the Ratio and the Difference method and taking the average between the two methods.

The baseline traffic counts, the 2035 future year “raw” volumes and the NCHRP 255 adjusted segment volumes used to determine future year operations are provided in Attachment A. For reporting purposes, forecasted volumes are rounded to the nearest ten.

All analysis scenarios reflect AM/PM peak hours during average weekday (Tues-Thurs) traffic conditions. Peak hours are confined to the weekday peak commute hour periods of 7:00 AM to 9:00 AM in the morning and between 4:00 PM – 6:00 PM in the afternoon. These forecasts do not reflect peak season or peak weekend traffic conditions which are primarily dominated by interregional traffic which is not appropriate for analysis of a local fee program.

## **Roadway Segment Capacity**

Roadway segment capacities were developed by multiplying the number of through lanes for a given roadway segment with the ideal saturation flow rate parameters (i.e., ideal lane capacity) provided in the Traffic Analysis Assumptions section.

For the eastbound segment of US 50 from the County Line to Bass Lake, the special purpose lane designations allow for some interpretation. Caltrans defines this segment more conservatively as 2 General Purpose Lanes, 1 HOV Lane, and 1 Auxiliary Lane. The County considers the functionality of the segment to operate as having 3 General Purpose Lanes and 1 HOV Lane. Both were analyzed with the most conservative capacity assumption results considered herein.

Another special case is Green Valley Road east of Francisco Drive to east of Silva Valley Parkway. This section of Green Valley Road is comprised of both two- and four-lane sections. Given that this segment is primarily a two-lane facility between Francisco Drive and east of Silva Valley Parkway it was documented as such herein.

Given the uncertainty associated with long-term 20-year travel forecasts, a 3 percent capacity buffer check was performed. If the 2035 forecasted volume on a given roadway segment is within 3 percent of the capacity for that segment, a deficiency was identified.

## INTERCHANGE ANALYSIS

There are a total of 21 interchanges operating along US 50 in El Dorado County including:

1. El Dorado Hills Boulevard Interchange
2. Silva Valley Parkway Interchange (under construction)
3. Bass Lake Road Interchange
4. Cambridge Road Interchange
5. Cameron Park Drive Interchange
6. Ponderosa Road Interchange
7. Shingle Springs Drive Interchange
8. Red Hawk Parkway Interchange
9. Greenstone Road Interchange
10. El Dorado Road Interchange
11. Missouri Flat Road Interchange
12. Placerville Drive (West) Interchange
13. Ray Lawyer Drive Interchange
14. Placerville Drive (East) Interchange
15. Mosquito Road Interchange
16. Schnell School Road Interchange
17. Point View Drive Interchange
18. Smith Flat Road Interchange
19. Cedar Grove/Camino Interchange
20. Pollock Pines/Cedar Grove Interchange
21. Sly Park Road Interchange

For interchanges, the under- or over-crossing service roads were analyzed based on the roadway segment analysis described above. However, a more detailed screening assessment was performed for the eight interchanges currently included in the existing TIM Fee CIP. These interchanges include:

- El Dorado Hills Boulevard Interchange
- Silva Valley Parkway Interchange
- Bass Lake Road Interchange
- Cambridge Road Interchange
- Cameron Park Drive Interchange
- Ponderosa Road Interchange
- El Dorado Road Interchange
- Missouri Flat Road Interchange

More detailed operationally-based CIP traffic studies have already been completed for these interchanges. As such, a peak hour volume screening assessment was used to reconfirm the prior deficiency analysis determinations. Given that these interchange operational studies were based on the previous version of the El Dorado County travel demand model, the screening assessment focused on the comparative differences between the future year forecasts generated by the previous model and the current updated model at each interchange. For each interchange (both TIM Fee CIP and non-TIM Fee CIP interchange), ramp and interchange over-crossing link volumes were compared. If the current model yielded equal or higher volumes (in absolute terms) or an equal or higher traffic

growth rate at one or more ramps and/or overcrossing, the previously identified deficiency was considered reaffirmed and the previously identified CIP improvements carried forward. If the screening assessment yielded holistically lower forecasted volumes at a given interchange, a new operationally-based analysis would then be performed to determine whether an LOS deficiency would be identified by 2035.

## PARALLEL FACILITY ANALYSIS

A determination for the need to include parallel facilities into the TIM Fee CIP list was based on the deficiency assessment for US 50 and County roadways on a case by case basis. Given that parallel facilities provide corridor capacity and provide congestion relief to the primary deficient facility, parallel facility improvements are considered candidates for TIM Fee CIP improvements.

## EXISTING OPERATIONS RESULTS

### **Existing Operations Results for State Facilities**

The LOS analysis results for freeways, multilane highways, and two-lane highways are provided in Attachment B (Tables B-1, B-2, B-3). Based on the results, all state highway facilities are shown to operate within established LOS standards during average weekday AM and PM peak hour conditions.

### **Existing Operations Results for Local Roadways**

The LOS analysis results for local roadways are presented in Attachment B (Table B-4). Given its geometric and operating characteristics, Green Valley Road segments# 51 and 53-62 were analyzed using the HCM 2010 operational method. No deficiencies were identified for study segments under existing conditions except for the following location:

- Green Valley Road west of Sophia Parkway: AM and PM peaks

Given this roadway segment is identified as an existing deficiency, only the share attributable to new growth can be applicable to the TIM Fee Program. Therefore, the TIM Fee Program includes only the cost attributable to new development, calculated as the ratio of traffic growth to the existing traffic volume.

## 2035 AMENDED GENERAL PLAN OPERATIONS RESULTS

### **Amended General Plan Operations Results for State Facilities**

Under the 2035 General Plan scenario, the LOS analysis results for freeways, multilane highways, and two-lane highways are provided in Attachment C (Tables C-1, C-2, C-3).

All state facilities except for the US 50 segments listed below are projected to meet the LOS threshold:

- El Dorado/Sacramento County Line to Latrobe Road: westbound direction in the AM peak and eastbound in the PM peak<sup>4</sup>
- Bass Lake Road to Latrobe Road: westbound direction in the AM peak
- Bass Lake Road to Cambridge Road: eastbound direction in the PM peak

All segments on SR 49, SR 193, and SR 153 are projected to operate acceptably.

### **Amended General Plan Operations Results for Local Roadways**

The LOS analysis results for local roadways under the 2035 General Plan scenario are shown in Attachment C (Table C-4).

The following local roadways are projected to exceed the County's LOS standards assuming no other improvements by 2035:

- Cameron Park Drive south of Hacienda Drive: PM peak
- Green Valley Road west of Sophia Parkway: AM and PM peaks
- Green Valley Road east of Francisco Drive<sup>5</sup>: AM and PM peaks
- Missouri Flat Road south of China Garden Road: PM peak
- Latrobe Road north of Golden Foothill Parkway: AM and PM peaks
- White Rock Road west of Windfield Way: PM peak
- White Rock Road at Sacramento/El Dorado County Line: PM peak
- White Rock Road east of Latrobe Road: PM peak

All the above roadway segments are located in designated community regions.

### **Parallel Facility Deficiency Analysis Results**

Based on identified US 50 mainline and several County roadway deficiencies, the following roadway extensions were analyzed.

- Saratoga Way (based on providing parallel capacity to the US 50 segment - County Line to El Dorado Hills Boulevard deficiency)

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<sup>4</sup> Eastbound deficiency based on the Caltrans capacity designation of 2 General Purpose Lanes, 1 HOV Lane, and 1 Auxiliary Lane.

<sup>5</sup> This deficiency only applies to the two-lane portion of this segment.

- Country Club Drive (based on providing parallel capacity to the US 50 segment – El Dorado Hills Boulevard to Cambridge Road deficiency)
- Diamond Springs Parkway (based on providing parallel capacity to the Missouri Flat Road deficiency)
- Latrobe Connection (based on providing parallel capacity to the White Rock Road and Latrobe Road deficiencies)
- Headington Road (based on providing parallel capacity to the Missouri Flat Road deficiency)

Assuming these roadway improvements are in place, several deficient segments were shown to operate acceptably due to redistribution of traffic. These facilities were therefore removed from the TIM Fee CIP list.

### **Summary for Roadways Deficiencies**

A summary of all deficient roadways is shown in **Table 6**. Under existing conditions, all local roadway segments analyzed were shown to operate within County standards except the Green Valley Road segment west of Sophia Parkway. All state facilities were also determined to operate within the established General Plan LOS standards. Under 2035 conditions (assumes 2035 General Plan land use and 2015 roadway network), three segments of US 50 and eight local roadway segments were projected to exceed LOS standards. Assuming additional parallel facility improvements, the number of US 50 deficiencies was reduced to two segments and the number of local roadway deficiencies was reduced to five segments.

**Table 6. Summary for Deficiency Roadways by Scenario**

Facility Type	Baseline Roadway	2035 Amended General Plan Roadway	2035 Amended General Plan Roadway with Parallel Capacity Improvements
<b>State Highways</b>	None	1. US 50 (El Dorado/ Sacramento County Line to Latrobe Road) 2. US 50 (Latrobe Road to Bass Lake Road) 3. US 50 (Bass Lake Road to Cambridge Road)	1. US 50 (Latrobe Road to Bass Lake Road) 2. US 50 (Bass Lake Road to Cambridge Road)
	<b>Total: 0 segment</b>	<b>Total: 3 segments</b>	<b>Total: 2 segments</b>
<b>Local Roads</b>	1. Green Valley Road (west of Sophia Parkway)	1. Cameron Park Drive (south of Hacienda Drive) 2. Green Valley Road (west of Sophia Parkway) 3. Green Valley Road (east of Francisco Drive to east of Silva Valley Parkway) <sup>1</sup> 4. Latrobe Road (north of Golden Foothill Parkway) 5. Missouri Flat Road (south of China Garden Road) <sup>2</sup> 6. White Rock Road (west of Windfield Way) 7. White Rock Road (at El Dorado/Sacramento County Line) 8. White Rock Road (east of Latrobe Road) <sup>7</sup>	1. Cameron Park Drive (south of Hacienda Drive) 2. Green Valley Road (west of Sophia Parkway) 3. Green Valley Road (east of Francisco Drive) 4. Missouri Flat Road (south of China Garden Road) <sup>2</sup> 5. White Rock Road (east of Latrobe Road) <sup>2</sup>
	<b>Total: 1 segment</b>	<b>Total: 8 segments</b>	<b>Total: 5 segments</b>
Notes:			
1 This deficiency only applies to the two-lane portions of this segment			
2 The projected roadway segment forecast is within 3% of the capacity threshold for this segment			

### Interchange Deficiency Analysis Results

Based on the comparative analysis of the “old” vs. “new” travel model forecasts at each interchange ramp and over/under-crossing segment, the screening results re-confirm the following interchange deficiency assessments (based on previous operational studies) would continue to hold with the new model (based on a combination of comparing 2035 PM peak hour volumes and average annual growth rates).

- El Dorado Hills Boulevard Interchange
- Silva Valley Parkway Interchange (under construction)
- Cambridge Road Interchange
- Cameron Park Drive Interchange
- Ponderosa Road Interchange
- El Dorado Road Interchange

Volume comparisons for the Bass Lake Road interchange showed lower forecasted traffic volumes for all ramps and overcrossing using the new update travel model relative to past forecasts. Based on these lower traffic projections, a more detailed operational analysis was warranted to determine the future operational integrity of the Bass Lake Road interchange. The new operational analysis and findings based on the new model forecasts are provided in Attachment E. The 2035 future year operational results reconfirm the prior Bass Lake Road Interchange deficiencies. As such, the US 50 Bass Lake Road interchange will remain in the TIM Fee CIP.

Comparison results for the Missouri Flat Road interchange also show lower forecasted traffic volumes for all ramps and overcrossing (approximately 75% of the previous model volumes). A more detailed operational analysis was performed to confirm if the Missouri Flat Road interchange can accommodate future year traffic volumes resulting from the amended General Plan. The operational analysis and findings provided in Attachment E, confirm that the Missouri Flat Road interchange has sufficient capacity to accommodate 2035 future year conditions. Therefore the Missouri Flat Road interchange will not be included in the TIM Fee program at this time.

The County has recently commissioned a study of the area called the Missouri Flat Area Master Circulation & Funding Plan Phase II (MC&FP Phase II). The study will identify future land use options and infrastructure needs beyond what is currently assumed in the 2035 Amended General Plan scenario. Given that the MC&FP Phase II study will not be completed prior to the completion of this analysis, the “growth potential” assessment in the vicinity of this interchange will not be fully reflected in this analysis. Based on MC&FP Phase II study, further analysis will be performed to determine if and when additional improvements will be required at the Missouri Flat Road interchange.

Although the screening analysis determined that the Cameron Park Drive Interchange would be deficient by 2035, a more detailed operational analysis was performed to confirm whether the interchange is currently deficient. The analysis determined that there are no existing LOS deficiencies at the Cameron Park Drive interchange. The new baseline operational analysis and findings based on the new traffic count data are provided in Attachment E.

All other interchanges with the exception of the Red Hawk Parkway do not show sufficient growth in volumes to trigger deficiency. Since Red Hawk Parkway provided an access to and from Red Hawk Casino only and is being funded and operated by Casino, it was excluded from deficiency analysis.

A summary of interchange volumes and annual growth rate comparisons between the previous and the current travel models are shown in Attachment D (Table D-1 and Table D-2). Table D-1 represents a volume comparison and Table D-2 presents a growth comparison for the Amended General Plan scenarios. Operational analyses for the Bass Lake Road, Missouri Flat Road and Cameron Park interchanges are provided in Attachment E.

## RECOMMENDED TIM FEE CIP IMPROVEMENTS

Based on identified deficiencies, TIM Fee CIP improvements are proposed for the following facility types:

- Mainline Freeway Improvements
- Interchange Improvements
- Local Roadway Improvements Parallel Facility Improvements

### Freeway Mainline Improvements

US 50 between Sacramento/El Dorado County Line and Cambridge Road is projected to operate at Levels of Service (LOS) exceeding the standards under the 2035 Amended General Plan Conditions. In addition, interchange deficiencies described in the following section also entail adding auxiliary lanes as part of the interchange improvements. Based on these mainline and interchange deficiencies, the following auxiliary lane TIM Fee CIP improvements are needed in order for the specified US 50 segments to maintain acceptable LOS operations.

- Eastbound County Line to Latrobe Road
- Eastbound Bass Lake Road to Cambridge Road
- Eastbound Cambridge Road to Cameron Park Drive
- Eastbound Cameron Park Drive to Ponderosa Road
- Westbound Ponderosa Road to Cameron Park Drive
- Westbound Cambridge Road to Bass Lake Road
- Westbound Bass Lake Road to Silva Valley Parkway
- Westbound El Dorado Hills Boulevard to County Line

### Interchange Improvements

Based on the reconfirmation of the previously identified interchange deficiencies (i.e., comparative analysis of the “old” vs. “new” travel model forecasts at each interchange ramp and over/under-crossing segments), the following improvements are recommended at the following interchanges:

- El Dorado Hills Boulevard Interchange reconfiguration; existing structure to remain
- Silva Valley Parkway Interchange (Phase I under construction, Phase II only)
- Bass Lake Road Interchange; existing undercrossing structure to remain
- Cambridge Road Interchange modification; existing structure to remain
- Cameron Park Drive Interchange reconfiguration; new overcrossing structure
- Ponderosa Road Interchange reconfiguration; new overcrossing structure
- El Dorado Road Interchange reconfiguration; widen existing overcrossing

### Local Roadway Improvements

Based on identified deficiencies, the following local roadway improvements are recommended:



- Cameron Park Drive north of Palmer Drive to Hacienda Road; 2-Lane to 4-Lane; sidewalk on east side only
- Green Valley Road from Sacramento/El Dorado County line to Sophia Parkway; 2-Lane to 4-Lane; sidewalk on both sides
- Green Valley Road east of Francisco Drive to east of Silva Valley Parkway; 2-Lane to 4-Lane; sidewalk on north side only<sup>6</sup>.
- White Rock Road from Post Street to Silva Valley Parkway 2-Lane to 4-Lane; sidewalk on both sides
- Missouri Flat Rd from China Garden Road to State Route 49; sidewalk on both sides

### Parallel Facility Improvements

Based on the identified US 50 mainline and local roadway deficiencies, the following parallel roadway capacity improvements are recommended:

- Saratoga Way (future) connect to Iron Point Road; 4-Lane; sidewalk on north side only; widen existing Saratoga Way 2-Lane to 4-Lane from west terminus to El Dorado Hills Boulevard; sidewalk on north side only
- Country Club Drive (future) connect El Dorado Hills Boulevard east to Silva Valley Parkway/Tong Road; sidewalk on both sides
- Country Club Drive (future) 2-Lane; Silva Valley Parkway/Tong Road to Bass Lake Road/Old Bass Lake Road; sidewalk on both sides.
- Country Club Drive (future) 2-Lane from Bass Lake Road/Old Bass Lake Road to Tierra de Dios Drive.
- Diamond Springs Parkway (future) from Missouri Flat Road to Route 49
- Latrobe Connection 2-Lane between White Rock Road and Golden Foothill Parkway/Latrobe Road
- Headington Road 2-Lane between El Dorado Road and Missouri Flat Road

The TIM Fee CIP projects are shown in **Figure 2**.

### Improvement Costs

The total cost of these improvements is as follows:

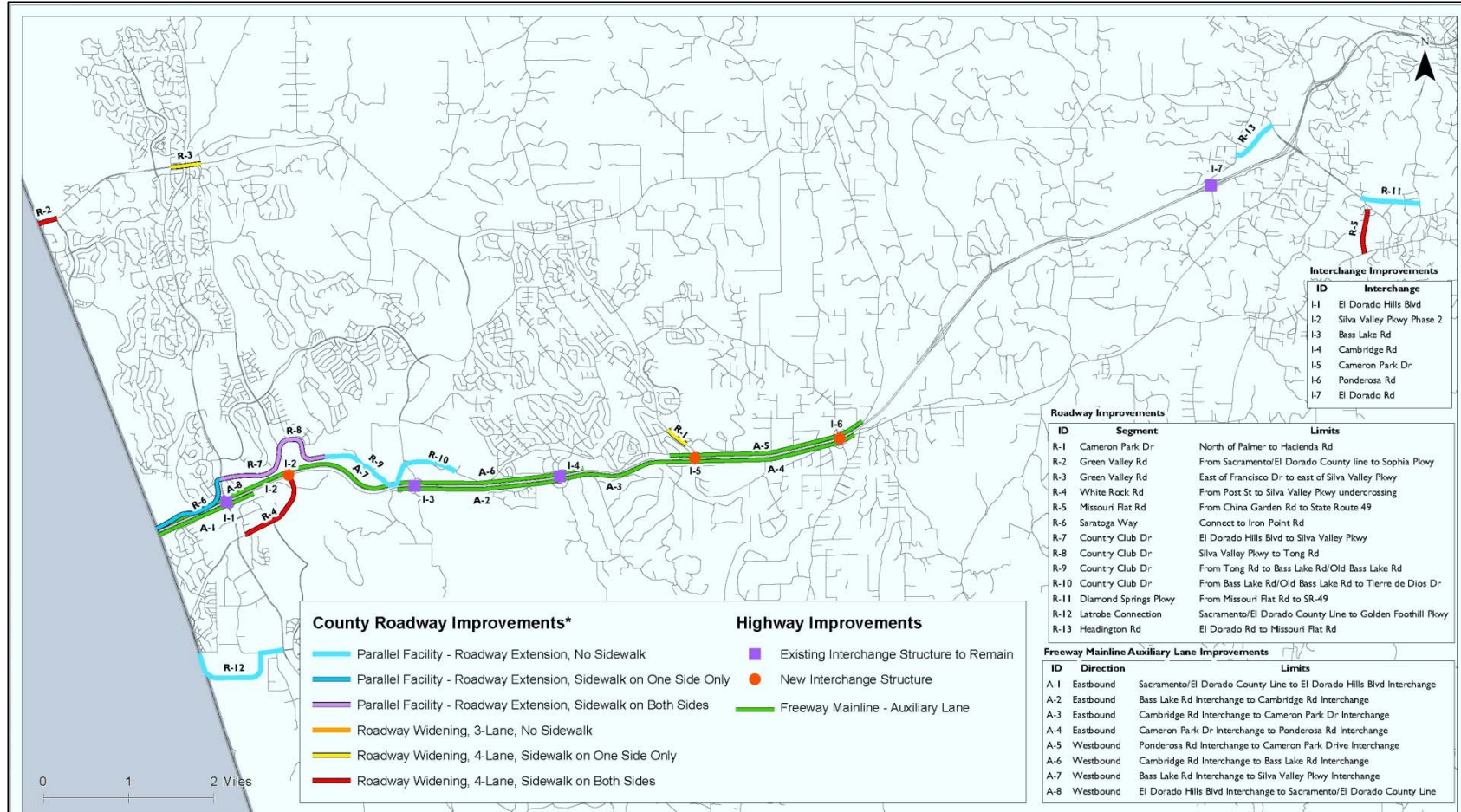
US 50 Auxiliary Lanes:	\$ 61,190,000
US 50 Interchanges	\$ 172,861,500
Local Roadways	\$ 93,674,000
Sub Total:	\$ 327,725,500.

Including outstanding reimbursement agreements and other program costs (discussed in the following sections), the projected total cost for the TIM Fee CIP is \$412,848,093.

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<sup>6</sup> This improvement only applies to the two-lane portions of this segment.

Figure 2. TIM Fee CIP Locations



## CAPACITY THRESHOLD ANALYSIS

A Capacity Threshold Analysis was performed for each TIM Fee CIP improvement to determine the timeframe when facilities would exceed the County’s LOS thresholds. The analysis was completed in two stages: without and with the parallel capacity projects. Based on this analysis, and available funding, the improvement projects will be designated to the 5-Year, 10-Year, and 20-Year CIP Project Lists.

To establish a continuous timeline of traffic growth, the analysis is based on linear interpolation between the baseline traffic counts and the 2035 Amended General Plan traffic projections. The latter assumes no infrastructure improvements unless built or under construction by January 1, 2015 (i.e., future year no build transportation network). Operational determinations were performed throughout the timeline to determine the interim year a given TIM Fee CIP facility exceeds the LOS standard. For interchange improvements and the associated auxiliary lanes, project timing was based on the freeway mainline deficiency. Interchanges located on non-deficient US 50 segments were defaulted to the 2035 timeframe. For roadways serving as parallel facilities to US 50, the need of the roadway improvements was identified based on the triggered year of the freeway segment.

Operational determinations were based on the same methodologies and LOS thresholds described previously. The HCM 2010 operational analysis methodology was used for analyzing US 50 (basic and merge-diverge) and the HCM 2010 planning method was used for analyzing local County roadways.

**Table 7** presents the analysis results for US 50 segments and **Table 8** presents the results for local County roadways. The volumes shown in these tables are for the baseline year and in five year increments (e.g. 2015, 2020, etc.). For each 5-year increment, when triggered, the reported volumes shown represent the actual year that the LOS standard was exceeded. For example, the triggered volume for Cameron Park Drive is 2018, which is representing the 2015 5-year interval.

**Table 7. Capacity Threshold Analysis for US 50 (without Parallel Capacity Projects)**

Segment	LOS Threshold	Direction	Peak	2015	2020	2025	2030	2035
Sacramento/El Dorado County Line - Latrobe Road	E	EB	AM	2,470	2,880	3,290	3,700	4,110
			PM	4,750	5,125	5,500	5,875	6,250
		WB	AM	3,790	4,110	4,685	4,750	5,070
			PM	1,880	2,160	2,445	2,725	3,010
Latrobe Road - Bass Lake Road	D	EB	AM	1,235	1,515	1,790	2,070	2,350
			PM	3,400	3,820	4,240	4,660	5,080
		WB	AM	3,695	4,145	4,600	5,050	5,500
			PM	2,350	2,745	3,135	3,530	3,920
Bass Lake Road - Cambridge Road	D	EB	AM	1,380	1,605	1,830	2,055	2,280
			PM	3,330	3,605	3,880	4,155	4,430
		WB	AM	3,100	3,275	3,445	3,620	3,790
			PM	2,095	2,405	2,715	3,020	3,330
1-Way Volume (vph)	LOS within threshold							
1-Way Volume (vph)	LOS exceeds threshold							

**Table 8. Capacity Threshold Analysis for Local Roadways (without Parallel Capacity Projects)**

Name	Location	LOS Threshold	Peak	2015	2020	2025	2030	2035
Cameron Park Dr	South of Hacienda Dr	E	AM	1,235	1,300	1,370	1,435	1,500
			PM	1,620	1,680	1,740	1,800	1,860
Green Valley Rd	West of Sophia Pkwy	E	AM	1,880	2,140	2,395	2,655	2,910
			PM	2,065	2,400	2,735	3,065	3,400
Green Valley Rd	East of Francisco Dr	E	AM	1,210	1,340	1,470	1,605	1,735
			PM	1,070	1,230	1,395	1,555	1,715
Latrobe Rd	North of Golden Foothill Pkwy	D	AM	2,123	2,535	3,285	3,365	3,780
			PM	2,287	2,675	3,220	3,450	3,840
White Rock Rd	West of Windfield Way	E	AM	824	980	1,130	1,285	1,440
			PM	816	1,085	1,360	1,685	1,900
White Rock Rd	At County Line	E	AM	834	1,015	1,195	1,380	1,560
			PM	1,026	1,325	1,690	1,930	2,230
White Rock Rd	East of Latrobe Road	E	AM	1,036	1,070	1,110	1,145	1,180
			PM	1,444	1,495	1,545	1,600	1,650
2-Way Volume (vph)	LOS within threshold							
2-Way Volume (vph)	LOS exceeds threshold							

**Traffic Diversion Due to Parallel Capacity Projects**

Based on the deficiency analysis, several new roadway segments that run parallel to US 50 or other roadways that are projected to be deficient by 2035 were identified. Construction of these parallel capacity projects would provide additional capacity along key segments, thereby extending the service life of the existing facility. The following roadway segments were identified as parallel facilities:

- Saratoga Way extension
- Country Club Drive extension
- Diamond Springs Parkway
- Latrobe Connection
- Headington Road extension

To test the effects of the parallel capacity projects, the segments were added to the 2035 Amended General Plan model (without any other roadway improvements). The travel demand model was run to determine the change in peak hour traffic volumes as a result of the parallel capacity projects. These traffic changes are shown in **Table 9** and **Table 10** for US 50 and local roadways, respectively. Most of the study roadways benefit from the parallel capacity projects, as shown by a decrease in projected peak hour traffic.

The capacity threshold analysis process (described above) was repeated, assuming the parallel capacity projects are constructed. For the interim years, traffic diversion was based on interpolation. The same operational analysis methodologies were used to analyze the deficient facilities affected by the traffic diversion to identify the remaining deficient segments. The analysis results are shown in **Table 11** and **Table 12** for US 50 and local roadways, respectively.

**Table 9. Traffic Diversion for US 50 Segments with Parallel Capacity Projects**

Segment	Direction	Peak	Volume Change (vph)
Sacramento/El Dorado County Line - Latrobe Road	EB	AM	-1,017
		PM	-1,122
	WB	AM	-1,154
		PM	-750
Latrobe Road - Bass Lake Road	EB	AM	-44
		PM	-160
	WB	AM	-446
		PM	-49
Bass Lake Road - Cambridge Road	EB	AM	+46
		PM	-29
	WB	AM	-25
		PM	+2

**Table 10. Traffic Diversion for Local Roadways with Parallel Capacity Projects**

Name	Location	Peak	Volume Change (vph)
Cameron Park Drive	South of Hacienda Drive	AM	+4
		PM	-8
Green Valley Road	West of Sophia Parkway	AM	-38
		PM	-142
Green Valley Road	East of Francisco Drive	AM	-67
		PM	-72
Latrobe Road	North of Golden Foothill Parkway	AM	-988
		PM	-852
White Rock Road	West of Windfield Way	AM	-572
		PM	-782
White Rock Road	At County Line	AM	-542
		PM	-762
White Rock Road	East of Latrobe Road	AM	-42
		PM	-1

**Table 11. Capacity Threshold Analysis for US 50 with Parallel Capacity Projects**

Segment	LOS Threshold	Direction	Peak	2015	2020	2025	2030	2035
Sacramento/El Dorado County Line - Latrobe Road	E	EB	AM	1,860	2,165	2,475	2,785	3,093
			PM	3,895	4,205	4,515	4,820	5,128
		WB	AM	2,925	3,175	3,420	3,670	3,916
			PM	1,410	1,620	1,835	2,045	2,260
Latrobe Road - Bass Lake Road	D	EB	AM	1,210	1,485	1,755	2,030	2,306
			PM	3,295	3,700	4,105	4,515	4,920
		WB	AM	3,395	3,810	4,560	4,640	5,054
			PM	2,320	2,710	3,095	3,485	3,871
Bass Lake Road - Cambridge Road	D	EB	AM	1,405	1,635	1,865	2,095	2,326
			PM	3,310	3,580	3,855	4,130	4,401
		WB	AM	3,080	3,255	3,420	3,595	3,765
			PM	2,095	2,405	2,715	3,020	3,332
1-Way Volume (vph)	LOS within threshold							
1-Way Volume (vph)	LOS exceeds threshold							

**Table 12. Capacity Threshold Analysis for Local Roadways with Parallel Capacity Projects**

Name	Location	LOS Threshold	Peak	2015	2020	2025	2030	2035
Cameron Park Dr	South of Hacienda Dr	E	AM	1,240	1,305	1,375	1,440	1,504
			PM	1,615	1,675	1,735	1,795	1,852
Green Valley Rd	West of Sophia Pkwy	E	AM	1,855	2,110	2,365	2,620	2,872
			PM	1,980	2,300	2,620	2,935	3,258
Green Valley Rd	East of Francisco Dr	E	AM	1,160	1,290	1,415	1,545	1,668
			PM	1,025	1,180	1,335	1,490	1,643
Latrobe Rd	North of Golden Foothill Pkwy	D	AM	1,570	1,875	2,180	2,485	2,792
			PM	1,780	2,080	2,385	2,685	2,988
White Rock Rd	West of Windfield Way	E	AM	495	590	680	775	868
			PM	480	640	800	960	1,118
White Rock Rd	At County Line	E	AM	545	660	780	900	1,018
			PM	675	870	1,075	1,270	1,468
White Rock Rd	East of Latrobe Road	E	AM	1,000	1,030	1,070	1,105	1,138
			PM	1,445	1,495	1,545	1,600	1,649
2-Way Volume (vph)	LOS within threshold							
2-Way Volume (vph)	LOS exceeds threshold							

**Findings**

Based on the parallel capacity assessment, there are two segments of US 50 and three local roadway segments that would remain deficient as shown in **Table 11** and **Table 12**. These are as follows:

US 50

1. Westbound from Bass Lake Road to Silva Valley Parkway (AM Peak)
2. Eastbound from Bass Lake Road to Cambridge Road (PM Peak)

**Local Roadways**

1. Cameron Park Drive: South of Hacienda Drive
2. Green Valley Road: West of Sophia Parkway
3. Gree Valley Road: East of Francisco Drive

The need for auxiliary lanes is also tied to the deficient interchanges. Assuming the parallel capacity projects are in-place, **Table 13** provides the priority list for the improvement projects by 5-year time increment.

**Table 13. Improvement Projects Priority List**

Improvements	2015	2020	2025	2030	2035
<u>Freeway Mainline Auxiliary Lane</u>					
A-1 Eastbound County Line to El Dorado Hills Blvd					Y
A-2 Eastbound Bass Lake Rd to Cambridge Rd					Y
A-3 Eastbound Cambridge Rd to Cameron Park Dr					Y
A-4 Eastbound Cameron Park Dr to Ponderosa Rd					Y
A-5 Westbound Ponderosa Rd to Cameron Park Dr					Y
A-6 Westbound Cambridge Rd to Bass Lake Rd					Y
A-7 Westbound Bass Lake Rd to Silva Valley Pkwy			Y		
A-5 Westbound El Dorado Hills Blvd to County Line					Y
<u>Interchange Improvements</u>					
I-1 El Dorado Hills Blvd <sup>1</sup>				Y	
I-2 Silva Valley Pkwy Phase 2					Y
I-3 Bass Lake Rd			Y		
I-4 Cambridge Rd					Y
I-5 Cameron Park Dr <sup>2</sup>					Y
I-6 Ponderosa Rd					Y
I-7 El Dorado Rd					Y
<u>Roadway Improvements</u>					
R-1 Cameron Park Dr: North of Palmer to Hacienda Rd	Y				
R-2 Green Valley Rd: County Line to Sophia Pkwy	Y				
R-3 Green Valley Rd: East of Francisco Dr to East of Silva Valley Pkwy					Y



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Improvements	2015	2020	2025	2030	2035
R-4 White Rock Rd: Post St to South of Silva Valley Pkwy <sup>3</sup>					Y
R-5 Missouri Flat Rd: China Garden Rd to SR 49 <sup>3</sup>					Y
R-6 Saratoga Way: Connect to Iron Point Rd			Y		
R-7 Country Club Dr: El Dorado Hills Blvd to Silva Valley Pkwy					Y
R-8 Country Club Dr: Silva Valley Pkwy to Tong Rd			Y		
R-9 Country Club Dr: Tong Rd to Bass Lake Rd/Old Bass Lake Rd			Y		
R-10 Country Club Dr: Bass Lake Rd/Old Bass Lake Rd to Tierra de Dios Dr <sup>4</sup>			Y		
R-11 Diamond Springs Pkwy: Missouri Flat Rd to SR-49					Y
R-12 Latrobe Connection: County Line to Golden Foothill Pkwy			Y		
R-13 Headington Rd: El Dorado Rd to Missouri Flat Rd					Y

1. Timeframe based on El Dorado Hills Boulevard Interchange and US-50 HOV Lane Traffic Study (May, 2009)
2. Timeframe based on lack of consensus for a preferred Interchange configuration. Funding to develop an update to the 2008 PSR is applicable to the 2015-2020 timeframe with impending authorization by the County.
3. Inclusion and timeframe based on the forecasts being within 3% of the capacity volume threshold by 2035.
4. Timeframe based on need to procure ROW.

## AB1600 NEXUS: TRIP ALLOCATION

To compute the percentage of trip ends applicable to the County's TIM Fee, new daily trip ends that either originate or end within the unincorporated of the County must be accounted for. To determine this as "cleanly" as possible, the exterior boundaries of the County's eight TIM Fee Zone boundaries were first modified ("smoothed") to conform to the applicable El Dorado County travel demand model TAZ boundaries (**Figure 3**).

For each deficient roadway segment to be improved, the model identified total growth in daily trips from 2015-2035 and total growth in daily trips from unincorporated areas for the same time period. The CUBE software select link script automatically computes total new unincorporated trips by TIM Fee Zone through application of a TAZ correspondence table. The link volume delta (or difference) between these model runs represents "new" trips generated by future growth. Of the unincorporated share of growth in daily trips, the traffic model was used to determine the percentage of external, incorporated, or unincorporated travel of daily trips originating or destined to a given TIM Fee Zone.

To differentiate daily trips on deficient roadways as being regional or local, a model select link analysis was performed to determine the share of new daily trips from each of the eight TIM Fee Zones that traverse a given deficient roadway. The determination of interregional trips was based on excluding one-half of daily trips whose origin or destination are from incorporated areas or areas outside El Dorado County (I-X or X-I trips) and excluding all trips which do not have an origin or destination within the county (X-X). Conversely, all daily trips (100%) that have both origin and destination within the unincorporated area (I-I) of the County and half trips (50%) with either an origin or a destination in the unincorporated County were accounted for. This establishes a reasonable relationship between the TIM fees collected and the impacts expected from development occurring specifically within the unincorporated areas of El Dorado County.

For interchanges, model select link results were summed for each ramp (on- and off-ramps) and the interchange service street over- or under-crossing. For auxiliary lanes, fair share percentages were based on both the eastbound and westbound couplet combined.

The resulting percentages for each TIM Fee roadway improvement, which reflect the fair share of the improvement costs to new development by TIM Fee Zone, is shown in **Table 14**. This link-based fair share approach supports the TIM Fee nexus requirements. These percentages are graphically presented in **Attachment F** for each TIM Fee roadway improvement. The City of Placerville is excluded from this analysis given that the City of Placerville's share of costs is excluded from the fee calculation.

For the seven TIM Fee CIP projects with outstanding reimbursement agreement commitments carried over from the existing program, the original 2004 El Dorado County Travel Demand Model trip allocation results were carried forward, except Silva Valley Pkwy Interchange and Latrobe Connection use updated 2015 model data.

Figure 3. TIM Fee Geography: Eight Zone "Smoothed"

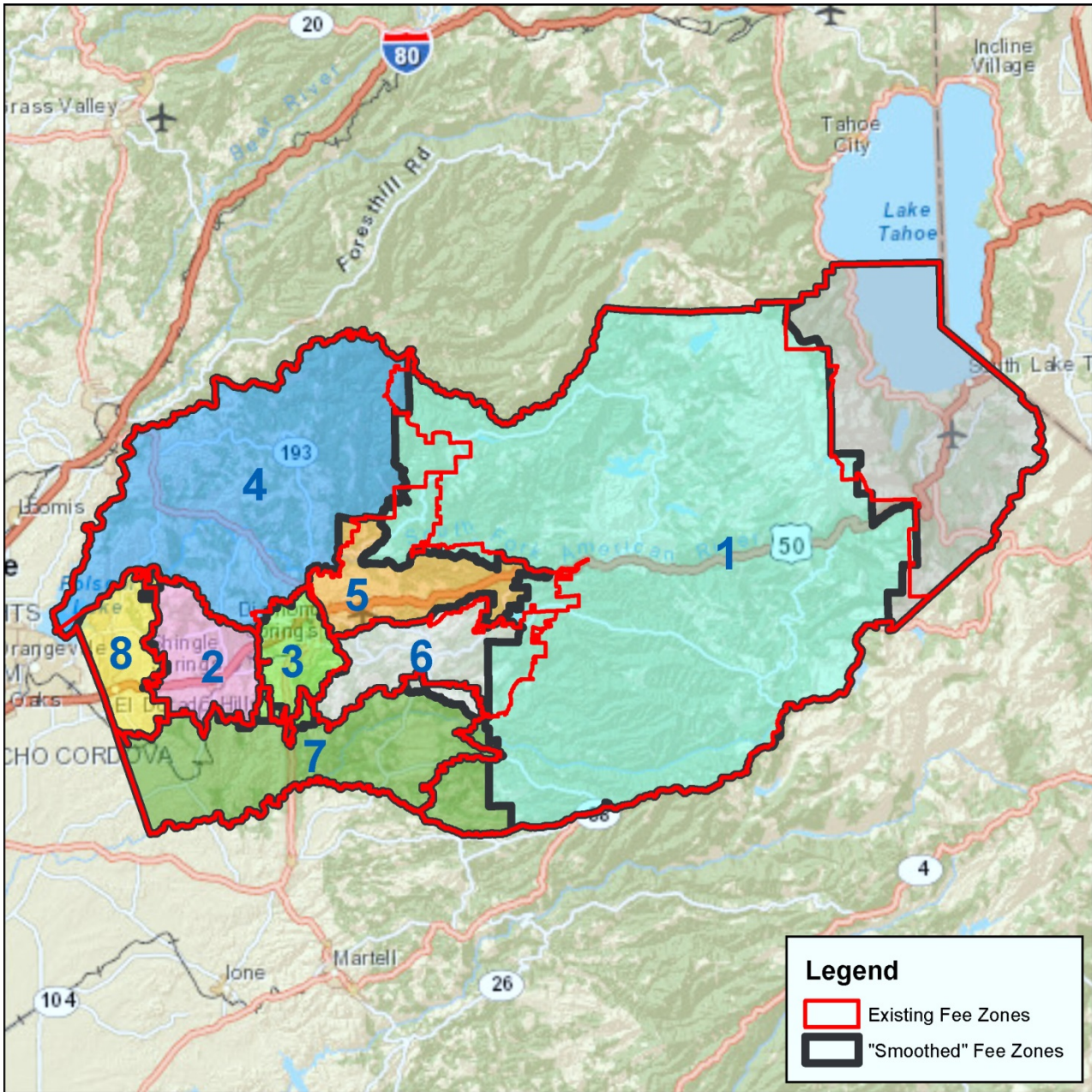


Table 14. TIM Fee CIP Fair Share Analysis Results

TIM Fee Capital Improvement Project				County Allocation		Smoothed 8 Zone Geography Scenario Allocation							
TIM Fee Map ID	CIP Segment	From	To	Local	External	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Zone 7	Zone 8
	<b>US 50 Auxiliary Lanes</b>												
A-1	EB US 50 Auxiliary Lane	County Line	El Dorado Hills Boulevard Interchange	50.00%	50.00%	0.08%	35.28%	7.82%	0.00%	0.43%	0.50%	0.00%	55.89%
A-2	EB US 50 Auxiliary Lane	Bass Lake Road Interchange	Cambridge Road Interchnage	74.87%	25.13%	0.16%	68.55%	13.60%	1.60%	1.17%	0.97%	0.04%	13.91%
A-3	EB US 50 Auxiliary Lane	Cambridge Road Interchnage	Cameron Park Drive Interchange	65.89%	34.11%	0.72%	37.40%	30.67%	4.69%	3.96%	3.00%	0.41%	19.16%
A-4	EB US 50 Auxiliary Lane	Cameron Park Drive Interchange	Ponderosa Road Interchange	67.89%	32.11%	0.64%	45.83%	27.44%	4.20%	3.54%	2.69%	0.35%	15.31%
A-5	WB US 50 Auxiliary Lane	Ponderosa Road Interchange	Cambridge Road Interchnage	67.89%	32.11%	0.64%	45.83%	27.44%	4.20%	3.54%	2.69%	0.35%	15.31%
A-6	WB US 50 Auxiliary Lane	Cambridge Road Interchnage	Bass Lake Road Interchange	74.87%	25.13%	0.16%	68.55%	13.60%	1.60%	1.17%	0.97%	0.04%	13.91%
A-7	WB US 50 Auxiliary Lane	Bass Lake Road Interchange	Silva Valley Parkway Interchange	76.80%	23.20%	0.15%	54.57%	12.13%	1.38%	0.98%	0.86%	0.04%	29.89%
A-8	WB US 50 Auxiliary Lane	El Dorado Hills Boulevard Interchange	County Line	50.00%	50.00%	0.08%	35.28%	7.82%	0.00%	0.43%	0.50%	0.00%	55.89%
	<b>Interchange Projects</b>												
I-1	El Dorado Hills Boulevard Interchange			92.23%	7.77%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.54%	99.46%
I-2	Silva Valley Parkway Interchange			83.36%	16.64%	0.28%	25.30%	5.22%	1.85%	1.43%	0.78%	0.72%	64.42%
I-3	Bass Lake Road Interchange			84.34%	15.66%	0.03%	18.02%	3.05%	0.34%	0.46%	0.23%	0.32%	77.55%
I-4	Cambridge Road Interchange			77.94%	22.06%	0.06%	71.65%	1.62%	0.69%	0.42%	0.25%	0.40%	24.91%
I-5	Cameron Park Drive Interchange			87.37%	12.63%	0.23%	79.95%	3.54%	0.98%	0.92%	0.64%	0.36%	13.39%
I-6	Ponderosa Road Interchange			87.25%	12.75%	0.20%	74.12%	5.91%	5.35%	1.08%	0.41%	0.09%	12.83%
I-7	El Dorado Road Interchange			83.70%	16.30%	0.32%	9.95%	77.40%	2.59%	3.02%	0.92%	1.73%	4.07%
	<b>Roadway Improvements</b>												
R-1	Cameron Park Drive	Palmer Drive	Hacienda Road	93.43%	6.57%	0.08%	92.69%	0.89%	0.09%	0.40%	0.43%	0.31%	5.12%
R-2 <sup>1</sup>	Green Valley Road	County Line	Sophia Parkway	14.00%	n/a	0.05%	25.80%	0.43%	12.40%	0.07%	0.04%	0.22%	60.98%
R-3	Green Valley Road	Francisco Drive	Silva Valley Parkway	51.33%	48.67%	0.01%	48.70%	0.00%	23.67%	0.00%	0.00%	0.00%	27.62%
R-4	White Rock Road	Post Street	Silva Valley Parkway	95.36%	4.64%	0.71%	43.06%	10.25%	3.43%	3.23%	1.78%	1.63%	35.91%
R-5	Missouri Flat Road	China Garden Road	SR 49	100.00%	0.00%	0.09%	11.79%	73.84%	1.66%	0.80%	0.98%	0.12%	10.72%
R-6	Saratoga Way	Iron Point Road	El Dorado Hills Blvd	49.82%	50.18%	0.17%	3.15%	0.00%	2.34%	0.18%	0.18%	0.00%	93.99%
R-7	Country Club Drive	El Dorado Boulevard	Silva Valley Parkway	96.66%	3.34%	0.44%	35.51%	7.77%	2.46%	2.01%	1.11%	0.71%	50.00%
R-8	Country Club Drive	Silva Valley Pkwy	Tong Road	70.42%	29.58%	0.04%	0.73%	0.07%	0.58%	0.03%	0.01%	0.56%	97.98%
R-9	Country Club Drive	Tong Road	Bass Lake Road	84.37%	15.63%	0.24%	0.12%	0.00%	0.45%	0.00%	0.20%	0.49%	98.50%
R-10	Country Club Drive	Bass Lake Road	Tierre de Dios Drive	83.74%	16.26%	0.32%	44.63%	2.82%	0.46%	1.22%	0.72%	0.51%	49.32%
R-11	Diamond Springs Parkway	Missouri Flat Road	Route 49	82.29%	17.71%	0.82%	10.44%	68.06%	1.43%	2.24%	9.65%	1.77%	5.59%
R-12	Latrobe Connection	White Rock Road	Golden Foothill Parkway	42.67%	57.33%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.77%	97.23%
R-13	Headington Road	El Dorado Road	Missouri Flat Road	99.83%	0.17%	0.38%	1.01%	92.71%	0.00%	0.00%	4.59%	1.32%	0.00%

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TIM Fee Capital Improvement Project				County Allocation		Smoothed 8 Zone Geography Scenario Allocation							
TIM Fee Map ID	CIP Segment	From	To	Local	External	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Zone 7	Zone 8
	<b>Reimbursement Agreements</b>												
NA	Bass Lake Road			100.00%	0.00%	0.10%	28.87%	4.01%	0.73%	0.36%	0.11%	0.59%	65.23%
NA	Green Valley Road			100.00%	0.00%	0.01%	33.43%	0.28%	7.91%	0.02%	0.01%	0.01%	58.33%
NA	Latrobe Road			100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.77%	97.23%
NA	Madera Way			100.00%	0.00%	0.07%	35.15%	1.36%	3.45%	0.37%	0.07%	0.06%	59.47%
NA	Silva Valley Parkway			100.00%	0.00%	0.28%	25.30%	5.22%	1.85%	1.43%	0.78%	0.72%	64.42%
NA	Silver Springs Parkway			100.00%	0.00%	0.07%	35.15%	1.36%	3.45%	0.37%	0.07%	0.06%	59.47%
NA	Silver Springs Parkway			100.00%	0.00%	0.07%	35.15%	1.36%	3.45%	0.37%	0.07%	0.06%	59.47%

1 Existing Deficiency: Internal Fair Share based on % of trips from new growth relative to total trips  
 2015 El Dorado County Travel Demand Model used for auxiliary lanes, interchange projects, and roadway improvements. 2004 El Dorado County Travel Demand Model used for reimbursement agreements, except Silva Valley Pkwy IC and Latrobe Connector use updated 2015 model data.  
 Source: Kittelson & Associates, Inc.

## AB1600 NEXUS: OTHER PROGRAMS

The TIM Fee program also includes several line item project categories<sup>7</sup>. These include:

- Bridge Replacements
- Intersection Improvements
- Transit Capital Improvements
- Program Administration.

The AB1600 nexus assessment for each of these programs is provided below.

### **Bridges Replacement**

There are nine bridge replacement projects included as part of the TIM Fee CIP. The need for these improvements is attributable to traffic generated by both existing and future development. As such, only the fraction of new development's share of trip growth from 2015 to 2035 (expressed in equivalent dwelling units or EDU) is applicable for use of TIM fees. Total EDU growth for El Dorado County is 20% (Table 5, Draft Nexus & Funding Model, March, 2016). Given that the 11.47% local match requirement for federal Highway Bridge Replacement (HBR) grants is less than maximum allowable share of TIM Fees (20%), use of TIM fees to satisfy the local match requirement for these nine bridge replacement improvement projects meets the nexus requirement.

The bridge improvements, total costs, and the TIM Fee share of the costs are provided in **Table 15**.

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<sup>7</sup> Seven TIM Fee CIP projects have been completed in TIM Fee Zone 8 with outstanding reimbursement agreement commitments to be carried forward as part of this update. These reimbursements total \$26.5 million.

**Table 15. Bridge Replacement TIM Fee Grant Matching Funds**

<b>River</b>	<b>Crossing</b>	<b>Cost</b>
Indian Creek	Green Valley Rd	\$ 4,015,769
Mound Springs Creek	Green Valley Rd	4,067,770
Weber Creek	Green Valley Rd	11,616,000
South Fork American River	Salmon Falls Rd	10,500,000
Clear Creek	Sly Park Rd	5,835,000
Weber Creek	Cedar Ravine Rd.	4,500,000
Carson Creek	White Rock Rd	4,500,000
North Fork Cosumnes River	Mt. Aukum Rd	4,500,000
North Fork Cosumnes River	Bucks Bar Rd	<u>8,542,357</u>
<b>Total</b>		<b>\$ 58,076,896</b>
<b>New Development Share<sup>1</sup></b>		<u><b>11.47%</b></u>
<b>TIM Fee Program Share</b>		<b>\$ 6,661,420</b>

1 Development share based on federal funding for 88.53% of total costs. The remaining share is 11.47%. This share is less than the TIM Fee Program share that could be allocated of 20% based on EDUs from new development in 2035 as percent of total EDUs in 2035

**Traffic Signals & Operational Improvements**

The El Dorado County Community Development Agency (CDA) has developed an intersection needs prioritization process as part of its annual update of the Capital Improvement Program (CIP). The intersection needs prioritization process is consistent with Goal TC-X and Measure Y which entails coordinating planning and implementation of roadway improvements with new development to maintain adequate levels of service on County roads. This program is integrated with the TIM Fee CIP process to provide a finer level of resolution for identifying TIM Fee eligible intersection improvement needs.

The El Dorado County Transportation Division created a universal “superset” list of non-signalized intersections that may need signalization in the future. This superset list of intersections is evaluated each year to group applicable intersections in the following two tier groups:

- Tier 1: Intersections that meet all three planning level traffic signal volume warrants or address a potential operational issue that can be mitigated by minor intersection improvements.
- Tier 2: Locations that meet one or two planning level volume warrants now and may meet all three in the future. Monitor for movement to Tier 1.

The Tier 1 category addresses existing deficiencies. The need for these improvements is attributable to traffic generated by both existing and future development. Conversely, the Tier 2 category addresses potential signalization needs resulting from future development. Tier 2 improvement costs



are eligible for a 100% TIM Fee cost allocation. At this time, there are three intersections identified in the County’s Tier 1 list and 19 intersections listed in the Tier 2 list (**Table 16**).

**Table 16. El Dorado County Intersection Needs Prioritization List**

Tier Ranking	Road 1	Road 2	Existing Control Type
1	Bass Lake Rd	Country Club Dr	Stop on WB Country Club Dr
1	Lotus Rd-Green Valley Rd	Green Valley Rd	Stop on WB Green Valley Rd
1	Missouri Flat Rd	China Garden Rd	Stop on WB China Garden Rd
2	Cambridge Rd	Knollwood Dr (S)	Stop on EB Knollwood Dr
2	EDH Bl	Francisco Dr	All-Way Stop
2	Missouri Flat Rd	Enterprise Dr	Stop on EB Enterprise Dr
2	Missouri Flat Rd	Headington Rd	Stop on WB Headington Rd
2	Pony Express Tr	Sly Park Rd	All-Way Stop
2	Silva Valley Pw	Golden Eagle Ln	All-Way Stop
2	Silva Valley Pw	Appian Way/Charter Way	All-Way Stop
2	SR49	SR193 (Cool)	All-Way Stop
2	SR49	Pleasant Valley Rd (El Dorado)	All-Way Stop
2	Green Valley Rd	Loch Wy	Stop on NB Loch Wy
2	Pleasant Valley Rd	Big Cut Rd	Stop on SB Big Cut Rd
2	Pleasant Valley Rd	Cedar Ravine Rd	Stop on SB Cedar Ravine Rd
2	Pleasant Valley Rd	Bucks Bar Rd	All-Way Stop
2	Salmon Falls Rd	Lakehills Dr	Stop on EB Lake Hills Rd
2	Pleasant Valley Rd	Newtown Rd	Stop on SB Newtown Rd
2	Pony Express Tr	Forebay Rd	Stop on SB Forebay Rd
2	Salmon Falls Rd	Malcom Dixon Rd	Stop on WB Malcom Dixon Rd
2	Salmon Falls Rd	Village Center Dr	Stop on EB Village Center Dr
2	Green Valley Road	Cameron Park Dr	Signal

The cost per intersection improvement includes installation of traffic signals and channelization requirements including left/right turn pockets and receiving lanes and Intelligent Transportation System (ITS) treatments as applicable. Based on historical cost data since 2001 shown in **Table 17**, the average cost for intersection improvements in El Dorado County is approximately \$1.8 million per intersection. The average cost includes the signal installation and any roadway widening needed for turn lanes at the intersection. The maximum allowable TIM Fee allocation for Tier 1 intersection improvements would therefore be \$360,000 (20% EDU growth of \$1.8 million) and \$1.8 million for Tier 2 intersection improvements (i.e., 100% TIM fee cost allocation).



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**Table 17. El Dorado County Historical Intersection Improvement Costs**

PROJECT NUMBER	PROJECT DESCRIPTION	EL DORADO COUNTY SUPERVISORIAL DISTRICT	TOTAL PROJECT COST
73312	Green Valley Road/Silva Valley Parkway Intersection Signalization	1	\$ 2,636,859.52
73349	Mormon Island Drive Realignment and Signalization	1	\$ 2,000,000.00
76107/ 76114	Silver Springs Parkway/Green Valley Road Intersection, Green Valley Road/Deer Valley Road Intersection	1	\$ 5,727,836.68
71350	U.S. 50 - Latrobe Road E/B Off Ramp	1	\$ 334,427.46
72366	Cameron Park Drive/La Canada Intersection Signalization	2&4	\$ 2,293,052.44
72365	Cameron Park Drive/Oxford Way Intersection Widening and Signalization	2&4	\$ 1,866,635.57
73321	Cameron Park Drive/Coach Lane Intersection Improvements	2	\$ 672,945.65
73345	Cambridge Road/Merrychase Drive Intersection Signalization	2	\$ 1,335,961.93
73127	Cameron Park Drive/Meder Road Intersection Signalization	2&4	\$ 1,166,537.51
73124	Cameron Park Drive/Mira Loma Drive Intersection Improvements	2&4	\$ 1,068,113.97
53108	U.S.50/Ponderosa Road Interchange Signalization	2&4	\$ 1,468,989.18
73320	Pleasant Valley Road (S.R. 49)/Patterson Drive Intersection Signalization	3	\$ 4,304,776.20
73354	Durock Road/Business Drive Intersection Signalization	3	\$ 2,560,402.21
73356	Missouri Flat Road/Golden Center Drive Intersection Signalization	3	\$ 389,902.90
73125	Missouri Flat Road/El Dorado Road Intersection Signalization	3&4	\$ 1,196,514.18
73346	S.R. 49/Fowler Drive Intersection	3	\$ 331,978.65
		Total	\$ 29,354,934.05
		Ave. cost	\$ 1,834,683.38

Applying the cost per intersection estimates to the Tier 1 and Tier 2 lists results in a total TIM Fee cost allocation for the County’s Intersection Needs Prioritization Process of \$35,280,000 (**Table 18**). Since 2001, the historical rate of construction for improvements identified through the County’s Intersection Needs Prioritization Program has been approximately one improvement per year.

**Table 18. TIM Fee Cost - Intersection Needs Prioritization Process**

Location Description	# of Intersections	TIM Fee Cost per Intersection	TIM Fee Cost
Tier 1 Intersections	3	\$360,000	\$1,080,000
Tier 2 Intersections	19	\$1,800,000	\$34,200,000
Total	22		\$35,280,000

**Transit Capital**

The TIM Fee program funds transit capital improvements needed to accommodate new development. From a nexus perspective, this can be supported in several ways. One is to allocate 100% of the transit capital costs associated with transit expansion projects (assumes these purchases are designed to accommodate future development) and new development’s share of trip growth from 2015 to 2035 expressed in equivalent dwelling units (equates to 20%) to transit capital improvement costs not directly associated with new development. Based on this approach, 1.38% of the total TIM Fee Capital Improvement Program costs would be allocated to transit capital improvements (**Table 19**, \$5,701,000 total transit capital cost share / \$412,848,093 total TIM Fee CIP cost). This percentage is supported by the most recent American Community Survey data for the unincorporated El Dorado County which indicates that the transit share of journey to work trips in unincorporated El Dorado County is 1.2% (see **Table 20**).

**Table 19. TIM Fee Transit Capital Projects**

	Amount	Unit Cost	Total Cost	New Development Share <sup>1</sup>	TIM Fee Program Share
County Line Transit Center <sup>2</sup>					
Land			\$ 3,500,000		
Construction			<u>5,400,000</u>		
Total			\$ 8,900,000	20%	\$ 1,780,000
Cameron Park Park-and Ride <sup>2</sup>			\$ 2,350,000	20%	470,000
Missouri Flat Transfer Point Expansion <sup>3</sup>			\$ 270,000	100%	270,000
Vehicles Required for Service Expansion <sup>3</sup>					
Dial-A-Ride Vans	10	\$ 42,000	\$ 420,000		
Local Route Buses	7	323,000	2,261,000		
Commuter Bus	1	500,000	<u>500,000</u>		
Total			\$ 3,181,000	100%	<u>3,181,000</u>
<b>Total</b>			<b>\$ 14,701,000</b>		<b>\$ 5,701,000</b>

<sup>1</sup> For capital projects that benefit existing and new development, TIM Fee Program share is based only on EDUs from new development in 2035 as a percent of total EDUs in 2035.

<sup>2</sup> Costs based on Park-and-Ride Master Plan (2007). Facilities serve existing and new development so share assigned to TIM Fee Program based on new EDUs as a percent of total EDUs in 2035.

<sup>3</sup> Costs based on Western El Dorado County Short- and Long-Range Transit Plan (2014). Transfer point and vehicle fleet are expansion projects to serve new development so costs allocated 100 percent to TIM Fee Program.

Sources: El Dorado County Transit Authority; Table 5.

**Table 20. El Dorado County Journey to Work Mode Share**

Alternative Mode	Unincorporated Areas El Dorado County % Mode Share
Drive Alone	77.7%
Carpool	9.5%
Public Transit	1.2%
Bicycle	0.3%
Walked	1.3%
Work at Home	8.1%
Other	1.3%

Source: 2013 American Community Survey

### Program Administration

Per AB1600, a portion of TIM Fee program funds must be set aside to pay for on-going administration of the program and for periodic updates. For similar programs in California this percentage typically ranges between two and five percent of total program costs. In El Dorado County, approximately 2-

3% of total TIM Fee costs are set aside for program administration. This equates to \$11 million over the 20-year horizon of the program.

## DISCOUNTED FAIR SHARE

Per California Code–Section 66005.1 (effective January 1, 2011), housing development projects that satisfy all of the following “Smart Growth” characteristics shall be provided a discounted fee:

- The housing development is located within one-half mile of a transit station and there is direct access between the housing development and the transit station along a barrier-free walkable pathway not exceeding one-half mile in length.
- Convenience retail uses, including a store that sells food, are located within one-half mile of the housing development.
- The housing development provides either the minimum number of parking spaces required by the local ordinance, or no more than one onsite parking space for zero- to two-bedroom units, and two onsite parking spaces for three or more bedroom units, whichever is less.

A discounted fee amount of 15% has been established based on Smart Growth Trip Generation Study (SANDAG, June 2010). This study compared the vehicle trip generation characteristics of seven development projects in the San Diego region with similar “smart growth” characteristics identified above. The average reduction in trip generation was shown to be approximately 15% relative to the Institute of Transportation Engineers (ITE) based trip generation factors for housing developments without these characteristics.

As used in this section, "housing development" means a development project with common ownership and financing consisting of residential use or mixed use where not less than 50 percent of the floor space is for residential use. For the purposes of this section, "transit station" has the meaning set forth in paragraph (4) of subdivision (b) of Section 65460.1. "Transit station" includes planned transit stations otherwise meeting this definition whose construction is programmed to be completed prior to the scheduled completion and occupancy of the housing development. Transit headway criteria of 10 minutes or less at a transit hub served by three or more transit service lines is defined as cumulative headway versus individual service line headways.

The applicant/developer will be responsible for conducting the initial analysis of the relationship of the new project to the criteria in order to consider eligibility for the discount. El Dorado County will need to verify accuracy for final determination of project’s eligibility for the discount on a case by case basis.

**ATTACHMENT A**

**ROADWAY SEGMENT VOLUME FORECASTS**

(state highway segments presented by post-mile)  
(local roadway segments presented in alphabetical order)

**Exhibit D  
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Volume Forecasts for State Facilities

Route	Postmile	Segment Length	Description	2013 Caltrans Volumes Published AADT x K x D				Type	Model Volumes - AM (Interim Step – Not Used for LOS Operations)				Model Volume - PM (Interim Step – Not Used for LOS Operations)				Final Adjusted Forecast Volume (Final Volumes Used for LOS Operations)			
				AM EB/NB PHV	AM WB/SB PHV	PM EB/NB PHV	PM WB/SB PHV		EB/NB 2015	EB/NB 2035 Amended GP	WB/SB 2015	WB/SB 2035 Amended GP	EB/NB 2015	EB/NB 2035 Amended GP	WB/SB 2015	WB/SB 2035 Amended GP	EB/NB 2035 Amended GP AM	WB/SB 2035 Amended GP AM	EB/NB 2035 Amended GP PM	WB/SB 2035 Amended GP PM
				50	0	0.857	SACRAMENTO/EL DORADO COUNTY LINE		2470	3790	4749	1879	Freeway	3003	4800	5525	7040	5805	7449	3800
50	0.857	2.375	LATROBE ROAD	1234	3696	3400	2350	Freeway	1757	3062	3864	5705	3686	5425	2109	3589	2,350	5,500	5,080	3,920
50	3.232	1.73	BASS LAKE ROAD	1379	3102	3331	2095	Freeway	1934	2978	4098	4876	3736	4897	2391	3697	2,280	3,790	4,430	3,330
50	4.962	1.608	CAMBRIDGE ROAD	1700	2610	3010	2080	Freeway	1981	2980	3499	4018	3346	4213	2244	3410	2,630	3,070	3,840	3,210
50	6.57	1.994	CAMERON PARK DRIVE	1730	2650	3060	2110	Freeway	1710	2261	3077	3479	2815	3360	1893	2576	2,290	3,030	3,630	2,840
50	8.564	1.731	PONDEROSA ROAD	1340	2060	2305	1891	Freeway	1531	2013	2468	3011	2347	2934	1694	2316	1,800	2,560	2,890	2,550
50	10.295	1.895	SHINGLE SPRINGS	1330	2040	2360	1630	Freeway	1531	2013	2468	3011	2347	2934	1694	2316	1,790	2,540	2,950	2,240
50	12.19	1.821	GREENSTONE ROAD	1100	1770	1910	1680	Freeway	1643	2088	2513	2896	2438	2918	1817	2311	1,480	2,100	2,340	2,160
50	14.011	1.044	EL DORADO ROAD	1070	1740	1870	1640	Freeway	1648	2066	2404	2729	2337	2717	1749	2181	1,420	2,020	2,220	2,060
50	15.055	0.774	MISSOURI FLAT ROAD	1220	1980	2130	1870	Freeway	1323	1660	1968	2259	1885	2212	1466	1848	1,550	2,280	2,480	2,310
50	15.829	1.161	PLACERVILLE, FAIRGROUNDS	920	1490	1610	1410	Freeway	1266	1539	2155	2235	2035	2297	1470	1756	1,160	1,560	1,850	1,700
50	16.99	0.43	WEST PLACERVILLE	1140	1850	1990	1750	Freeway	1266	1539	2155	2235	2035	2297	1470	1756	1,400	1,930	2,250	2,070
50	17.42	0.1	EB OFF TO MAIN STREET	1200	1940	2090	1840	Multi-lane	1356	1726	2249	2593	2149	2678	1639	2114	1,550	2,270	2,620	2,350
50	17.52	0.147	PLACERVILLE, CANAL STREET	1010	2050	2130	1570	Multi-lane	1356	1726	2192	2403	2149	2678	1799	2028	1,340	2,260	2,660	1,790
50	17.667	0.121	PLACERVILLE, JCT. RTE. 49	900	1820	1890	1390	Multi-lane	1395	1668	2011	2252	2060	2313	1529	1822	1,130	2,050	2,140	1,680
50	17.788	0.244	PLACERVILLE, COLOMA STREET	910	1850	1920	1410	Multi-lane	1395	1668	2011	2252	2060	2313	1529	1822	1,140	2,090	2,170	1,700
50	18.032	0.485	PLACERVILLE, BEDFORD AVENUE	760	1530	1590	1170	Multi-lane	1395	1668	2065	2314	2060	2313	1593	1896	980	1,750	1,820	1,440
50	18.517	0.473	PLACERVILLE, MOSQUITO ROAD OH (BROADWAY)	680	1370	1420	1040	Freeway	838	1018	1865	2064	1597	1868	1204	1430	850	1,550	1,680	1,260
50	18.99	1.306	PLACERVILLE, SCHNELL SCHOOL ROAD	540	1090	1140	840	Freeway	838	1018	1855	2054	1556	1752	1037	1232	690	1,250	1,310	1,020
50	20.296	0.445	PLACERVILLE, POINT VIEW DRIVE	460	930	970	710	Freeway	816	958	1583	1715	1441	1580	923	1065	580	1,040	1,090	840
50	20.741	3.216	NEW TOWN ROAD	460	940	980	720	Multi-lane	838	989	1622	1765	1472	1626	960	1114	580	1,060	1,110	860
50	23.957	1.992	JUNCTION OLD HIGHWAY, CAMINO, WEST	260	840	940	620	Multi-lane	838	989	1622	1765	1472	1626	960	1114	360	950	1,070	750
50	25.949	2.893	EAST CAMINO ROAD	270	870	980	640	Freeway	838	989	1622	1765	1472	1626	960	1114	370	990	1,110	770
50	28.842	2.457	SAWMILL (POLLOCK PINES)	380	670	790	460	Freeway	838	989	1622	1765	1472	1626	960	1114	490	780	910	580
50	31.299	2.92	SLY PARK ROAD	230	410	480	280	Two-lane	838	989	1622	1765	1472	1626	960	1114	330	500	590	380
50	34.219	5.553	OLD CARSON ROAD	310	540	650	380	Multi-lane	633	741	1168	1279	1038	1148	688	794	390	630	740	470
50	39.772	6.82	ICEHOUSE ROAD	320	560	670	390	Two-lane	438	515	466	538	430	499	411	484	390	640	760	470
50	46.592		W O ALDER RIDGE ROAD																	

**Exhibit D  
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CIP & TIM Fee Update: Western Slope  
September 9, 2016

Project #: 17666.0

Route	Postmile	Segment Length	Description	2013 Caltrans Volumes Published AADT x K x D				Type	Model Volumes - AM (Interim Step – Not Used for LOS Operations)				Model Volume - PM (Interim Step – Not Used for LOS Operations)				Final Adjusted Forecast Volume (Final Volumes Used for LOS Operations)			
				AM EB/NB PHV	AM WB/SB PHV	PM EB/NB PHV	PM WB/SB PHV		EB/NB 2015	EB/NB 2035 Amended GP	WB/SB 2015	WB/SB 2035 Amended GP	EB/NB 2015	EB/NB 2035 Amended GP	WB/SB 2015	WB/SB 2035 Amended GP	EB/NB 2035 Amended GP AM	WB/SB 2035 Amended GP AM	EB/NB 2035 Amended GP PM	WB/SB 2035 Amended GP PM
50	48.952	2.36	SILVER FORK ROAD	320	560	650	380	Two-lane	430	502	454	529	417	487	401	469	390	650	740	450
50	53.732	4.78	WRIGHTS LAKE ROAD	320	560	650	380	Two-lane	429	501	455	534	418	490	399	467	390	650	750	450
50	57.892	4.16	STRAWBERRY LN	320	560	650	380	Two-lane	425	495	451	529	412	483	394	460	390	650	750	450
50	60.192	2.3	SLIPPERY FORD ROAD	320	560	650	380	Two-lane	425	495	451	529	412	483	394	460	390	650	750	450
50	63.522	3.33	SIERRA-AT-TAHOE ROAD	320	560	650	380	Two-lane	425	495	451	529	412	483	394	460	390	650	750	450
50	65.619	1.83	ECHO LAKE ROAD	320	560	650	380	Two-lane	425	495	451	529	412	483	394	460	390	650	750	450
49	0		AMADOR/EL DORADO COUNTY LINE						425	495	451	529	412	483	394	460				
49	1.65	1.65	NASHVILLE, SOUTH	144	40	53	156	Two-lane	172	192	81	80	120	139	191	236	170	40	70	200
49	8.352	6.702	CHINA HILL ROAD	249	68	92	270	Two-lane	172	192	81	80	120	139	191	236	280	70	110	330
49	9.494	1.142	EL DORADO, UNION MINE ROAD	471	129	175	511	Two-lane	172	192	81	80	120	139	191	236	510	130	200	600
49	9.641	0.147	EL DORADO, PLEASANT VALLEY ROAD	628	172	233	681	Two-lane	219	272	94	99	138	167	230	299	730	180	280	820
49	11.239	1.598	MISSOURI FLAT ROAD	883	243	327	958	Two-lane	439	519	191	243	271	355	445	553	1,010	310	420	1,130
49	11.859	0.62	DIAMOND SPRINGS, PLEASANT VALLEY ROAD	982	269	364	1064	Two-lane	701	824	847	904	818	918	793	844	1,130	310	440	1,130
49	14.463	2.604	PLACERVILLE, FISKE ROAD	406	111	150	440	Two-lane	692	818	1073	1148	1076	1190	786	953	510	160	220	580
49	14.597	0.134	PLACERVILLE, PACIFIC/ MAIN STREETS	916	252	339	993	Two-lane	530	612	467	583	550	689	580	675	1,030	350	460	1,130
49	14.891	0.294	PLACERVILLE, JCT. RTE. 50	353	97	131	383	Two-lane	670	790	677	817	811	936	775	895	450	180	210	480
49	15.685	0.794	JCT. RTE. 193 NORTH	445	122	165	483	Two-lane	477	455	589	554	756	784	369	488	450	130	190	630
49	16.44	0.755	DIANA STREET	308	84	114	334	Two-lane	258	341	488	506	501	525	326	376	400	100	130	390
49	19.42	2.98	GOLD HILL ROAD	229	63	85	248	Two-lane	188	226	321	336	332	350	229	270	280	80	100	290
49	22.865	3.445	COLOMA, JCT. RTE. 153 WEST	147	40	55	160	Two-lane	145	182	277	287	287	304	181	220	190	50	70	200
49	24.48	1.615	MARSHALL GRADE ROAD (TO GEORGETOWN)	353	97	131	383	Two-lane	181	231	354	383	366	409	238	293	430	120	170	460
49	28.19	3.71	HASTINGS CREEK BRIDGE	229	63	85	248	Two-lane	187	278	252	316	290	380	233	340	330	110	150	360
49	34.466	6.276	COOL, JCT. RTE. 193 EAST	229	63	85	248	Two-lane	111	143	209	246	227	279	145	188	280	90	130	310
49	38.233	3.767	EL DORADO/PLACER COUNTY LINE	563	154	208	610	Two-lane	417	536	351	450	379	495	401	529	710	230	300	780
153	0	0	JCT. RTE. 49						333	436	324	409	359	456	356	460	0	0	0	0
153	0.12	0.12	COLD SPRINGS ROAD	140	52	91	149	Two-lane	219	272	94	99	138	167	230	299	190	60	120	210
153	0.55	0.55	MARSHALL'S MONUMENT	5	4	5	6	Two-lane									10	10	10	10
193	0		COOL, JCT. RTE. 49																	
		0.856		120	329	324	161	Two-lane	155	189	420	483	357	413	192	232	160	390	380	200

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CIP & TIM Fee Update: Western Slope  
September 9, 2016

Project #: 17666.0

Route	Postmile	Segment Length	Description	2013 Caltrans Volumes Published AADT x K x D				Type	Model Volumes - AM (Interim Step – Not Used for LOS Operations)				Model Volume - PM (Interim Step – Not Used for LOS Operations)				Final Adjusted Forecast Volume (Final Volumes Used for LOS Operations)			
				AM EB/NB PHV	AM WB/SB PHV	PM EB/NB PHV	PM WB/SB PHV		EB/NB 2015	EB/NB 2035 Amended GP	WB/SB 2015	WB/SB 2035 Amended GP	EB/NB 2015	EB/NB 2035 Amended GP	WB/SB 2015	WB/SB 2035 Amended GP	EB/NB 2035 Amended GP AM	WB/SB 2035 Amended GP AM	EB/NB 2035 Amended GP PM	WB/SB 2035 Amended GP PM
				193	0.856	1.313	AMERICAN RIVER ROAD		144	397	391	194	Two-lane	148	179	385	439	333	386	184
193	2.169	10.021	AUBURN LAKE TRAIL ROAD	111	306	302	150	Two-lane	148	179	385	439	333	386	184	222	140	360	360	190
193	12.19	0.509	EVERGREEN COURT ROAD	109	300	296	147	Two-lane	101	131	80	103	94	124	108	144	150	360	360	190
193	12.699	3.406	GEORGETOWN, LOWER MAIN STREET	215	59	76	221	Two-lane	65	89	74	101	76	111	66	99	270	90	120	300
193	16.105	3.295	BLACK OAK MINE ROAD	133	37	47	137	Two-lane	43	45	55	65	51	63	45	50	140	50	60	150
193	19.4	7.55	GARDEN VALLEY ROAD	182	50	64	187	Two-lane	146	146	58	64	75	79	140	141	190	60	70	190
193	26.95		JCT. RTE. 49																	

Volume Forecasts for County Roadways

NAME	LOCATION	Count Two-Way Volume		Model Two-Way Volume (Interim Step – Not Used for LOS Operations)				Final Adjusted Two-Way Forecast Volume (Final Volumes – Used for LOS Operations)	
		2014 AM	2014 PM	2015 AM	2015 PM	2035 Amended GP AM	2035 Amended GP PM	2035 Amended GP AM	2035 Amended GP PM
		Bass Lake Rd	North of Country Club Dr	1028	966	923	1012	1303	1411
Bass Lake Rd	South of Green Valley Rd	539	448	719	732	1060	1062	840	720
Bassi Rd	West of Lotus Rd	83	107	41	51	60	78	120	150
Bedford Ave	At City Limit	35	46	47	52	51	56	40	50
Broadway	At City Limit	256	309	536	562	654	695	350	420
Bucks Bar Rd	South Pleasant Valley Rd	411	412	453	463	507	524	470	470
Bucks Bar Rd	North of Mt Aukum Rd	294	307	400	419	458	482	350	370
Cambridge Rd	North of Country Club Dr	571	632	791	828	1051	1220	800	980
Cambridge Rd	South of Country Club Dr	584	709	990	1031	1231	1276	780	920
Cambridge Rd	At US 50 Overcrossing	641	810	321	669	655	956	1,150	1,130
Cambridge Rd	South of Green Valley Rd	379	394	524	562	837	887	650	680
Cambridge Rd	North of Oxford Rd	339	366	543	610	666	770	440	500
Cameron Park Dr	North of Coach Ln	1155	2022	1561	2130	2334	3201	1,830	3,070
Cameron Park Dr	South of Hacienda Dr	1236	1619	1356	1555	1623	1785	1,500	1,860
Cameron Park Dr	South of Green Valley Rd	685	781	836	907	1028	1104	860	970
Cameron Park Dr	North of Mira Loma Dr	929	1180	884	984	1126	1253	1,180	1,480
Cameron Park Dr	South of Robin Ln	533	901	607	822	1003	1267	910	1,370
Cameron Park Dr	North of Robin Ln	456	773	950	1343	1572	2162	920	1,420
Carson Rd	East of Barkley Rd	189	269	364	411	397	446	220	300
Carson Rd	At Carson Ct	82	149	25	43	26	43	90	150
Carson Rd	West of Gatlin Rd	57	137	43	53	47	57	70	150
Carson Rd	East of Ponderosa Way	139	208	166	181	184	196	160	230
China Garden Rd	East of Missouri Flat Rd	220	320	36	47	92	114	420	580
China Garden Rd	North of SR 49	82	71	400	486	614	825	130	130
Cold Springs Rd	South of Gold Hill Rd	188	289	184	221	215	251	220	330
Cold Springs Rd	South of SR 153	120	187	182	193	221	236	160	230
Country Club Dr	East of Bass Lake Rd	456	320	555	521	981	823	850	570
Country Club Dr	West of Knollwood Dr	515	277	258	297	487	495	860	470
Country Club Dr	East of Cambridge Rd	222	266	335	403	894	888	600	590
Country Club Dr	East of Merrychase Dr	381	197	494	430	660	581	530	310



**Exhibit D  
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NAME	LOCATION	Count Two-Way Volume		Model Two-Way Volume (Interim Step – Not Used for LOS Operations)				Final Adjusted Two-Way Forecast Volume (Final Volumes – Used for LOS Operations)	
		2014 AM	2014 PM	2015 AM	2015 PM	2035 Amended GP AM	2035 Amended GP PM	2035 Amended GP AM	2035 Amended GP PM
Country Club Dr	West of Cameron Park Dr	254	375	287	374	638	785	570	790
Durock Rd	West of S. Shingle Rd	365	568	637	772	989	1109	650	870
El Dorado Hills Blvd	South of Wilson Blvd	1951	1895	1651	1999	1686	1946	1,990	1,900
El Dorado Hills Blvd	North of Wilson Blvd	2018	1858	1516	1766	1437	1538	2,020	1,860
El Dorado Hills Blvd	North of Saratoga Way	2353	2458	3284	4070	3691	4268	2,710	2,620
El Dorado Hills Blvd	South of Green Valley Rd	448	367	446	510	424	430	450	370
El Dorado Hills Blvd	North of Harvard Way	1627	1497	1453	1583	1571	1668	1,760	1,580
El Dorado Rd	South of US 50	381	388	398	490	615	789	600	660
El Dorado Rd	North of Pleasant Valley Rd	197	185	109	144	313	391	410	440
El Dorado Rd	South of Missouri Flat Rd	160	185	181	297	339	543	310	390
Enterprise Dr	East of Forni Rd	227	309	43	50	63	100	290	490
Fairplay Rd	South of Mt Aukum Rd	144	162	208	212	226	239	170	190
Forni Rd	North of SR 49	322	280	37	56	64	120	460	480
Forni Rd	West of Arroyo Vista Way	85	141	93	125	107	144	100	170
Francisco Dr	South of Green Valley Rd	1050	1162	84	80	90	92	1,100	1,260
Gold Hill Rd	East of Lotus Road	231	142	143	166	183	204	290	180
Gold Hill Rd	East of Cold Springs Rd	64	45	65	63	79	74	80	60
Gold Hill Rd	West of Cold Springs Rd	243	144	142	165	173	193	290	180
Green Valley Rd	West of Sophia Pkwy	1881	2066	1725	1724	2702	2932	2,910	3,400
Green Valley Rd	West of Weber Creek	277	376	120	143	172	213	370	510
Green Valley Rd	West of Silva Valley Rd	951	1119	1414	1421	1664	1713	1,160	1,380
Green Valley Rd	East of Mormon Island Dr	1998	2480	2104	1840	2694	2737	2,580	3,540
Green Valley Rd	West of Mormon Island Dr	2005	2481	2104	1840	2694	2737	2,590	3,540
Green Valley Rd	East of Sophia Pkwy	2020	2475	2129	1875	2745	2822	2,630	3,580
Green Valley Rd	East of Francisco Dr	1208	1071	1280	1193	1668	1620	1,735	1,715
Green Valley Rd	West of Bass Lake Rd	1289	945	969	947	1159	1138	1,520	1,140
Green Valley Rd	East of Bass Lake Rd	1138	996	1382	1400	1738	1779	1,470	1,330
Green Valley Rd	East of La Crescenta Dr	673	596	319	325	580	609	1,090	1,000
Green Valley Rd	East of Deer Valley Rd	407	403	241	254	338	359	540	540
Green Valley Rd	West of Lotus Rd	607	709	740	729	908	915	770	900
Green Valley Rd	West of Greenstone Rd	368	379	277	300	324	382	430	480
Green Valley Rd	West of Missouri Flat Rd	868	740	341	356	386	424	950	850
Green Valley Rd	West of Campus Dr	392	424	341	356	386	424	440	500
Greenstone Rd	North of US 50	257	246	298	319	356	403	320	320
Greenstone Rd	North of Mother Lode Dr	93	112	61	65	96	108	140	180
Grizzly Flat Rd	East of Mt Aukum Rd	151	199	179	188	228	237	200	250
Harvard Way	East of El Dorado Hills Blvd	970	483	807	709	1057	961	1,250	700
Harvard Way	West of Silva Valley Pkwy	871	561	565	413	827	749	1,210	960
Ice House Rd	North of US 50	37	71	9	9	9	8	40	80
Latrobe Rd	North of County Line	241	329	228	294	458	507	480	560
Latrobe Rd	South of Investment Blvd	373	449	385	437	663	691	650	710
Latrobe Rd	North of Golden Foothill Pkwy	2123	2287	1988	2290	3584	3839	3,780	3,840
Latrobe Rd	North of Investment Blvd	802	971	329	372	548	575	1,180	1,340
Latrobe Rd	North of White Rock Rd	2557	2695	2553	2687	3368	3529	3,380	3,540
Lotus Rd	South of Thompson Hill Rd	346	441	462	449	591	609	460	600
Lotus Rd	North Green Valley Rd	565	703	760	756	942	956	730	900
Lotus Rd	South of SR 49	260	354	446	454	591	638	380	520
Luneman Rd	West of Lotus Rd	333	196	227	248	258	278	380	230
Marshall Rd	East of SR 49	315	315	271	264	330	328	380	390
Marshall Rd	East of Garden Valley Rd	432	408	349	352	423	431	520	500
Marshall Rd	South of Lower Main St	37	50	228	226	294	307	80	110
Meder Rd	East of Cameron Park Dr	528	568	442	423	729	821	850	1,040

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NAME	LOCATION	Count Two-Way Volume		Model Two-Way Volume (Interim Step – Not Used for LOS Operations)				Final Adjusted Two-Way Forecast Volume (Final Volumes – Used for LOS Operations)	
		2014 AM	2014 PM	2015 AM	2015 PM	2035 Amended GP AM	2035 Amended GP PM	2035 Amended GP AM	2035 Amended GP PM
Meder Rd	West of Ponderosa Rd	420	436	379	349	506	544	560	660
Missouri Flat Rd	West of El Dorado Rd	844	714	247	310	309	391	990	850
Missouri Flat Rd	East of El Dorado Rd	801	835	431	477	499	575	900	970
Missouri Flat Rd	South of China Garden Rd	1174	1640	1201	1347	1207	1251	1,180	1,640
Missouri Flat Rd	North of SR 49	1047	1307	1060	1175	1054	1072	1,050	1,310
Missouri Flat Rd	North of Forni Rd	1876	2686	1871	2196	2106	2509	2,120	3,040
Missouri Flat Rd	South of Forni Rd	1600	1986	1366	1603	1533	1785	1,790	2,200
Mormon Emigrant Trl	East of Sly Park Rd	38	63	161	165	214	221	80	110
Mosquito Rd	At City Limit	335	346	501	528	586	613	410	420
Mosquito Rd	South of American River Bridge	90	110	130	126	165	159	120	150
Mother Lode Dr	West of Sunset Ln	950	1068	1263	1345	1535	1583	1,190	1,290
Mother Lode Dr	West of Pleasant Valley Rd	642	757	762	808	1090	1179	950	1,120
Mother Lode Dr	East of Pleasant Vally Rd	229	347	170	226	235	295	310	440
Mt Aukum Rd	North of County Line	114	137	50	58	59	70	130	160
Mt Aukum Rd	South of Bucks Bar Rd	252	297	381	403	437	469	300	360
Mt Aukum Rd	South of Pleasant Valley Rd	190	318	290	325	356	405	250	400
Mt Murphy Rd	North of SR 49	26	25	306	334	339	376	50	50
Mt Murphy Rd	South of Marshall Rd	54	97	182	195	205	225	70	120
Newtown Rd	North of Pioneer Hill Rd	231	240	347	361	414	417	290	290
Newtown Rd	East of Broadway Rd	299	323	420	436	486	493	360	380
Newtown Rd	North of Pleasant Valley Rd	215	223	270	262	348	332	290	290
Old French Town Rd	South of Mother Lode Dr	83	104	150	159	224	242	150	180
Omo Ranch Rd	East of Mt Aukum Rd	63	56	54	60	60	67	70	70
Oxford Rd	East of Salida Way	262	335	527	602	901	1052	550	690
Palmer Dr	East of Cameron Park Dr	449	873	560	764	799	1065	670	1,200
Patterson Dr	South of Pleasant Valley Rd	293	407	377	412	524	580	430	580
Pleasant Valley Rd	East of Mother Lode Dr	561	603	592	582	855	885	820	920
Pleasant Valley Rd	East of Bucks Bar Rd	473	443	394	402	461	482	550	530
Pleasant Valley Rd	West of Oak Hill Rd	901	970	864	892	923	961	970	1,050
Pleasant Valley Rd	East of SR 49	1075	1203	1355	1455	1526	1679	1,230	1,410
Pleasant Valley Rd	East of Cedar Ravine Rd	861	860	824	844	943	981	990	1,000
Pleasant Valley Rd	East of Newtown Rd	429	442	406	409	492	511	520	550
Pony Express Trl	East of Carson Rd	203	262	244	256	275	293	240	300
Pony Express Trl	East of Gilmore Rd	237	414	453	494	532	587	300	500
Pony Express Trl	West of Forebay Rd	251	492	264	340	319	406	310	580
Salmon Falls Rd	At New York Creek Bridge	191	244	504	461	632	548	280	320
Salmon Falls Rd	South of Malcolm Dixon Rd	612	590	1030	1047	1205	1179	760	700
Salmon Falls Rd	South of Pedro Hill Rd	92	100	342	307	453	385	170	160
Salmon Falls Rd	South of Rattlesnake Bar Rd	31	38	342	307	453	385	50	90
Serrano Pkwy	West of Bass Lake Rd	491	466	727	633	1219	1073	910	850
Shingle Springs Dr	South of US 50	475	221	152	183	412	611	1,020	650
Silva Valley Pky	North of US 50	776	1052	715	648	2093	2130	2,160	2,540
Silva Valley Pky	South of Green Valley Rd	603	554	482	552	626	687	770	690
Silva Valley Pky	North of Havard Way	886	848	348	383	530	552	1,210	1,120
Silva Valley Pky	South of Serrano Pkwy	1185	975	627	547	1098	1108	1,870	1,760
Snows Rd	North of Newtown Rd	80	83	106	124	127	150	100	110
Snows Rd	South of Carson Rd	337	212	227	203	248	223	370	240
South Shingle Rd	East of Latrobe Rd	98	75	184	200	234	272	140	130
South Shingle Rd	North of Barnett Ranch	192	217	267	295	322	367	240	280
South Shingle Rd	South of Sunset Ln	434	555	382	423	524	659	590	830
Starbuck Rd	North of Green Valley Rd	113	149	110	128	158	177	170	210
Union Ridge Rd	West of Hassler Rd	32	42	26	31	29	35	40	50

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NAME	LOCATION	Count Two-Way Volume		Model Two-Way Volume (Interim Step – Not Used for LOS Operations)				Final Adjusted Two-Way Forecast Volume (Final Volumes – Used for LOS Operations)	
		2014 AM	2014 PM	2015 AM	2015 PM	2035 Amended GP AM	2035 Amended GP PM	2035 Amended GP AM	2035 Amended GP PM
Wentworth Springs Rd	West of Quintette Rd	29	50	38	36	51	49	50	70
White Rock Rd	At County Line	834	1026	1066	597	1875	1797	1,560	2,230
White Rock Rd	East of Latrobe Rd	1036	1444	1225	1220	1371	1406	1,180	1,650
White Rock Rd	West of Latrobe Rd	999	1121	1111	747	1634	1538	1,500	2,110
Latrobe Rd	North of Golden Foothill Pkwy South	1601	1819	1254	1392	1995	2103	2,450	2,640
Serrano Pkwy	East of Silva Valley Pkwy	1424	947	1314	1161	1906	1620	2,050	1,370
Bass Lake Rd	North of Serrano Pkwy	824	816	937	939	1223	1220	1,100	1,080
French Creek Rd	North of Old French Town Rd	178	214	269	271	343	281	250	230
Ponderosa Rd	North of Jackpine Rd	147	128	40	34	42	36	160	140
N Shingle Rd	South of Green Valley Rd	414	440	587	559	685	662	500	540
Mother Lode Dr	East of French Creek Rd	904	809	904	897	1090	1117	1,090	1,020
Rock Creek Rd	East of SR 193	19	18	1	1	1	1	30	30
White Rock Rd	West of Windfield Way	824	816	1246	830	1977	1926	1,440	1,900
El Dorado Hills Blvd	South of Francisco Dr	1324	1299	1160	1307	1234	1345	1,410	1,340
Sly Park Rd	East of Mt Aukum Rd	242	272	232	246	271	289	290	320
Sly Park Rd	East of Mormon Emigrant Trail	234	324	401	416	490	508	310	410
Sly Park Rd	South of Pony Express Trail	581	734	419	506	493	591	670	840

**ATTACHMENT B**

**EXISTING OPERATIONS RESULTS**

(state highway segments presented by post-mile)  
(local roadway segments presented in alphabetical order)

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**Table B-1. Existing LOS Results for US 50 Freeway Sections**

Route	Seg	EB Postmile	WB Postmile	Segment Length	East of Segment	West of Segment	LOS Threshold	Eastbound						Westbound					
								AM Peak			PM Peak			AM Peak			PM Peak		
								Avg. Speed (mph)	Density <sup>1</sup> (pcpmpl)	LOS <sup>2</sup>	Avg. Speed (mph)	Density <sup>1</sup> (pcpmpl)	LOS <sup>2</sup>	Avg. Speed (mph)	Density <sup>1</sup> (pcpmpl)	LOS <sup>2</sup>	Avg. Speed (mph)	Density <sup>1</sup> (pcpmpl)	LOS <sup>2</sup>
50	1	0	0.857	0.857	SACRAMENTO/EL DORADO COUNTY LINE	LATROBE ROAD	E	65.00	13.95	B	64.51	24.59	C	63.91	26.24	D	65.00	12.38	B
50	2	0.857	3.232	2.375	LATROBE ROAD	BASS LAKE ROAD	D	65.00	6.97	A	65.00	17.46	B	64.22	25.46	C	65.00	15.49	B
50	3	3.232	4.962	1.73	BASS LAKE ROAD	CAMBRIDGE ROAD	D	65.00	11.03	B	64.01	26.00	C	65.00	21.12	C	65.00	13.82	B
50	4	4.962	6.57	1.608	CAMBRIDGE ROAD	CAMERON PARK DRIVE	E	65.00	13.60	B	64.85	23.18	C	65.00	17.77	B	65.00	13.71	B
50	5	6.57	8.564	1.994	CAMERON PARK DRIVE	PONDEROSA ROAD	E	65.00	15.16	B	63.93	26.19	D	64.90	22.84	C	65.00	17.58	B
50	6	8.564	10.295	1.731	PONDEROSA ROAD	SHINGLE SPRINGS	D	65.00	11.74	B	65.00	19.40	C	65.00	17.73	B	65.00	15.76	B
50	7	10.295	12.19	1.895	SHINGLE SPRINGS	GREENSTONE ROAD	D	65.00	11.65	B	65.00	19.86	C	65.00	17.56	B	65.00	13.58	B
50	8	12.19	14.011	1.821	GREENSTONE ROAD	EL DORADO ROAD	D	65.00	9.64	A	65.00	16.08	B	65.00	15.23	B	65.00	14.00	B
50	9	14.011	15.055	1.044	EL DORADO ROAD	MISSOURI FLAT ROAD	E	65.00	9.03	A	65.00	15.72	B	65.00	15.59	B	65.00	14.27	B
50	10	15.055	15.829	0.774	MISSOURI FLAT ROAD	PLACERVILLE, FAIRGROUNDS	E	65.00	7.12	A	65.00	11.94	B	65.00	12.28	B	65.00	10.85	A
50	11	15.829	16.99	1.161	PLACERVILLE, FAIRGROUNDS	WEST PLACERVILLE	E	65.00	7.77	A	65.00	13.54	B	65.00	13.35	B	65.00	12.27	B
50	12	16.99	17.42	0.43	WEST PLACERVILLE	EB OFF TO MAIN STREET	E	65.00	9.62	A	65.00	16.73	B	65.00	16.58	B	65.00	15.23	B
50	18	18.517	18.99	0.473	PLACERVILLE, MOSQUITO ROAD	PLACERVILLE, SCHNELL SCHOOL ROAD	E	55.00	7.16	A	55.00	14.96	B	55.00	14.43	B	55.00	10.95	A
50	19	18.99	20.296	1.306	PLACERVILLE, SCHNELL SCHOOL ROAD	PLACERVILLE, POINT VIEW DRIVE	E	55.00	5.69	A	55.00	12.01	B	55.00	11.48	B	55.00	8.85	A
50	20	20.296	20.741	0.445	PLACERVILLE, POINT VIEW DRIVE	NEW TOWN ROAD	D	65.00	4.10	A	65.00	8.64	A	65.00	8.29	A	65.00	6.33	A
50	23	25.949	28.842	2.893	EAST CAMINO ROAD	SAWMILL (POLLOCK PINES)	E	65.00	2.42	A	65.00	8.80	A	65.00	7.81	A	65.00	5.75	A
50	24	28.842	31.299	2.457	SAWMILL (POLLOCK PINES)	SLY PARK ROAD	E	65.00	3.40	A	65.00	7.07	A	65.00	6.00	A	65.00	4.12	A

<sup>1</sup> Density expressed in pc/mi/ln, passenger cars per mile per lane  
<sup>2</sup> Level of service is based on density as described in Basic Freeway Segment, Chapter 11, HCM 2010

**Table B-2. Existing LOS Results for US 50 Multilane Highway Sections**

Route	Seg	EB Postmile	WB Postmile	Segment Length	East of Segment	West of Segment	LOS Threshold	Eastbound						Westbound					
								AM Peak			PM Peak			AM Peak			PM Peak		
								Avg. Speed (mph)	Density <sup>1</sup> (pcpmpl)	LOS <sup>2</sup>	Avg. Speed (mph)	Density <sup>1</sup> (pcpmpl)	LOS <sup>2</sup>	Avg. Speed (mph)	Density <sup>1</sup> (pcpmpl)	LOS <sup>2</sup>	Avg. Speed (mph)	Density <sup>1</sup> (pcpmpl)	LOS <sup>2</sup>
50	13	17.42	17.52	0.1	EB OFF TO MAIN STREET	PLACERVILLE, CANAL STREET	E	45.00	15.36	B	45.00	26.76	D	45.00	24.84	C	45.00	23.56	C
50	14	17.52	17.667	0.147	PLACERVILLE, CANAL STREET	PLACERVILLE, JCT. RTE. 49	F	45.00	8.62	A	45.00	18.18	C	45.00	26.24	D	45.00	20.09	C
50	15	17.667	17.788	0.121	PLACERVILLE, JCT. RTE. 49	PLACERVILLE, COLOMA STREET	F	45.00	7.69	A	45.00	16.18	B	45.00	23.38	C	45.00	17.84	B
50	16	17.788	18.032	0.244	PLACERVILLE, COLOMA STREET	PLACERVILLE, BEDFORD AVENUE	F	45.00	7.78	A	45.00	16.42	B	45.00	23.76	C	45.00	18.11	C
50	17	18.032	18.517	0.485	PLACERVILLE, BEDFORD AVENUE	PLACERVILLE, MOSQUITO ROAD OH	F	45.00	6.51	A	45.00	13.64	B	45.00	19.69	C	45.00	15.04	B
50	21	20.741	23.957	3.216	NEW TOWN ROAD	JUNCTION OLD HIGHWAY, CAMINO, WEST	D	60.00	4.47	A	60.00	9.53	A	60.00	9.13	A	60.00	7.00	A
50	22	23.957	25.949	1.992	JUNCTION OLD HIGHWAY, CAMINO, WEST	EAST CAMINO ROAD	E	60.00	2.52	A	60.00	9.13	A	60.00	8.17	A	60.00	6.02	A
50	26	34.219	39.772	5.553	OLD CARSON ROAD	ICEHOUSE ROAD	D	50.00	3.60	A	50.00	7.54	A	50.00	6.26	A	50.00	4.40	A

<sup>1</sup> Density expressed in pc/mi/ln, passenger cars per mile per lane  
<sup>2</sup> Level of service for multi-lane highways is based on density as described in Chapter 14, HCM 2010

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**Table B-3. Existing LOS Results for Two-Lane State Highways (SR 49, US 50, SR 153, SR 193)**

Route	Seg	NB/EB Postmile	SB/WB Postmile	Segment Length	North/East of Segment	South/West of Segment	LOS Threshold	Eastbound						Westbound					
								AM Peak			PM Peak			AM Peak			PM Peak		
								PTSF <sup>1</sup> (%)	PFFS <sup>2</sup> (%)	LOS <sup>3</sup>	PTSF <sup>1</sup> (%)	PFFS <sup>2</sup> (%)	LOS <sup>3</sup>	PTSF <sup>1</sup> (%)	PFFS <sup>2</sup> (%)	LOS <sup>3</sup>	PTSF <sup>1</sup> (%)	PFFS <sup>2</sup> (%)	LOS <sup>3</sup>
49	1	0	1.65	1.65	AMADOR/EL DORADO COUNTY LINE	NASHVILLE, SOUTH	D	59.4%	89.8%	C	23.0%	87.0%	A	18.7%	87.6%	A	59.2%	89.4%	C
49	2	1.65	8.352	6.702	NASHVILLE, SOUTH	CHINA HILL ROAD	D	66.8%	87.3%	C	32.7%	86.7%	A	25.5%	87.4%	A	67.4%	85.2%	C
49	3	8.352	9.494	1.142	CHINA HILL ROAD	EL DORADO, UNION MINE ROAD	D	75.4%	83.5%	D	36.6%	84.5%	A	29.0%	85.6%	A	74.7%	80.7%	D
49	4	9.494	9.641	0.147	EL DORADO, UNION MINE ROAD	EL DORADO, PLEASANT VALLEY ROAD	E	79.1%	70.7%	D	43.6%	75.2%	C	35.2%	76.1%	C	82.5%	67.6%	D
49	5	9.641	11.239	1.598	EL DORADO, PLEASANT VALLEY ROAD	MISSOURI FLAT ROAD	F	94.1%	66.6%	E	54.8%	69.4%	D	45.8%	73.4%	D	92.8%	65.6%	E
49	6	11.239	11.859	0.62	MISSOURI FLAT ROAD	DIAMOND SPRINGS, PLEASANT VALLEY ROAD	F	98.1%	64.9%	E	58.5%	66.9%	D	49.8%	70.9%	D	94.4%	63.2%	E
49	7	11.859	14.463	2.604	DIAMOND SPRINGS, PLEASANT VALLEY ROAD	PLACERVILLE, FISKE ROAD	E	72.1%	79.5%	D	41.3%	82.3%	B	33.9%	83.0%	A	71.8%	78.4%	D
49	8	14.463	14.597	0.134	PLACERVILLE, FISKE ROAD	PLACERVILLE, PACIFIC/ MAIN STREETS	E	95.0%	65.4%	E	56.0%	68.1%	D	47.1%	68.7%	D	94.1%	59.9%	E
49	9	14.597	14.891	0.294	PLACERVILLE, PACIFIC/ MAIN STREETS	PLACERVILLE, JCT. RTE. 50	F	70.8%	82.0%	C	31.3%	80.7%	C	23.9%	82.1%	C	72.0%	79.4%	C
49	10	14.891	15.685	0.794	PLACERVILLE, JCT. RTE. 50	JCT. RTE. 193 NORTH	F	28.6%	79.5%	C	74.6%	73.4%	D	75.1%	76.8%	C	35.2%	77.5%	C
49	11	15.685	16.44	0.755	JCT. RTE. 193 NORTH	DIANA STREET	D	21.9%	81.7%	C	69.1%	81.1%	C	67.8%	84.4%	B	28.6%	81.8%	C
49	12	16.44	19.42	2.98	DIANA STREET	GOLD HILL ROAD	D	23.2%	82.4%	A	65.4%	81.4%	C	65.1%	84.6%	C	29.9%	82.1%	A
49	13	19.42	22.865	3.445	GOLD HILL ROAD	COLOMA, JCT. RTE. 153 WEST	D	15.8%	87.1%	A	54.9%	89.1%	B	55.3%	89.8%	C	19.6%	86.1%	A
49	14	22.865	24.48	1.615	COLOMA, JCT. RTE. 153 WEST	MARSHALL GRADE ROAD (TO GEORGETOWN)	D	23.9%	83.0%	A	72.0%	80.6%	D	70.7%	84.0%	D	31.2%	82.6%	A
49	15	24.48	28.19	3.71	MARSHALL GRADE ROAD (TO GEORGETOWN)	HASTINGS CREEK BRIDGE	D	18.8%	85.5%	A	62.5%	87.6%	C	61.9%	88.3%	C	24.0%	84.9%	A
49	16	28.19	34.466	6.276	HASTINGS CREEK BRIDGE	COOL, JCT. RTE. 193 EAST	D	18.8%	88.3%	A	62.7%	89.6%	C	62.2%	90.2%	C	24.1%	87.8%	A
49	17	34.466	38.233	3.767	COOL, JCT. RTE. 193 EAST	EL DORADO/PLACER COUNTY LINE	F	39.7%	82.5%	A	80.3%	77.9%	D	75.8%	78.7%	D	48.2%	81.1%	B
50	25	31.299	34.219	2.92	SLY PARK ROAD	OLD CARSON ROAD	E	52.3%	84.0%	B	73.8%	81.4%	D	54.3%	85.6%	B	47.7%	84.7%	B
50	27	39.772	46.592	6.82	ICEHOUSE ROAD	W O ALDER RIDGE ROAD	F	59.9%	81.1%	C	81.9%	77.2%	D	76.9%	79.3%	D	64.0%	79.0%	C
50	28	46.592	48.952	2.36	W O ALDER RIDGE ROAD	SILVER FORK ROAD	F	59.3%	81.2%	C	80.1%	77.7%	C	76.2%	79.5%	C	63.0%	79.5%	C
50	29	48.952	53.732	4.78	SILVER FORK ROAD	WRIGHTS LAKE ROAD	F	59.8%	81.1%	C	80.7%	77.6%	D	77.3%	79.1%	D	63.7%	79.2%	C
50	30	53.732	57.892	4.16	WRIGHTS LAKE ROAD	STRAWBERRY LN	F	59.5%	81.3%	C	80.3%	77.8%	D	76.4%	79.5%	D	63.2%	79.6%	C
50	31	57.892	60.192	2.3	STRAWBERRY LN	SLIPPERY FORD ROAD	F	59.4%	81.2%	C	80.2%	77.8%	D	76.3%	79.5%	D	63.1%	79.6%	C
50	32	60.192	63.522	3.33	SLIPPERY FORD ROAD	SIERRA-AT-TAHOE ROAD	F	59.7%	81.0%	C	80.6%	77.5%	D	77.3%	79.0%	D	63.7%	79.1%	C
50	33	63.522	65.619	1.83	SIERRA-AT-TAHOE ROAD	ECHO LAKE ROAD	F	59.2%	81.6%	C	79.9%	78.2%	D	75.9%	79.9%	D	62.9%	79.9%	C
153	1	0	0.12	0.12	JCT. RTE. 49	COLD SPRINGS ROAD	D	20.2%	90.0%	A	50.9%	90.8%	B	52.3%	91.6%	B	31.7%	88.8%	A
153	2	0.12	0.55	0.43	COLD SPRINGS ROAD	MARSHALL'S MONUMENT	D	24.1%	94.8%	A	31.8%	94.8%	A	30.2%	94.7%	A	22.8%	94.7%	A
193	1	0	0.856	0.856	COOL, JCT. RTE. 49	AMERICAN RIVER ROAD	D	29.5%	86.5%	A	67.9%	84.4%	C	68.7%	86.0%	C	38.7%	85.5%	A
193	2	0.856	2.169	1.313	AMERICAN RIVER ROAD	AUBURN LAKE TRAIL ROAD	D	33.6%	85.4%	A	70.6%	82.0%	D	73.1%	83.8%	D	42.4%	84.8%	B
193	3	2.169	12.19	10.021	AUBURN LAKE TRAIL ROAD	EVERGREEN COURT ROAD	D	36.1%	85.6%	A	69.5%	82.7%	C	69.1%	83.1%	C	45.1%	84.8%	B
193	4	12.19	12.699	0.509	EVERGREEN COURT ROAD	GEORGETOWN, LOWER MAIN STREET	D	28.1%	81.9%	C	65.9%	80.2%	C	66.7%	82.1%	C	37.1%	80.2%	C
193	5	12.699	16.105	3.406	GEORGETOWN, LOWER MAIN STREET	BLACK OAK MINE ROAD	D	60.6%	90.8%	C	22.6%	88.1%	A	17.7%	88.3%	A	59.9%	90.3%	C
193	6	16.105	19.4	3.295	BLACK OAK MINE ROAD	GARDEN VALLEY ROAD	D	53.8%	92.2%	B	18.4%	90.4%	A	11.4%	88.5%	A	52.6%	92.0%	B
193	7	19.4	26.95	7.55	GARDEN VALLEY ROAD	JCT. RTE. 49	D	61.8%	89.5%	C	25.9%	87.3%	A	20.6%	87.6%	A	61.3%	88.5%	C

<sup>1</sup> Percent of Time Spent Following - average percent of time that one must follow slower vehicles

<sup>2</sup> Percent of Free-Flow Speed - ability of ones to travel at or near the posted speed limit

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**Table B-4. Existing LOS Results for Local Roadways**

ID	Name	Location	Area	Type	LOS Threshold	2014			
						AM Volume	LOS	PM Volume	LOS
1	Bass Lake Rd	North of Country Club Dr	Rural	2AU	D	1028	D	966	D
2	Bass Lake Rd	South of Green Valley Rd	Community Region	2AU	E	539	A-C	448	A-C
3	Bass Lake Rd	North of Serrano Pkwy	Community Region	2AU	E	824	A-C	816	A-C
4	Bassi Rd	West of Lotus Rd	Rural	2AU	D	83	A-C	107	A-C
5	Bedford Ave	At City Limit	Rural	2AU	D	35	A-C	46	A-C
6	Broadway	At City Limit	Community Region	2AU	E	256	A-C	309	A-C
7	Bucks Bar Rd	South Pleasant Valley Rd	Rural	2AU	D	411	A-C	412	A-C
8	Bucks Bar Rd	North of Mt Aukum Rd	Rural	2AU	D	294	A-C	307	A-C
9	Cambridge Rd	North of Country Club Dr	Exception F	2AU	F	571	A-C	632	A-C
10	Cambridge Rd	South of Country Club Dr	Community Region	2AU	E	584	A-C	709	A-C
11	Cambridge Rd	At US 50 Overcrossing	Community Region	2AU	E	641	A-C	810	A-C
12	Cambridge Rd	South of Green Valley Rd	Community Region	2AU	E	379	A-C	394	A-C
13	Cambridge Rd	North of Oxford Rd	Community Region	2AU	E	339	A-C	366	A-C
14	Cameron Park Dr	North of Coach Ln	Community Region	4AD	E	1155	A-C	2022	D
15	Cameron Park Dr	South of Hacienda Dr	Community Region	2AU	E	1236	D	1619	E
16	Cameron Park Dr	South of Green Valley Rd	Community Region	2AU	E	685	A-C	781	A-C
17	Cameron Park Dr	North of Mira Loma Dr	Community Region	2AU	E	929	D	1180	D
18	Cameron Park Dr	South of Robin Ln	Community Region	2AU	E	533	A-C	901	D
19	Cameron Park Dr	North of Robin Ln	Exception F	2AU	F	456	A-C	773	A-C
20	Carson Rd	East of Barkley Rd	Community Region	2AU	E	189	A-C	269	A-C
21	Carson Rd	At Carson Ct	Rural	2AU	D	82	A-C	149	A-C
22	Carson Rd	West of Gatlin Rd	Rural	2AU	D	57	A-C	137	A-C
23	Carson Rd	East of Ponderosa Way	Community Region	2AU	E	139	A-C	208	A-C
24	China Garden Rd	East of Missouri Flat Rd	Community Region	2AU	E	220	A-C	320	A-C
25	China Garden Rd	North of SR 49	Community Region	2AU	E	82	A-C	71	A-C
26	Cold Springs Rd	South of Gold Hill Rd	Rural	2AU	D	188	A-C	289	A-C
27	Cold Springs Rd	South of SR 153	Rural	2AU	D	120	A-C	187	A-C
28	Country Club Dr	East of Bass Lake Rd	Rural	2AU	D	456	A-C	320	A-C
29	Country Club Dr	West of Knollwood Dr	Community Region	2AU	E	515	A-C	277	A-C
30	Country Club Dr	East of Cambridge Rd	Community Region	2AU	E	222	A-C	266	A-C
31	Country Club Dr	East of Merrychase Dr	Community Region	2AU	E	381	A-C	197	A-C
32	Country Club Dr	West of Cameron Park Dr	Community Region	2AU	E	254	A-C	375	A-C
33	Durock Rd	West of S. Shingle Rd	Community Region	2AU	E	365	A-C	568	A-C
34	El Dorado Hills Blvd	South of Wilson Blvd	Community Region	4AD	E	1951	D	1895	D
35	El Dorado Hills Blvd	North of Wilson Blvd	Community Region	4AD	E	2018	D	1858	D
36	El Dorado Hills Blvd	North of Saratoga Way	Community Region	4AD	E	2353	D	2458	D
37	El Dorado Hills Blvd	South of Francisco Dr	Community Region	2AU	E	1324	D	1299	D
38	El Dorado Hills Blvd	South of Green Valley Rd	Community Region	2AU	E	448	A-C	367	A-C
39	El Dorado Hills Blvd	North of Harvard Way	Community Region	4AD	E	1627	A-C	1497	A-C
40	El Dorado Rd	South of US 50	Community Region	2AU	E	381	A-C	388	A-C
41	El Dorado Rd	North of Pleasant Valley Rd	Community Region	2AU	E	197	A-C	185	A-C
42	El Dorado Rd	South of Missouri Flat Rd	Community Region	2AU	E	160	A-C	185	A-C
43	Enterprise Dr	East of Forni Rd	Community Region	2AU	E	227	A-C	309	A-C
44	Fairplay Rd	South of Mt Aukum Rd	Rural	2AU	D	144	A-C	162	A-C
45	Forni Rd	North of SR 49	Community Region	2AU	E	322	A-C	280	A-C
46	Forni Rd	West of Arroyo Vista Way	Community Region	2AU	E	85	A-C	141	A-C
47	Francisco Dr	South of Green Valley Rd	Community Region	2AU	E	1050	D	1162	D
48	French Creek Rd	North of Old French Town Rd	Rural	2AU	D	178	A-C	214	A-C
49	Gold Hill Rd	East of Lotus Road	Rural	2AU	D	231	A-C	142	A-C
50	Gold Hill Rd	East of Cold Springs Rd	Rural	2AU	D	64	A-C	45	A-C
51	Gold Hill Rd	West of Cold Springs Rd	Rural	2AU	D	243	A-C	144	A-C
52	Green Valley Rd	West of Sophia Pkwy	Community Region	2AU	E	1881	F	2066	F
53	Green Valley Rd	West of Weber Creek	Rural	2AU	D	277	A-C	376	A-C
54	Green Valley Rd	West of Silva Valley Rd	Community Region	2AU	E	951	D	1119	D
55	Green Valley Rd	East of Mormon Island Dr	Community Region	4AD	E	1998	D	2480	D
56	Green Valley Rd	West of Mormon Island Dr	Community Region	4AD	E	2005	D	2481	D
57	Green Valley Rd	East of Sophia Pkwy	Community Region	4AD	E	2020	D	2475	D
58	Green Valley Rd	East of Francisco Dr	Community Region	2AU	E	1208	E	1071	E
59	Green Valley Rd	West of Bass Lake Rd	Community Region	2AU	E	1289	E	945	E
60	Green Valley Rd	East of Bass Lake Rd	Community Region	2AU	E	1138	D	996	D
61	Green Valley Rd	East of La Crescenta Dr	Community Region	2AU	E	673	D	596	D
62	Green Valley Rd	East of Deer Valley Rd	Rural	2AU	D	407	C	403	C
63	Green Valley Rd	West of Lotus Rd	Rural	2AU	D	607	D	709	D
64	Green Valley Rd	West of Greenstone Rd	Rural	2AU	D	368	A-C	379	A-C
65	Green Valley Rd	West of Missouri Flat Rd	Community Region	2AU	E	868	D	740	A-C
66	Green Valley Rd	West of Campus Dr	Rural	2AU	D	392	A-C	424	A-C
67	Greenstone Rd	North of US 50	Rural	2AU	D	257	A-C	246	A-C
68	Greenstone Rd	North of Mother Lode Dr	Community Region	2AU	E	93	A-C	112	A-C

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ID	Name	Location	Area	Type	LOS Threshold	2014			
						AM Volume	LOS	PM Volume	LOS
69	Grizzly Flat Rd	East of Mt Aukum Rd	Rural	2AU	D	151	A-C	199	A-C
70	Harvard Way	East of El Dorado Hills Blvd	Community Region	4AU	E	970	A-C	483	A-C
71	Harvard Way	West of Silva Valley Pkwy	Community Region	4AU	E	871	A-C	561	A-C
72	Ice House Rd	North of US 50	Rural	2AU	D	37	A-C	71	A-C
73	Latrobe Rd	North of County Line	Rural	2AU	D	241	A-C	329	A-C
74	Latrobe Rd	South of Investment Blvd	Community Region	2AU	E	373	A-C	449	A-C
75	Latrobe Rd	North of Golden Foothill Pkwy South	Community Region	4AD	E	1601	A-C	1819	A-C
76	Latrobe Rd	North of Investment Blvd	Community Region	2AU	E	802	A-C	971	D
77	Latrobe Rd	North of Golden Foothill Pkwy	Community Region	4AD	E	2123	D	2287	D
78	Latrobe Rd	North of White Rock Rd	Community Region	6AD	E	2557	A-C	2695	A-C
79	Lotus Rd	South of Thompson Hill Rd	Rural	2AU	D	346	A-C	441	A-C
80	Lotus Rd	North Green Valley Rd	Rural	2AU	D	565	A-C	703	A-C
81	Lotus Rd	South of SR 49	Rural	2AU	D	260	A-C	354	A-C
82	Luneman Rd	West of Lotus Rd	Rural	2AU	D	333	A-C	196	A-C
83	Marshall Rd	East of SR 49	Rural	2AU	D	315	A-C	315	A-C
84	Marshall Rd	East of Garden Valley Rd	Rural	2AU	D	432	A-C	408	A-C
85	Marshall Rd	South of Lower Main St	Rural	2AU	D	37	A-C	50	A-C
86	Meder Rd	East of Cameron Park Dr	Community Region	2AU	E	528	A-C	568	A-C
87	Meder Rd	West of Ponderosa Rd	Community Region	2AU	E	420	A-C	436	A-C
88	Missouri Flat Rd	West of El Dorado Rd	Community Region	2AU	E	844	A-C	714	A-C
89	Missouri Flat Rd	East of El Dorado Rd	Community Region	2AU	E	801	A-C	835	A-C
90	Missouri Flat Rd	South of China Garden Rd	Community Region	2AU	E	1174	D	1640	E
91	Missouri Flat Rd	North of SR 49	Community Region	2AU	E	1047	D	1307	D
92	Missouri Flat Rd	North of Forni Rd	Exception F	4AD	F	1876	D	2686	D
93	Missouri Flat Rd	South of Forni Rd	Exception F	4AD	F	1600	A-C	1986	D
94	Mormon Emigrant Trl	East of Sly Park Rd	Rural	2AU	D	38	A-C	63	A-C
95	Mosquito Rd	At City Limit	Community Region	2AU	E	335	A-C	346	A-C
96	Mosquito Rd	South of American River Bridge	Rural	2AU	D	90	A-C	110	A-C
97	Mother Lode Dr	East of French Creek Rd	Community Region	2AU	E	904	D	809	A-C
98	Mother Lode Dr	West of Sunset Ln	Community Region	2AU	E	950	D	1068	D
99	Mother Lode Dr	West of Pleasant Valley Rd	Community Region	2AU	E	642	A-C	757	A-C
100	Mother Lode Dr	East of Pleasant Vally Rd	Community Region	2AU	E	229	A-C	347	A-C
101	Mt Aukum Rd	North of County Line	Rural	2AU	D	114	A-C	137	A-C
102	Mt Aukum Rd	South of Bucks Bar Rd	Rural	2AU	D	252	A-C	297	A-C
103	Mt Aukum Rd	South of Pleasant Valley Rd	Rural	2AU	D	190	A-C	318	A-C
104	Mt Murphy Rd	North of SR 49	Rural	2AU	D	26	A-C	25	A-C
105	Mt Murphy Rd	South of Marshall Rd	Rural	2AU	D	54	A-C	97	A-C
106	N Shingle Rd	South of Green Valley Rd	Rural	2AU	D	414	A-C	440	A-C
107	Newtown Rd	North of Pioneer Hill Rd	Rural	2AU	D	231	A-C	240	A-C
108	Newtown Rd	East of Broadway Rd	Community Region	2AU	E	299	A-C	323	A-C
109	Newtown Rd	North of Pleasant Valley Rd	Rural	2AU	D	215	A-C	223	A-C
110	Old French Town Rd	South of Mother Lode Dr	Community Region	2AU	E	83	A-C	104	A-C
111	Omo Ranch Rd	East of Mt Aukum Rd	Rural	2AU	D	63	A-C	56	A-C
112	Oxford Rd	East of Salida Way	Community Region	2AU	E	262	A-C	335	A-C
113	Palmer Dr	East of Cameron Park Dr	Community Region	2AU	E	449	A-C	873	D
114	Patterson Dr	South of Pleasant Valley Rd	Community Region	2AU	E	293	A-C	407	A-C
115	Pleasant Valley Rd	East of Mother Lode Dr	Community Region	2AU	E	561	A-C	603	A-C
116	Pleasant Valley Rd	East of Bucks Bar Rd	Community Region	2AU	E	473	A-C	443	A-C
117	Pleasant Valley Rd	West of Oak Hill Rd	Community Region	2AU	E	901	D	970	D
118	Pleasant Valley Rd	East of SR 49	Community Region	2AU	E	1075	D	1203	D
119	Pleasant Valley Rd	East of Cedar Ravine Rd	Community Region	2AU	E	861	D	860	D
120	Pleasant Valley Rd	East of Newtown Rd	Community Region	2AU	E	429	A-C	442	A-C
121	Ponderosa Rd	North of Jackpine Rd	Rural	2AU	D	147	A-C	128	A-C
122	Pony Express Trl	East of Carson Rd	Community Region	2AU	E	203	A-C	262	A-C
123	Pony Express Trl	East of Gilmore Rd	Community Region	2AU	E	237	A-C	414	A-C
124	Pony Express Trl	West of Forebay Rd	Community Region	2AU	E	251	A-C	492	A-C
125	Rock Creek Rd	East of SR 193	Rural	2AU	D	19	A-C	18	A-C
126	Salmon Falls Rd	At New York Creek Bridge	Rural	2AU	D	191	A-C	244	A-C
127	Salmon Falls Rd	South of Malcolm Dixon Rd	Community Region	2AU	E	612	A-C	590	A-C
128	Salmon Falls Rd	South of Pedro Hill Rd	Rural	2AU	D	92	A-C	100	A-C
129	Salmon Falls Rd	South of Rattlesnake Bar Rd	Rural	2AU	D	31	A-C	38	A-C
130	Serrano Pkwy	East of Silva Valley Pkwy	Community Region	4AD	E	1424	A-C	947	A-C
131	Serrano Pkwy	West of Bass Lake Rd	Community Region	2AU	E	491	A-C	466	A-C
132	Shingle Springs Dr	South of US 50	Rural	2AU	D	475	A-C	221	A-C
133	Silva Valley Pky	North of US 50	Community Region	2AU	E	776	A-C	1052	D
134	Silva Valley Pky	South of Green Valley Rd	Community Region	2AU	E	603	A-C	554	A-C
135	Silva Valley Pky	North of Havard Way	Community Region	2AU	E	886	D	848	A-C
136	Silva Valley Pky	South of Serrano Pkwy	Community Region	4AD	E	1185	A-C	975	A-C
137	Sly Park Rd	East of Mt Aukum Rd	Rural	2AU	D	242	A-C	272	A-C
138	Sly Park Rd	East of Mormon Emigrant Trail	Rural	2AU	D	234	A-C	324	A-C



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ID	Name	Location	Area	Type	LOS Threshold	2014			
						AM Volume	LOS	PM Volume	LOS
139	Sly Park Rd	South of Pony Express Trail	Community Region	2AU	E	581	A-C	734	A-C
140	Snows Rd	North of Newtown Rd	Rural	2AU	D	80	A-C	83	A-C
141	Snows Rd	South of Carson Rd	Community Region	2AU	E	337	A-C	212	A-C
142	South Shingle Rd	East of Latrobe Rd	Rural	2AU	D	98	A-C	75	A-C
143	South Shingle Rd	North of Barnett Ranch	Rural	2AU	D	192	A-C	217	A-C
144	South Shingle Rd	South of Sunset Ln	Community Region	2AU	E	434	A-C	555	A-C
145	Starbuck Rd	North of Green Valley Rd	Community Region	2AU	E	113	A-C	149	A-C
146	Union Ridge Rd	West of Hassler Rd	Rural	2AU	D	32	A-C	42	A-C
147	Wentworth Springs Rd	West of Quintette Rd	Rural	2AU	D	29	A-C	50	A-C
148	White Rock Rd	West of Windfield Way	Community Region	2AU	E	824	A-C	816	A-C
149	White Rock Rd	At County Line	Community Region	2AU	E	834	A-C	1026	D
150	White Rock Rd	East of Latrobe Rd	Community Region	2AU	E	1036	D	1444	D
151	White Rock Rd	West of Latrobe Rd	Community Region	4AD	E	999	A-C	1121	A-C
A-C defined as operating between LOS A-C per HCM 2010									
Indicates deficiency									

ATTACHMENT C

2035 FORECAST

AMENDED GENERAL PLAN OPERATIONS RESULTS

(state highway segments presented by post-mile)  
(local roadway segments presented in alphabetical order)

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CIP & TIM Fee Update: Western Slope  
September 9, 2016

Project #: 17666.0

**Table C-1. Amended General Plan LOS Results for US 50**

Route	Seg	EB Postmile	WB Postmile	Segment Length	East of Segment	West of Segment	LOS Threshold	Eastbound						Westbound					
								AM Peak			PM Peak			AM Peak			PM Peak		
								Avg. Speed (mph)	Density <sup>1</sup> (pcpmpl)	LOS <sup>2</sup>	Avg. Speed (mph)	Density <sup>1</sup> (pcpmpl)	LOS <sup>2</sup>	Avg. Speed (mph)	Density <sup>1</sup> (pcpmpl)	LOS <sup>2</sup>	Avg. Speed (mph)	Density <sup>1</sup> (pcpmpl)	LOS <sup>2</sup>
50	1	0	0.857	0.857	SACRAMENTO/EL DORADO COUNTY LINE	LATROBE ROAD	E	64.97	22.24	C	60.11	33.05	D	Unstable	>45	F	65.00	21.65	C
50	2	0.857	3.232	2.375	LATROBE ROAD	BASS LAKE ROAD	D	65.00	12.71	B	64.34	25.10	C	Unstable	>45	F	62.34	29.40	D
50	3	3.232	4.962	1.73	BASS LAKE ROAD	CAMBRIDGE ROAD	D	65.00	18.45	C	58.40	35.65	E	63.47	27.22	D	64.65	24.08	C
50	4	4.962	6.57	1.608	CAMBRIDGE ROAD	CAMERON PARK DRIVE	E	65.00	21.29	C	62.67	28.80	D	65.00	21.54	C	64.86	23.13	C
50	5	6.57	8.564	1.994	CAMERON PARK DRIVE	PONDEROSA ROAD	E	65.00	20.31	C	58.21	35.94	E	63.30	27.59	D	64.20	25.49	C
50	6	8.564	10.295	1.731	PONDEROSA ROAD	SHINGLE SPRINGS	D	65.00	15.96	B	64.00	26.03	D	64.92	22.73	C	64.93	22.64	C
50	7	10.295	12.19	1.895	SHINGLE SPRINGS	GREENSTONE ROAD	D	65.00	15.87	B	63.72	26.68	D	64.94	22.54	C	65.00	19.86	C
50	8	12.19	14.011	1.821	GREENSTONE ROAD	EL DORADO ROAD	D	65.00	13.12	B	65.00	20.75	C	65.00	18.62	C	65.00	19.15	C
50	9	14.011	15.055	1.044	EL DORADO ROAD	MISSOURI FLAT ROAD	E	65.00	12.59	B	65.00	19.68	C	65.00	17.91	B	65.00	18.27	C
50	10	15.055	15.829	0.774	MISSOURI FLAT ROAD	PLACERVILLE, FAIRGROUNDS	E	65.00	9.51	A	65.00	14.66	B	65.00	14.00	B	65.00	13.66	B
50	11	15.829	16.99	1.161	PLACERVILLE, FAIRGROUNDS	WEST PLACERVILLE	E	65.00	10.29	A	65.00	16.40	B	65.00	13.83	B	65.00	15.07	B
50	12	16.99	17.42	0.43	WEST PLACERVILLE	EB OFF TO MAIN STREET	E	65.00	12.41	B	65.00	19.95	C	65.00	17.11	B	65.00	18.35	C
50	18	18.517	18.99	0.473	PLACERVILLE, MOSQUITO ROAD	PLACERVILLE, SCHNELL SCHOOL ROAD	E	55.00	8.95	A	55.00	17.69	B	55.00	16.33	B	55.00	13.27	B
50	19	18.99	20.296	1.306	PLACERVILLE, SCHNELL SCHOOL ROAD	PLACERVILLE, POINT VIEW DRIVE	E	55.00	7.27	A	55.00	13.80	B	55.00	13.17	B	55.00	10.74	A
50	20	20.296	20.741	0.445	PLACERVILLE, POINT VIEW DRIVE	NEW TOWN ROAD	D	65.00	5.17	A	65.00	9.71	A	65.00	9.27	A	65.00	7.49	A
50	23	25.949	28.842	2.893	EAST CAMINO ROAD	SAWMILL (POLLOCK PINES)	E	65.00	3.32	A	65.00	9.97	A	65.00	8.89	A	65.00	6.91	A
50	24	28.842	31.299	2.457	SAWMILL (POLLOCK PINES)	SLY PARK ROAD	E	65.00	4.39	A	65.00	8.14	A	65.00	6.98	A	65.00	5.19	A

<sup>1</sup> Density expressed in pc/mi/ln, passenger cars per mile per lane  
<sup>2</sup> Level of service is based on density as described in Basic Freeway Segment, Chapter 11, HCM 2010  
 Indicates deficiency

**Table C-2. Amended General Plan LOS Results for Multilane State Highways**

Route	Seg	EB Postmile	WB Postmile	Segment Length	East of Segment	West of Segment	LOS Threshold	Eastbound						Westbound					
								AM Peak			PM Peak			AM Peak			PM Peak		
								Avg. Speed (mph)	Density <sup>1</sup> (pcpmpl)	LOS <sup>2</sup>	Avg. Speed (mph)	Density <sup>1</sup> (pcpmpl)	LOS <sup>2</sup>	Avg. Speed (mph)	Density <sup>1</sup> (pcpmpl)	LOS <sup>2</sup>	Avg. Speed (mph)	Density <sup>1</sup> (pcpmpl)	LOS <sup>2</sup>
50	13	17.42	17.52	0.1	EB OFF TO MAIN STREET	PLACERVILLE, CANAL STREET	E	45.00	19.84	C	44.47	33.95	D	45.00	29.07	D	45.00	30.09	D
50	14	17.52	17.667	0.147	PLACERVILLE, CANAL STREET	PLACERVILLE, JCT. RTE. 49	F	45.00	11.42	B	45.00	22.71	C	45.00	28.93	D	45.00	22.91	C
50	15	17.667	17.788	0.121	PLACERVILLE, JCT. RTE. 49	PLACERVILLE, COLOMA STREET	F	45.00	9.67	A	45.00	18.31	C	45.00	26.33	D	45.00	21.58	C
50	16	17.788	18.032	0.244	PLACERVILLE, COLOMA STREET	PLACERVILLE, BEDFORD AVENUE	F	45.00	9.76	A	45.00	18.58	C	45.00	26.84	D	45.00	21.82	C
50	17	18.032	18.517	0.485	PLACERVILLE, BEDFORD AVENUE	PLACERVILLE, MOSQUITO ROAD OH	F	45.00	8.40	A	45.00	15.60	B	45.00	22.51	C	45.00	18.53	C
50	21	20.741	23.957	3.216	NEW TOWN ROAD	JUNCTION OLD HIGHWAY, CAMINO, WEST	D	60.00	5.63	A	60.00	10.78	A	60.00	10.30	A	60.00	8.37	A
50	22	23.957	25.949	1.992	JUNCTION OLD HIGHWAY, CAMINO, WEST	EAST CAMINO ROAD	E	60.00	3.50	A	60.00	10.40	A	60.00	9.23	A	60.00	7.28	A
50	26	34.219	39.772	5.553	ICEHOUSE ROAD	OLD CARSON ROAD	D	50.00	4.52	A	50.00	8.60	A	50.00	7.32	A	50.00	5.46	A

<sup>1</sup> Density expressed in pc/mi/ln, passenger cars per mile per lane  
<sup>2</sup> Level of service for multi-lane highways is based on density as described in Chapter 14, HCM 2010

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**Table C-3. Amended General Plan LOS Results for Two-Lane State Highways**

Route	Seg	NB/EB Postmile	SB/WB Postmile	Segment Length	North/East of Segment	South/West of Segment	LOS Threshold	Eastbound						Westbound					
								AM Peak			PM Peak			AM Peak			PM Peak		
								PTSF <sup>1</sup> (%)	PFFS <sup>2</sup> (%)	LOS <sup>3</sup>	PTSF <sup>1</sup> (%)	PFFS <sup>2</sup> (%)	LOS <sup>3</sup>	PTSF <sup>1</sup> (%)	PFFS <sup>2</sup> (%)	LOS <sup>3</sup>	PTSF <sup>1</sup> (%)	PFFS <sup>2</sup> (%)	LOS <sup>3</sup>
49	1	0	1.65	1.65	AMADOR/EL DORADO COUNTY LINE	NASHVILLE, SOUTH	D	62.1%	89.3%	C	27.5%	86.3%	A	17.5%	87.5%	A	62.6%	87.0%	C
49	2	1.65	8.352	6.702	NASHVILLE, SOUTH	CHINA HILL ROAD	D	68.7%	86.6%	C	35.9%	86.0%	A	25.3%	87.3%	A	70.7%	83.3%	D
49	3	8.352	9.494	1.142	CHINA HILL ROAD	EL DORADO, UNION MINE ROAD	D	76.1%	82.9%	D	39.0%	83.3%	A	28.4%	85.3%	A	78.8%	79.1%	D
49	4	9.494	9.641	0.147	EL DORADO, UNION MINE ROAD	EL DORADO, PLEASANT VALLEY ROAD	E	84.7%	68.2%	D	49.6%	71.6%	D	36.8%	74.5%	D	88.6%	64.2%	E
49	5	9.641	11.239	1.598	EL DORADO, PLEASANT VALLEY ROAD	MISSOURI FLAT ROAD	F	97.1%	63.6%	E	62.8%	64.0%	E	53.4%	69.5%	D	94.0%	61.3%	E
49	6	11.239	11.859	0.62	MISSOURI FLAT ROAD	DIAMOND SPRINGS, PLEASANT VALLEY ROAD	F	99.2%	61.6%	E	64.1%	64.1%	E	54.3%	67.2%	D	93.2%	61.2%	E
49	7	11.859	14.463	2.604	DIAMOND SPRINGS, PLEASANT VALLEY ROAD	PLACERVILLE, FISKE ROAD	E	74.7%	77.7%	D	50.0%	79.5%	B	41.3%	81.1%	B	77.0%	75.7%	D
49	8	14.463	14.597	0.134	PLACERVILLE, FISKE ROAD	PLACERVILLE, PACIFIC/ MAIN STREETS	E	93.8%	62.7%	E	65.5%	62.8%	E	57.2%	63.8%	E	92.4%	55.6%	E
49	9	14.597	14.891	0.294	PLACERVILLE, PACIFIC/ MAIN STREETS	PLACERVILLE, JCT. RTE. 50	F	73.3%	74.2%	D	42.6%	77.9%	C	38.6%	79.3%	C	73.4%	73.9%	D
49	10	14.891	15.685	0.794	PLACERVILLE, JCT. RTE. 50	JCT. RTE. 193 NORTH	F	75.1%	76.8%	C	37.7%	75.7%	C	29.7%	78.7%	C	78.7%	67.9%	D
49	11	15.685	16.44	0.755	JCT. RTE. 193 NORTH	DIANA STREET	D	73.3%	80.5%	C	30.5%	80.1%	C	24.2%	81.6%	C	72.6%	79.6%	C
49	12	16.44	19.42	2.98	DIANA STREET	GOLD HILL ROAD	D	68.0%	81.2%	C	32.8%	81.0%	A	27.8%	82.1%	A	68.0%	79.6%	C
49	13	19.42	22.865	3.445	GOLD HILL ROAD	COLOMA, JCT. RTE. 153 WEST	D	59.3%	88.6%	C	21.9%	84.2%	A	16.4%	84.7%	A	58.6%	88.0%	C
49	14	22.865	24.48	1.615	COLOMA, JCT. RTE. 153 WEST	MARSHALL GRADE ROAD (TO GEORGETOWN)	D	74.8%	80.3%	D	36.2%	80.6%	A	28.3%	82.5%	A	73.9%	77.1%	D
49	15	24.48	28.19	3.71	MARSHALL GRADE ROAD (TO GEORGETOWN)	HASTINGS CREEK BRIDGE	D	68.5%	84.4%	C	41.4%	82.7%	B	27.1%	84.1%	A	70.0%	81.2%	C
49	16	28.19	34.466	6.276	HASTINGS CREEK BRIDGE	COOL, JCT. RTE. 193 EAST	D	65.4%	88.9%	C	32.9%	87.0%	A	24.2%	87.7%	A	66.8%	86.6%	C
49	17	34.466	38.233	3.767	COOL, JCT. RTE. 193 EAST	EL DORADO/PLACER COUNTY LINE	F	85.0%	76.2%	D	57.2%	77.7%	C	50.2%	79.7%	B	85.7%	74.9%	E
50	25	31.299	34.219	2.92	SLY PARK ROAD	OLD CARSON ROAD	E	61.1%	82.1%	C	78.0%	79.2%	D	62.1%	83.3%	C	55.8%	82.2%	C
50	27	39.772	46.592	6.82	ICEHOUSE ROAD	W O ALDER RIDGE ROAD	F	64.3%	79.4%	C	83.7%	75.4%	D	80.7%	77.7%	D	68.1%	77.0%	C
50	28	46.592	48.952	2.36	W O ALDER RIDGE ROAD	SILVER FORK ROAD	F	64.0%	79.3%	C	83.5%	75.9%	C	80.5%	77.6%	C	66.5%	77.5%	C
50	29	48.952	53.732	4.78	SILVER FORK ROAD	WRIGHTS LAKE ROAD	F	64.4%	79.2%	C	84.4%	75.6%	D	81.5%	77.3%	D	66.8%	77.2%	C
50	30	53.732	57.892	4.16	WRIGHTS LAKE ROAD	STRAWBERRY LN	F	64.2%	79.4%	C	84.1%	75.9%	D	80.7%	77.7%	D	66.4%	77.6%	C
50	31	57.892	60.192	2.3	STRAWBERRY LN	SLIPPERY FORD ROAD	F	64.1%	79.4%	C	83.9%	75.8%	D	80.5%	77.7%	D	66.3%	77.5%	C
50	32	60.192	63.522	3.33	SLIPPERY FORD ROAD	SIERRA-AT-TAHOE ROAD	F	64.3%	79.2%	C	84.3%	75.6%	D	81.5%	77.2%	D	66.8%	77.1%	C
50	33	63.522	65.619	1.83	SIERRA-AT-TAHOE ROAD	ECHO LAKE ROAD	F	63.9%	79.7%	C	83.7%	76.2%	D	80.2%	78.1%	D	66.1%	77.8%	C
153	1	0	0.12	0.12	JCT. RTE. 49	COLD SPRINGS ROAD	D	19.1%	87.6%	A	58.0%	88.3%	C	58.3%	90.6%	C	34.5%	86.5%	A
153	2	0.12	0.55	0.43	COLD SPRINGS ROAD	MARSHALL'S MONUMENT	D	27.7%	94.6%	A	27.7%	94.6%	A	27.7%	94.5%	A	27.7%	94.5%	A
193	1	0	0.856	0.856	COOL, JCT. RTE. 49	AMERICAN RIVER ROAD	D	36.7%	85.5%	A	71.6%	82.5%	D	72.4%	82.9%	D	44.7%	84.6%	B
193	2	0.856	2.169	1.313	AMERICAN RIVER ROAD	AUBURN LAKE TRAIL ROAD	D	37.8%	84.3%	A	72.0%	80.9%	D	73.5%	81.1%	D	47.6%	83.5%	B
193	3	2.169	12.19	10.021	AUBURN LAKE TRAIL ROAD	EVERGREEN COURT ROAD	D	40.8%	84.6%	B	71.3%	81.8%	D	70.0%	81.9%	C	49.5%	83.7%	B
193	4	12.19	12.699	0.509	EVERGREEN COURT ROAD	GEORGETOWN, LOWER MAIN STREET	D	35.5%	80.7%	C	70.0%	76.5%	C	70.7%	77.7%	C	43.7%	78.9%	C
193	5	12.699	16.105	3.406	GEORGETOWN, LOWER MAIN STREET	BLACK OAK MINE ROAD	D	64.0%	89.3%	C	30.2%	87.1%	A	24.3%	87.6%	A	65.5%	87.1%	C
193	6	16.105	19.4	3.295	BLACK OAK MINE ROAD	GARDEN VALLEY ROAD	D	52.6%	91.9%	B	21.8%	89.6%	A	19.4%	90.2%	A	52.5%	91.6%	B
193	7	19.4	26.95	7.55	GARDEN VALLEY ROAD	JCT. RTE. 49	D	62.0%	88.9%	C	27.8%	87.1%	A	24.1%	87.3%	A	61.2%	88.1%	C

<sup>1</sup> Percent of Time Spent Following - average percent of time that one must follow slower vehicles  
<sup>2</sup> Percent of Free-Flow Speed - ability of ones to travel at or near the posted speed limit  
<sup>3</sup> Level of service for two-lane highways is based on criteria in Chapter 15, HCM 2010

**Table C-4. Amended General Plan LOS Results for Local Roadways**

ID	Name	Location	Area	Type	LOS Threshold	2035 TGPA2			
						AM Volume	LOS	PM Volume	LOS
1	Bass Lake Rd	North of Country Club Dr	Rural	2AU	D	1430	D	1360	D
2	Bass Lake Rd	South of Green Valley Rd	Community Region	2AU	E	840	A-C	720	A-C
3	Bass Lake Rd	North of Serrano Pkwy	Community Region	2AU	E	1100	D	1080	D
4	Bassi Rd	West of Lotus Rd	Rural	2AU	D	120	A-C	150	A-C
5	Bedford Ave	At City Limit	Rural	2AU	D	40	A-C	50	A-C
6	Broadway	At City Limit	Community Region	2AU	E	350	A-C	420	A-C
7	Bucks Bar Rd	South Pleasant Valley Rd	Rural	2AU	D	470	A-C	470	A-C
8	Bucks Bar Rd	North of Mt Aukum Rd	Rural	2AU	D	350	A-C	370	A-C
9	Cambridge Rd	North of Country Club Dr	Exception F	2AU	F	800	A-C	980	D
10	Cambridge Rd	South of Country Club Dr	Community Region	2AU	E	780	A-C	920	D
11	Cambridge Rd	At US 50 Overcrossing	Community Region	2AU	E	1150	D	1130	D
12	Cambridge Rd	South of Green Valley Rd	Community Region	2AU	E	650	A-C	680	A-C
13	Cambridge Rd	North of Oxford Rd	Community Region	2AU	E	440	A-C	500	A-C
14	Cameron Park Dr	North of Coach Ln	Community Region	4AD	E	1830	A-C	3070	D
15	Cameron Park Dr	South of Hacienda Dr	Community Region	2AU	E	1500	D	1860	F
16	Cameron Park Dr	South of Green Valley Rd	Community Region	2AU	E	860	D	970	D
17	Cameron Park Dr	North of Mira Loma Dr	Community Region	2AU	E	1180	D	1480	D
18	Cameron Park Dr	South of Robin Ln	Community Region	2AU	E	910	D	1370	D
19	Cameron Park Dr	North of Robin Ln	Exception F	2AU	F	920	D	1420	D
20	Carson Rd	East of Barkley Rd	Community Region	2AU	E	220	A-C	300	A-C
21	Carson Rd	At Carson Ct	Rural	2AU	D	90	A-C	150	A-C
22	Carson Rd	West of Gatlin Rd	Rural	2AU	D	70	A-C	150	A-C
23	Carson Rd	East of Ponderosa Way	Community Region	2AU	E	160	A-C	230	A-C
24	China Garden Rd	East of Missouri Flat Rd	Community Region	2AU	E	420	A-C	580	A-C
25	China Garden Rd	North of SR 49	Community Region	2AU	E	130	A-C	130	A-C
26	Cold Springs Rd	South of Gold Hill Rd	Rural	2AU	D	220	A-C	330	A-C
27	Cold Springs Rd	South of SR 153	Rural	2AU	D	160	A-C	230	A-C
28	Country Club Dr	East of Bass Lake Rd	Rural	2AU	D	850	D	570	A-C
29	Country Club Dr	West of Knollwood Dr	Community Region	2AU	E	860	D	470	A-C
30	Country Club Dr	East of Cambridge Rd	Community Region	2AU	E	600	A-C	590	A-C
31	Country Club Dr	East of Merrychase Dr	Community Region	2AU	E	530	A-C	310	A-C
32	Country Club Dr	West of Cameron Park Dr	Community Region	2AU	E	570	A-C	790	A-C
33	Durock Rd	West of S. Shingle Rd	Community Region	2AU	E	650	A-C	870	D

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ID	Name	Location	Area	Type	LOS Threshold	2035 TGPA2			
						AM Volume	LOS	PM Volume	LOS
34	El Dorado Hills Blvd	South of Wilson Blvd	Community Region	4AD	E	1990	D	1900	D
35	El Dorado Hills Blvd	North of Wilson Blvd	Community Region	4AD	E	2020	D	1860	D
36	El Dorado Hills Blvd	North of Saratoga Way	Community Region	4AD	E	2710	D	2620	D
37	El Dorado Hills Blvd	South of Francisco Dr	Community Region	2AU	E	1410	D	1340	D
38	El Dorado Hills Blvd	South of Green Valley Rd	Community Region	2AU	E	450	A-C	370	A-C
39	El Dorado Hills Blvd	North of Harvard Way	Community Region	4AD	E	1760	A-C	1580	A-C
40	El Dorado Rd	South of US 50	Community Region	2AU	E	600	A-C	660	A-C
41	El Dorado Rd	North of Pleasant Valley Rd	Community Region	2AU	E	410	A-C	440	A-C
42	El Dorado Rd	South of Missouri Flat Rd	Community Region	2AU	E	310	A-C	390	A-C
43	Enterprise Dr	East of Forni Rd	Community Region	2AU	E	290	A-C	490	A-C
44	Fairplay Rd	South of Mt Aukum Rd	Rural	2AU	D	170	A-C	190	A-C
45	Forni Rd	North of SR 49	Community Region	2AU	E	460	A-C	480	A-C
46	Forni Rd	West of Arroyo Vista Way	Community Region	2AU	E	100	A-C	170	A-C
47	Francisco Dr	South of Green Valley Rd	Community Region	2AU	E	1100	D	1260	D
48	French Creek Rd	North of Old French Town Rd	Rural	2AU	D	250	A-C	230	A-C
49	Gold Hill Rd	East of Lotus Road	Rural	2AU	D	290	A-C	180	A-C
50	Gold Hill Rd	East of Cold Springs Rd	Rural	2AU	D	80	A-C	60	A-C
51	Gold Hill Rd	West of Cold Springs Rd	Rural	2AU	D	290	A-C	180	A-C
52	Green Valley Rd	West of Sophia Pkwy	Community Region	2AU	E	2910	F	3400	F
53	Green Valley Rd	West of Weber Creek	Rural	2AU	D	370	A-C	510	A-C
54	Green Valley Rd	West of Silva Valley Rd	Community Region	2AU	E	1160	E	1380	E
55	Green Valley Rd	East of Mormon Island Dr	Community Region	4AD	E	2580	C	3540	C
56	Green Valley Rd	West of Mormon Island Dr	Community Region	4AD	E	2590	C	3540	C
57	Green Valley Rd	East of Sophia Pkwy	Community Region	4AD	E	2630	C	3580	C
58	Green Valley Rd	East of Francisco Dr	Community Region	2AU	E	1735	F	1715	F
59	Green Valley Rd	West of Bass Lake Rd	Community Region	2AU	E	1520	E	1140	E
60	Green Valley Rd	East of Bass Lake Rd	Community Region	2AU	E	1470	E	1330	D
61	Green Valley Rd	East of La Crescenta Dr	Community Region	2AU	E	1090	D	1000	E
62	Green Valley Rd	East of Deer Valley Rd	Rural	2AU	D	540	C	540	D
63	Green Valley Rd	West of Lotus Rd	Rural	2AU	D	770	D	900	D
64	Green Valley Rd	West of Greenstone Rd	Rural	2AU	D	430	A-C	480	A-C
65	Green Valley Rd	West of Missouri Flat Rd	Community Region	2AU	E	950	D	850	D
66	Green Valley Rd	West of Campus Dr	Rural	2AU	D	440	A-C	500	A-C

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ID	Name	Location	Area	Type	LOS Threshold	2035 TGPA2			
						AM Volume	LOS	PM Volume	LOS
67	Greenstone Rd	North of US 50	Rural	2AU	D	320	A-C	320	A-C
68	Greenstone Rd	North of Mother Lode Dr	Community Region	2AU	E	140	A-C	180	A-C
69	Grizzly Flat Rd	East of Mt Aukum Rd	Rural	2AU	D	200	A-C	250	A-C
70	Harvard Way	East of El Dorado Hills Blvd	Community Region	4AU	E	1250	A-C	700	A-C
71	Harvard Way	West of Silva Valley Pkwy	Community Region	4AU	E	1210	A-C	960	A-C
72	Ice House Rd	North of US 50	Rural	2AU	D	40	A-C	80	A-C
73	Latrobe Rd	North of County Line	Rural	2AU	D	480	A-C	560	A-C
74	Latrobe Rd	South of Investment Blvd	Community Region	2AU	E	650	A-C	710	A-C
75	Latrobe Rd	North of Golden Foothill Pkwy South	Community Region	4AD	E	2450	D	2640	D
76	Latrobe Rd	North of Investment Blvd	Community Region	2AU	E	1180	D	1340	D
77	Latrobe Rd	North of Golden Foothill Pkwy	Community Region	4AD	E	3780	F	3840	F
78	Latrobe Rd	North of White Rock Rd	Community Region	6AD	E	3380	D	3540	D
79	Lotus Rd	South of Thompson Hill Rd	Rural	2AU	D	460	A-C	600	A-C
80	Lotus Rd	North Green Valley Rd	Rural	2AU	D	730	A-C	900	D
81	Lotus Rd	South of SR 49	Rural	2AU	D	380	A-C	520	A-C
82	Luneman Rd	West of Lotus Rd	Rural	2AU	D	380	A-C	230	A-C
83	Marshall Rd	East of SR 49	Rural	2AU	D	380	A-C	390	A-C
84	Marshall Rd	East of Garden Valley Rd	Rural	2AU	D	520	A-C	500	A-C
85	Marshall Rd	South of Lower Main St	Rural	2AU	D	80	A-C	110	A-C
86	Meder Rd	East of Cameron Park Dr	Community Region	2AU	E	850	D	1040	D
87	Meder Rd	West of Ponderosa Rd	Community Region	2AU	E	560	A-C	660	A-C
88	Missouri Flat Rd	West of El Dorado Rd	Community Region	2AU	E	990	D	850	D
89	Missouri Flat Rd	East of El Dorado Rd	Community Region	2AU	E	900	D	970	D
90	Missouri Flat Rd	South of China Garden Rd	Community Region	2AU	E	1180	D	1640	E
91	Missouri Flat Rd	North of SR 49	Community Region	2AU	E	1050	D	1310	D
92	Missouri Flat Rd	North of Forni Rd	Exception F	4AD	F	2120	D	3040	D
93	Missouri Flat Rd	South of Forni Rd	Exception F	4AD	F	1790	A-C	2200	D
94	Mormon Emigrant Trl	East of Sly Park Rd	Rural	2AU	D	80	A-C	110	A-C
95	Mosquito Rd	At City Limit	Community Region	2AU	E	410	A-C	420	A-C
96	Mosquito Rd	South of American River Bridge	Rural	2AU	D	120	A-C	150	A-C
97	Mother Lode Dr	East of French Creek Rd	Community Region	2AU	E	1090	D	1020	D
98	Mother Lode Dr	West of Sunset Ln	Community Region	2AU	E	1190	D	1290	D
99	Mother Lode Dr	West of Pleasant Valley Rd	Community Region	2AU	E	950	D	1120	D
100	Mother Lode Dr	East of Pleasant Vally Rd	Community Region	2AU	E	310	A-C	440	A-C

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ID	Name	Location	Area	Type	LOS Threshold	2035 TGPA2			
						AM Volume	LOS	PM Volume	LOS
101	Mt Aukum Rd	North of County Line	Rural	2AU	D	130	A-C	160	A-C
102	Mt Aukum Rd	South of Bucks Bar Rd	Rural	2AU	D	300	A-C	360	A-C
103	Mt Aukum Rd	South of Pleasant Valley Rd	Rural	2AU	D	250	A-C	400	A-C
104	Mt Murphy Rd	North of SR 49	Rural	2AU	D	50	A-C	50	A-C
105	Mt Murphy Rd	South of Marshall Rd	Rural	2AU	D	70	A-C	120	A-C
106	N Shingle Rd	South of Green Valley Rd	Rural	2AU	D	500	A-C	540	A-C
107	Newtown Rd	North of Pioneer Hill Rd	Rural	2AU	D	290	A-C	290	A-C
108	Newtown Rd	East of Broadway Rd	Community Region	2AU	E	360	A-C	380	A-C
109	Newtown Rd	North of Pleasant Valley Rd	Rural	2AU	D	290	A-C	290	A-C
110	Old French Town Rd	South of Mother Lode Dr	Community Region	2AU	E	150	A-C	180	A-C
111	Omo Ranch Rd	East of Mt Aukum Rd	Rural	2AU	D	70	A-C	70	A-C
112	Oxford Rd	East of Salida Way	Community Region	2AU	E	550	A-C	690	A-C
113	Palmer Dr	East of Cameron Park Dr	Community Region	2AU	E	670	A-C	1200	D
114	Patterson Dr	South of Pleasant Valley Rd	Community Region	2AU	E	430	A-C	580	A-C
115	Pleasant Valley Rd	East of Mother Lode Dr	Community Region	2AU	E	820	A-C	920	D
116	Pleasant Valley Rd	East of Bucks Bar Rd	Community Region	2AU	E	550	A-C	530	A-C
117	Pleasant Valley Rd	West of Oak Hill Rd	Community Region	2AU	E	970	D	1050	D
118	Pleasant Valley Rd	East of SR 49	Community Region	2AU	E	1230	D	1410	D
119	Pleasant Valley Rd	East of Cedar Ravine Rd	Community Region	2AU	E	990	D	1000	D
120	Pleasant Valley Rd	East of Newtown Rd	Community Region	2AU	E	520	A-C	550	A-C
121	Ponderosa Rd	North of Jackpine Rd	Rural	2AU	D	160	A-C	140	A-C
122	Pony Express Trl	East of Carson Rd	Community Region	2AU	E	240	A-C	300	A-C
123	Pony Express Trl	East of Gilmore Rd	Community Region	2AU	E	300	A-C	500	A-C
124	Pony Express Trl	West of Forebay Rd	Community Region	2AU	E	310	A-C	580	A-C
125	Rock Creek Rd	East of SR 193	Rural	2AU	D	30	A-C	30	A-C
126	Salmon Falls Rd	At New York Creek Bridge	Rural	2AU	D	280	A-C	320	A-C
127	Salmon Falls Rd	South of Malcolm Dixon Rd	Community Region	2AU	E	760	A-C	700	A-C
128	Salmon Falls Rd	South of Pedro Hill Rd	Rural	2AU	D	170	A-C	160	A-C
129	Salmon Falls Rd	South of Rattlesnake Bar Rd	Rural	2AU	D	50	A-C	90	A-C
130	Serrano Pkwy	East of Silva Valley Pkwy	Community Region	4AD	E	2050	D	1370	A-C
131	Serrano Pkwy	West of Bass Lake Rd	Community Region	2AU	E	910	D	850	D



# Exhibit D 88 of 175

CIP & TIM Fee Update: Western Slope  
September 9, 2016

Project #: 17666.0

ID	Name	Location	Area	Type	LOS Threshold	2035 TGPA2			
						AM Volume	LOS	PM Volume	LOS
132	Shingle Springs Dr	South of US 50	Rural	2AU	D	1020	D	650	A-C
133	Silva Valley Pky	North of US 50	Community Region	4AD	E	2160	D	2540	D
134	Silva Valley Pky	South of Green Valley Rd	Community Region	2AU	E	770	A-C	690	A-C
135	Silva Valley Pky	North of Havard Way	Community Region	2AU	E	1210	D	1120	D
136	Silva Valley Pky	South of Serrano Pkwy	Community Region	4AD	E	1870	D	1760	A-C
137	Sly Park Rd	East of Mt Aukum Rd	Rural	2AU	D	290	A-C	320	A-C
138	Sly Park Rd	East of Mormon Emigrant Trail	Rural	2AU	D	310	A-C	410	A-C
139	Sly Park Rd	South of Pony Express Trail	Community Region	2AU	E	670	A-C	840	A-C
140	Snows Rd	North of Newtown Rd	Rural	2AU	D	100	A-C	110	A-C
141	Snows Rd	South of Carson Rd	Community Region	2AU	E	370	A-C	240	A-C
142	South Shingle Rd	East of Latrobe Rd	Rural	2AU	D	140	A-C	130	A-C
143	South Shingle Rd	North of Barnett Ranch	Rural	2AU	D	240	A-C	280	A-C
144	South Shingle Rd	South of Sunset Ln	Community Region	2AU	E	590	A-C	830	A-C
145	Starbuck Rd	North of Green Valley Rd	Community Region	2AU	E	170	A-C	210	A-C
146	Union Ridge Rd	West of Hassler Rd	Rural	2AU	D	40	A-C	50	A-C
147	Wentworth Springs Rd	West of Quintette Rd	Rural	2AU	D	50	A-C	70	A-C
148	White Rock Rd	West of Windfield Way	Community Region	2AU	E	1440	D	1900	F
149	White Rock Rd	At County Line	Community Region	2AU	E	1560	E	2230	F
150	White Rock Rd	East of Latrobe Rd	Community Region	2AU	E	1180	D	1650	F
151	White Rock Rd	West of Latrobe Rd	Community Region	4AD	E	1500	A-C	2110	D

ATTACHMENT D

INTERCHANGE VOLUME COMPARISON

(all segments presented from west to east)

# Exhibit D 90 of 175

CIP & TIM Fee Update: Western Slope  
September 9, 2016

Project #: 17666.0

**Table D-1. Interchange Volume Comparison between the Previous and the Current Models – 2035 Amended GP**

Interchange	Previous Model - GP PM Peak									Current Model - GP PM Peak								
	Ramps					Overpass				Ramps					Overpass			
	EB OFF	EB ON	WB OFF	WB ON	Tot_Ramps	NB	SB	Total Ovrpas	EB OFF	EB ON	WB OFF	WB ON	Tot_Ramps	NB	SB	Total Ovrpas		
El Dorado Hills Blvd	1368	1073	1086	941	4468	2678	2262	4940	1614	782	4468	1714	4600	3117	1216	4333		
Silva Valley Pkwy	1252	1531	1469	694	4946	1613	1856	3469	989	689	533	428	2639	1276	688	1964		
Bass Lake Rd	897	376	506	670	2449	878	427	1305	859	244	405	475	1983	834	366	1200		
Cambridge Rd	892	154	152	586	1784	873	190	1063	812	84	174	650	1720	767	169	936		
Cameron Park Dr	1523	454	797	1228	4002	1961	849	2810	949	747	629	1010	3335	1906	1242	3148		
Ponderosa Rd	1075	640	735	874	3324	1266	826	2092	1219	348	304	887	2758	1447	700	2147		
Shingle Springs Dr	222	123	111	211	667	211	111	322	228	119	143	149	639	205	143	348		
Red Hawk Pkwy	326	139	52	410	927	326	139	465	140	144	99	153	536	239	297	536		
Greenstone Rd	219	81	126	237	663	299	144	443	179	61	87	258	585	373	149	522		
El Dorado Rd	205	342	305	187	1039	265	425	690	229	194	224	208	855	301	352	653		
Missouri Flat Rd	932	931	817	996	3676	1498	1318	2816	728	731	686	564	2709	958	1160	2118		
Placerville Dr (West)	875	332	222	887	2316	1061	534	1595	631	107	0	740	1478	727	79	806		
Schnell School Rd	2	257	193	1	453	1061	534	1595	121	156	38	263	578	252	75	327		
View Point Dr	431	88	61	282	862	306	102	408	339	18	3	211	571	232	11	243		
Smith Flat Rd		9	61		70	12	30	42		46	48		94	0	48	48		
Ridgeway Dr	2	0	273	214	489	0	10	10	288	16	16	157	477	293	22	315		
Sly Park Rd	273	214	165	98	750	174	200	374	454	46	54	209	763	398	272	670		
	Approaches to the Interchanges									Approaches to the Interchanges								
				North_NB	North_SB	South_NB	South_SB	Total Approaches					North_NB	North_SB	South_NB	South_SB	Total Approaches	
Ray Lower Dr	Not an interchange in the previous model			N/A	N/A	N/A	N/A	N/A					311	317	295	25	948	
Placerville Dr (East)				496	547			1043					167	319			486	
Mosquito Rd				378	272	693	676	2019					409	333	380	434	1556	
Carson Rd				152	121			273					39	48			87	
	shows locations where TIM fee CIP project was identified																	
	indicates where the current model is greater than the previous model																	

**Table D-2. Interchange Volume Comparison between the Previous and the Current Models – 2035 Amended GP**

Interchange	Previous Model - GP PM Peak									Current Model - GP PM Peak								
	Ramps					Overpass				Ramps					Overpass			
	EB OFF	EB ON	WB OFF	WB ON	Tot_Ramps	NB	SB	Total Ovrpas	EB OFF	EB ON	WB OFF	WB ON	Tot_Ramps	NB	SB	Total Ovrpas		
El Dorado Hills Blvd	3%	0%	0%	4%	2%	4%	3%	3%	-1%	-1%	-1%	0%	0%	0%	0%	0%		
Silva Valley Pkwy																		
Bass Lake Rd	2%	8%	7%	4%	4%	2%	8%	3%	1%	4%	3%	3%	2%	1%	5%	2%		
Cambridge Rd	3%	3%	1%	2%	2%	3%	3%	3%	3%	-1%	0%	3%	2%	2%	1%	2%		
Cameron Park Dr	3%	-1%	1%	3%	2%	3%	0%	2%	2%	1%	1%	3%	2%	2%	1%	2%		
Ponderosa Rd	1%	1%	2%	1%	1%	2%	2%	2%	1%	2%	1%	1%	1%	1%	2%	1%		
Shingle Springs Dr	5%	3%	3%	5%	4%	5%	3%	4%	6%	3%	2%	7%	4%	5%	3%	4%		
Red Hawk Pkwy									0%	0%	0%	1%	0%	0%	0%	0%		
Greenstone Rd	3%	0%	2%	3%	2%	3%	1%	2%	0%	3%	1%	4%	2%	3%	3%	3%		
El Dorado Rd	2%	4%	1%	4%	2%	3%	2%	2%	3%	1%	3%	2%	2%	3%	3%	3%		
Missouri Flat Rd	2%	0%	0%	2%	1%	3%	2%	2%	1%	0%	0%	1%	1%	1%	0%	1%		
Placerville Dr (West)	1%	-1%	-1%	0%	0%	1%	0%	1%	1%	0%	-100%	1%	0%	1%	-3%	0%		
Schnell School Rd	-10%	-2%	1%		-1%		3%	7%	6%	0%	0%	1%	1%	1%	0%	1%		
View Point Dr	1%	2%	3%	2%	2%	1%	4%	2%	1%	0%	2%	2%	1%	2%	1%	2%		
Smith Flat Rd		-1%	7%		5%	3%	2%	3%		2%	1%		2%		1%	1%		
Ridgeway Dr			1%	1%	1%	1%	1%	1%	1%	1%	0%	1%	1%	0%	0%	0%		
Sly Park Rd	3%	-1%	0%	0%	1%	0%	1%	0%	1%	1%	1%	1%	1%	1%	0%	1%		
	Approaches to the Interchanges									Approaches to the Interchanges								
				North_NB	North_SB	South_NB	South_SB	Total Approaches					North_NB	North_SB	South_NB	South_SB	Total Approaches	
Ray Lower Dr	Not an interchange in the previous model			N/A	N/A	N/A	N/A	N/A										
Placerville Dr (East)				1%	1%	1%	1%	1%					1%	2%	1%	1%	1%	
Mosquito Rd													2%	4%			3%	
Carson Rd				0%	0%			0%					2%	4%			3%	
	shows locations where TIM fee CIP project was identified																	
	indicates where the current model is greater than the previous model																	

ATTACHMENT E

INTERCHANGE OPERATIONAL ANALYSIS

US 50 Bass Lake Road Interchange  
US 50 Missouri Flat Road Interchange  
US 50 Cameron Park Drive Interchange



## MEMORANDUM

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Date: September 8, 2015

Project #:  
17666.0

To: Claudia Wade  
County of El Dorado  
2850 Fairlane Court, Building C  
Placerville, CA 95667



From: Chirag Safi  
Project: CIP & TIM Fee Update: Western Slope  
Subject: Attachment Material for Technical Memorandum 2-3: Bass Lake Road Interchange

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This memorandum summarizes the existing and future deficiency analysis at the Bass Lake Road interchange with US 50, including the Mitigation Fee Act (MFA) nexus justification for the improvement concepts to be advanced as part of the Major Capital Improvement Program (CIP) & Traffic Impact Mitigation (TIM) Fee Update. The analysis includes results for both existing conditions and the County adopted Amended General Plan (GP).

### ANALYSIS METHODOLOGY

The existing and future deficiency analysis at two ramp intersections was performed based on the tools, methodologies and assumptions described in the Draft Technical Memorandum 2-1: Analysis Methodology.

### LEVEL OF SERVICE STANDARDS

The following criteria are established to determine whether the vehicular traffic on a roadway facility exceeds the standard operating conditions.

#### County Roadways

Circulation Policy TC-Xd of the El Dorado County General Plan provides level of service standards for County-maintained roads and state highways as follows:

*Level of Service (LOS) for County-maintained roads and state highways within the unincorporated areas of the county shall not be worse than LOS E in the Community Regions or LOS D in the Rural Centers and Rural Regions except as specified in Table TC-2. The volume*

*to capacity ratio of the roadway segments listed in Table TC-2 shall not exceed the ratio specified in that table.*

Roadways in the community regions are evaluated against LOS E standard, while those in the rural regions and rural centers were analyzed against LOS D.

**State Facilities**

County’s Policy TC-Xd is applicable not only to the County roadways, but also to the state facilities. As such, traffic conditions for state facilities within the unincorporated areas of the County shall not be worse than LOS E in the community regions and LOS D in the rural center and rural regions, with except to the locations specified in Table TC-2.

Bass Lake Road eastbound and westbound US 50 ramp intersections are located in the rural regions, and therefore, the analysis was performed using LOS D threshold which is consistent with Caltrans criteria in the Transportation Concept Report and Corridor System Management Plan.

**EXISTING DEFICIENCY ANALYSIS**

Existing AM and PM peak period turning movement counts collected in January 2014 were used to conduct existing deficiency analysis. All counts were collected on a Tuesday, Wednesday or Thursday during the week of January 26<sup>th</sup> when schools were in session. In order to better reflect existing demand, the turning movement counts at ramp intersections were balanced upwardly. Table 1 shows level of service and delays results for the existing conditions. The eastbound ramp intersection is registered to exceed the County’s LOS threshold (LOS D). Appendix A provides the analysis worksheets.

**Table 1. Existing (2014) Conditions Level of Service**

Intersection	Control	AM		PM	
		LOS	Delay	LOS	Delay
Bass Lake Road/Westbound Ramp	SSSC	B	11.2	D	28.2
Bass Lake Road/Eastbound Ramp	SSSC	D	28.2	E	37.3
Note: SSSC = Side Street Stop Control Highlighted cells indicate that level of service exceeds County threshold Source: Kittelson & Associates, 2015					

## FUTURE DEFICIENCY ANALYSIS

Cumulative conditions deficiency analysis utilizes the existing lane configuration and traffic volumes derived from County’s travel demand model. As documented in Draft Technical Memorandum 2-3: Existing and Future Deficiency Analysis, the future forecasts represent the approved allocation of growth in the County’s General Plan. Prior to analysis, post processing adjustments (Furness Method) were performed on the travel forecasts based on the NCHRP Report 255 to yield the future year turn movement volumes.

Table 2 shows level of service and delays results for the 2035 cumulative conditions with existing lane configuration and traffic controls. Both ramp intersections were projected to exceed County’s level of service threshold during AM and/or PM peak hours. The 95<sup>th</sup> percentile vehicular queues were estimated to exceed the available storage on the off-ramps. Appendix B provides the analysis worksheets.

**Table 2. Cumulative (2035) Conditions Level of Service with Existing Configuration**

Intersection	Control	AM		PM	
		LOS	Delay	LOS	Delay
Bass Lake Road/Westbound Ramp	SSSC	C	15.1	F	92.2
Bass Lake Road/Eastbound Ramp	SSSC	F	1392.6	F	955.8
Note: SSSC = Side Street Stop Control Highlighted cells indicate that level of service exceeds County threshold Source: Kittelson & Associates, 2015					

The following improvements would be needed to meet the County’s operational threshold:

### ***Bass Lake Road and Westbound Ramps***

- Add a traffic signal
- Install a southbound right-turn lane for the westbound on-ramp movement
- Install second northbound through lane

### ***Bass Lake Road and Eastbound Ramps***

- Add a traffic signal
- Install an eastbound left-turn lane on the off-ramp approach with 400 feet storage and provide its receiving lane

With above improvements, both ramp intersections are anticipated to operate within acceptable level of service and queues. Replacement of the US 50 bridge structure will not be required to implement these improvements.

## CONCLUSION

Completion of the existing and future deficiency analysis will inform the identification of CIP projects to be funded through the updated TIM Fee program.

The westbound US 50 ramp intersection with Bass Lake Road currently operates within level of service standards. It is projected to function at LOS F in the cumulative conditions, exceeding County's threshold. Therefore, this location is eligible for the CIP project which can be funded through TIM fees.

The eastbound US 50 ramp intersection with Bass Lake Road currently operates at LOS E during the PM peak hour, exceeding County's threshold. Level of service and queues will exacerbate at this location under the cumulative conditions. Therefore, this location is eligible for the CIP project which can be funded through TIM fees.



APPENDIX A

EXISTING CONDITIONS ANALYSIS WORKSHEETS

**Exhibit D**  
**97 of 175**

HCM 2010 TWSC

3: Bass Lake Road & westbound ramp

6/25/2014

**Intersection**

Int Delay, s/veh 1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	0	0	3	1	114	25	232	0	0	166	749
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	Yield	-	-	None	-	-	Yield
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	86	86	86	67	67	67	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	3	1	133	37	346	0	0	180	814

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	601	601	346	180	0	0	346	0	0
Stage 1	421	421	-	-	-	-	-	-	-
Stage 2	180	180	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	463	414	697	1396	-	-	1213	-	-
Stage 1	662	589	-	-	-	-	-	-	-
Stage 2	851	750	-	-	-	-	-	-	-
Platoon blocked, %									
Mov Cap-1 Maneuver	448	0	697	1396	-	-	1213	-	-
Mov Cap-2 Maneuver	448	0	-	-	-	-	-	-	-
Stage 1	640	0	-	-	-	-	-	-	-
Stage 2	851	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.2	0.7	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1396	-	-	721	1213	-	-
HCM Lane V/C Ratio	0.027	-	-	0.19	-	-	-
HCM Control Delay (s)	7.7	0	-	11.2	0	-	-
HCM Lane LOS	A	A	-	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.7	0	-	-

**HCM 2010 TWSC**

**5: Bass Lake Road & eastbound ramp**

6/25/2014

**Intersection**

Int Delay, s/veh      20.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	235	0	5	0	0	0	0	22	4	162	7	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	61	61	61	92	92	92	72	72	72	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	385	0	8	0	0	0	0	31	6	184	8	0

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	409	412	8	8	0	0	36	0	0
Stage 1	376	376	-	-	-	-	-	-	-
Stage 2	33	36	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	599	530	1074	1612	-	-	1575	-	-
Stage 1	694	616	-	-	-	-	-	-	-
Stage 2	989	865	-	-	-	-	-	-	-
Platoon blocked, %									
Mov Cap-1 Maneuver	529	0	1074	1612	-	-	1575	-	-
Mov Cap-2 Maneuver	529	0	-	-	-	-	-	-	-
Stage 1	613	0	-	-	-	-	-	-	-
Stage 2	989	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	28.2	0	7.3
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	SBL	SBT	SBR
Capacity (veh/h)	1612	-	-	535	1575	-	-
HCM Lane V/C Ratio	-	-	-	0.735	0.117	-	-
HCM Control Delay (s)	0	-	-	28.2	7.6	0	-
HCM Lane LOS	A	-	-	D	A	A	-
HCM 95th %tile Q(veh)	0	-	-	6.2	0.4	-	-

**Exhibit D**  
**99 of 175**

HCM 2010 TWSC

3: Bass Lake Road & westbound ramp

6/25/2014

**Intersection**

Int Delay, s/veh            2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	0	0	8	0	128	11	609	0	0	87	297
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	Yield	-	-	None	-	-	Yield
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	87	87	87	94	94	94	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	9	0	147	12	648	0	0	101	345

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	772	772	648	101	0	0	648	0	0
Stage 1	671	671	-	-	-	-	-	-	-
Stage 2	101	101	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	368	330	470	1491	-	-	938	-	-
Stage 1	508	455	-	-	-	-	-	-	-
Stage 2	923	811	-	-	-	-	-	-	-
Platoon blocked, %									
Mov Cap-1 Maneuver	363	0	470	1491	-	-	938	-	-
Mov Cap-2 Maneuver	363	0	-	-	-	-	-	-	-
Stage 1	501	0	-	-	-	-	-	-	-
Stage 2	923	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.5	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1491	-	-	499	938	-	-
HCM Lane V/C Ratio	0.008	-	-	0.313	-	-	-
HCM Control Delay (s)	7.4	0	-	15.5	0	-	-
HCM Lane LOS	A	A	-	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	1.3	0	-	-

**Intersection**

Int Delay, s/veh      32.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	611	2	16	0	0	0	0	9	7	88	7	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	92	92	92	67	67	67	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	636	2	17	0	0	0	0	13	10	96	8	0

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	218	223	8	8	0	0	24	0	0
Stage 1	199	199	-	-	-	-	-	-	-
Stage 2	19	24	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	770	676	1074	1612	-	-	1591	-	-
Stage 1	835	736	-	-	-	-	-	-	-
Stage 2	1004	875	-	-	-	-	-	-	-
Platoon blocked, %									
Mov Cap-1 Maneuver	723	0	1074	1612	-	-	1591	-	-
Mov Cap-2 Maneuver	723	0	-	-	-	-	-	-	-
Stage 1	784	0	-	-	-	-	-	-	-
Stage 2	1004	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	37.3	0	6.9
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	SBL	SBT	SBR
Capacity (veh/h)	1612	-	-	729	1591	-	-
HCM Lane V/C Ratio	-	-	-	0.899	0.06	-	-
HCM Control Delay (s)	0	-	-	37.3	7.4	0	-
HCM Lane LOS	A	-	-	E	A	A	-
HCM 95th %tile Q(veh)	0	-	-	11.7	0.2	-	-

APPENDIX B

CUMULATIVE CONDITIONS ANALYSIS WORKSHEETS

**Exhibit D**  
**102 of 175**

HCM 2010 TWSC

3: Bass Lake Road & westbound ramp

6/25/2014

**Intersection**

Int Delay, s/veh      2.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	0	0	32	6	142	246	463	0	0	287	750
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	Yield	-	-	None	-	-	Yield
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	86	86	86	67	67	67	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	37	7	165	367	691	0	0	312	815

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	1737	1737	691	312	0	0	691	0	0
Stage 1	1425	1425	-	-	-	-	-	-	-
Stage 2	312	312	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	96	87	445	1248	-	-	904	-	-
Stage 1	222	201	-	-	-	-	-	-	-
Stage 2	742	658	-	-	-	-	-	-	-
Platoon blocked, %									
Mov Cap-1 Maneuver	50	0	445	1248	-	-	904	-	-
Mov Cap-2 Maneuver	50	0	-	-	-	-	-	-	-
Stage 1	116	0	-	-	-	-	-	-	-
Stage 2	742	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.1	3.2	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1248	-	-	564	904	-	-
HCM Lane V/C Ratio	0.294	-	-	0.371	-	-	-
HCM Control Delay (s)	9.1	0	-	15.1	0	-	-
HCM Lane LOS	A	A	-	C	A	-	-
HCM 95th %tile Q(veh)	1.2	-	-	1.7	0	-	-

**Intersection**

Int Delay, s/veh      627.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	376	0	86	0	0	0	0	334	72	231	89	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	61	61	61	92	92	92	72	72	72	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	616	0	141	0	0	0	0	464	100	262	101	0

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	1140	1190	101	101	0	0	564	0	0
Stage 1	626	626	-	-	-	-	-	-	-
Stage 2	514	564	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	~ 222	188	954	1491	-	-	1008	-	-
Stage 1	~ 533	477	-	-	-	-	-	-	-
Stage 2	~ 600	508	-	-	-	-	-	-	-
Platoon blocked, %									
Mov Cap-1 Maneuver	~ 161	0	954	1491	-	-	1008	-	-
Mov Cap-2 Maneuver	~ 161	0	-	-	-	-	-	-	-
Stage 1	~ 386	0	-	-	-	-	-	-	-
Stage 2	~ 600	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	\$ 1392.6	0	7.1
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	SBL	SBT	SBR
Capacity (veh/h)	1491	-	-	190	1008	-	-
HCM Lane V/C Ratio	-	-	-	3.986	0.26	-	-
HCM Control Delay (s)	0	-	-	\$ 1392.6	9.8	0	-
HCM Lane LOS	A	-	-	F	A	A	-
HCM 95th %tile Q(veh)	0	-	-	74.7	1	-	-

**Notes**

-: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon



**Exhibit D**  
**104 of 175**

HCM 2010 TWSC

3: Bass Lake Road & westbound ramp

6/25/2014

**Intersection**

Int Delay, s/veh      17.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	0	0	136	0	247	83	830	0	0	234	506
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	Yield	-	-	None	-	-	Yield
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	148	0	268	90	902	0	0	254	550

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	1337	1337	902	254	0	0	902	0	0
Stage 1	1083	1083	-	-	-	-	-	-	-
Stage 2	254	254	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	169	153	336	1311	-	-	754	-	-
Stage 1	325	293	-	-	-	-	-	-	-
Stage 2	788	697	-	-	-	-	-	-	-
Platoon blocked, %									
Mov Cap-1 Maneuver	~ 146	0	336	1311	-	-	754	-	-
Mov Cap-2 Maneuver	~ 146	0	-	-	-	-	-	-	-
Stage 1	280	0	-	-	-	-	-	-	-
Stage 2	788	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	92.2	0.7	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1311	-	-	396	754	-	-
HCM Lane V/C Ratio	0.069	-	-	1.051	-	-	-
HCM Control Delay (s)	7.9	0	-	92.2	0	-	-
HCM Lane LOS	A	A	-	F	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	13.8	0	-	-

**Notes**

-: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

**Intersection**

Int Delay, s/veh      586

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	763	2	182	0	0	0	0	152	77	176	195	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	829	2	198	0	0	0	0	165	84	191	212	0

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	802	844	212	212	0	0	249	0	0
Stage 1	595	595	-	-	-	-	-	-	-
Stage 2	207	249	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	~ 353	300	828	1358	-	-	1317	-	-
Stage 1	~ 551	492	-	-	-	-	-	-	-
Stage 2	~ 828	701	-	-	-	-	-	-	-
Platoon blocked, %									
Mov Cap-1 Maneuver	~ 295	0	828	1358	-	-	1317	-	-
Mov Cap-2 Maneuver	~ 295	0	-	-	-	-	-	-	-
Stage 1	~ 461	0	-	-	-	-	-	-	-
Stage 2	~ 828	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	\$ 955.8	0	3.9
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	SBL	SBT	SBR
Capacity (veh/h)	1358	-	-	337	1317	-	-
HCM Lane V/C Ratio	-	-	-	3.054	0.145	-	-
HCM Control Delay (s)	0	-	-	\$ 955.8	8.2	0	-
HCM Lane LOS	A	-	-	F	A	A	-
HCM 95th %tile Q(veh)	0	-	-	90.8	0.5	-	-

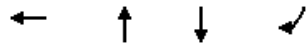
**Notes**

-: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

Queues

3: Bass Lake Road & westbound ramp

9/2/2015



Lane Group	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	196	770	312	815
v/c Ratio	0.59	0.52	0.59	0.89
Control Delay	16.1	17.7	25.7	19.3
Queue Delay	0.1	0.1	6.5	5.0
Total Delay	16.2	17.7	32.2	24.3
Queue Length 50th (ft)	17	99	107	54
Queue Length 95th (ft)	67	m125	178	#306
Internal Link Dist (ft)	1213	242	163	
Turn Bay Length (ft)				
Base Capacity (vph)	495	1482	612	953
Starvation Cap Reductn	0	87	244	91
Spillback Cap Reductn	21	0	57	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.41	0.55	0.85	0.95

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.













Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

**Exhibit D**  
**107 of 175**

**HCM 2010 Signalized Intersection Summary**  
**3: Bass Lake Road & westbound ramp**





9/2/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕			↕			↑	↗
Volume (veh/h)	0	0	0	32	6	142	246	463	0	0	287	750
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1900	1863	1900	1900	1863	0	0	1863	1863
Adj Flow Rate, veh/h				35	7	0	267	503	0	0	312	0
Adj No. of Lanes				0	1	0	0	2	0	0	1	1
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				0	2	0	2	2	0	0	2	2
Cap, veh/h				48	10	0	699	1413	0	0	383	326
Arrive On Green				0.03	0.03	0.00	0.20	0.20	0.00	0.00	0.21	0.00
Sat Flow, veh/h				1490	298	0	1183	2483	0	0	1863	1583
Grp Volume(v), veh/h				42	0	0	407	363	0	0	312	0
Grp Sat Flow(s),veh/h/ln				1788	0	0	1804	1770	0	0	1863	1583
Q Serve(g_s), s				1.6	0.0	0.0	13.7	12.4	0.0	0.0	11.2	0.0
Cycle Q Clear(g_c), s				1.6	0.0	0.0	13.7	12.4	0.0	0.0	11.2	0.0
Prop In Lane				0.83		0.00	0.66		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				57	0	0	1066	1046	0	0	383	326
V/C Ratio(X)				0.74	0.00	0.00	0.38	0.35	0.00	0.00	0.81	0.00
Avail Cap(c_a), veh/h				409	0	0	1066	1046	0	0	612	520
HCM Platoon Ratio				1.00	1.00	1.00	0.33	0.33	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	0.62	0.62	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				33.6	0.0	0.0	17.1	16.5	0.0	0.0	26.5	0.0
Incr Delay (d2), s/veh				16.7	0.0	0.0	0.6	0.6	0.0	0.0	4.5	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln				1.1	0.0	0.0	7.1	6.3	0.0	0.0	6.2	0.0
LnGrp Delay(d),s/veh				50.3	0.0	0.0	17.7	17.1	0.0	0.0	31.0	0.0
LnGrp LOS				D			B	B			C	
Approach Vol, veh/h					42			770			312	
Approach Delay, s/veh					50.3			17.4			31.0	
Approach LOS					D			B			C	
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>				
Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		45.4				18.4		6.2				
Change Period (Y+Rc), s		4.0				4.0		4.0				
Max Green Setting (Gmax), s		19.0				23.0		16.0				
Max Q Clear Time (g_c+I1), s		15.7				13.2		3.6				
Green Ext Time (p_c), s		1.5				1.2		0.1				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				22.4								
HCM 2010 LOS				C								

Queues

5: Bass Lake Road & eastbound ramp

9/2/2015

				
Lane Group	EBL	EBT	NBT	SBT
Lane Group Flow (vph)	258	244	441	348
v/c Ratio	0.50	0.44	0.85	0.79
Control Delay	25.6	17.5	40.5	24.7
Queue Delay	0.1	0.1	0.0	0.5
Total Delay	25.7	17.5	40.5	25.2
Queue Length 50th (ft)	102	62	167	150
Queue Length 95th (ft)	177	131	#310	#253
Internal Link Dist (ft)		850	239	242
Turn Bay Length (ft)	400			
Base Capacity (vph)	516	551	556	488
Starvation Cap Reductn	0	0	0	17
Spillback Cap Reductn	14	13	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.51	0.45	0.79	0.74

















Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

**Exhibit D**  
**109 of 175**

**HCM 2010 Signalized Intersection Summary**  
**5: Bass Lake Road & eastbound ramp**

9/2/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	376	0	86	0	0	0	0	334	72	231	89	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900				0	1863	1900	1900	1863	0
Adj Flow Rate, veh/h	496	0	0				0	363	78	251	97	0
Adj No. of Lanes	2	1	0				0	1	0	0	1	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	1171	615	0				0	406	87	292	113	0
Arrive On Green	0.33	0.00	0.00				0.00	0.27	0.27	0.23	0.23	0.00
Sat Flow, veh/h	3548	1863	0				0	1487	319	1297	501	0
Grp Volume(v), veh/h	496	0	0				0	0	441	348	0	0
Grp Sat Flow(s),veh/h/ln	1774	1863	0				0	0	1806	1798	0	0
Q Serve(g_s), s	7.6	0.0	0.0				0.0	0.0	16.4	13.0	0.0	0.0
Cycle Q Clear(g_c), s	7.6	0.0	0.0				0.0	0.0	16.4	13.0	0.0	0.0
Prop In Lane	1.00		0.00				0.00		0.18	0.72		0.00
Lane Grp Cap(c), veh/h	1171	615	0				0	0	494	405	0	0
V/C Ratio(X)	0.42	0.00	0.00				0.00	0.00	0.89	0.86	0.00	0.00
Avail Cap(c_a), veh/h	1171	615	0				0	0	542	488	0	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00				0.00	0.00	1.00	0.78	0.00	0.00
Uniform Delay (d), s/veh	18.3	0.0	0.0				0.0	0.0	24.5	26.1	0.0	0.0
Incr Delay (d2), s/veh	1.1	0.0	0.0				0.0	0.0	16.2	10.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	3.9	0.0	0.0				0.0	0.0	10.4	7.6	0.0	0.0
LnGrp Delay(d),s/veh	19.4	0.0	0.0				0.0	0.0	40.6	36.2	0.0	0.0
LnGrp LOS	B								D	D		
Approach Vol, veh/h		496						441			348	
Approach Delay, s/veh		19.4						40.6			36.2	
Approach LOS		B						D			D	
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>				
Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		23.1		27.1		19.8						
Change Period (Y+Rc), s		4.0		4.0		4.0						
Max Green Setting (Gmax), s		21.0		18.0		19.0						
Max Q Clear Time (g_c+I1), s		18.4		9.6		15.0						
Green Ext Time (p_c), s		0.7		1.3		0.8						
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			31.2									
HCM 2010 LOS			C									
<b>Notes</b>												
User approved volume balancing among the lanes for turning movement.												

Queues

3: Bass Lake Road & westbound ramp

9/2/2015



Lane Group	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	416	992	254	550
v/c Ratio	0.88	0.71	0.67	0.72
Control Delay	40.4	9.1	34.5	8.7
Queue Delay	4.6	0.3	3.6	0.3
Total Delay	45.0	9.4	38.1	9.0
Queue Length 50th (ft)	120	45	98	0
Queue Length 95th (ft)	#270	57	169	79
Internal Link Dist (ft)	1213	242	163	
Turn Bay Length (ft)				
Base Capacity (vph)	499	1405	425	786
Starvation Cap Reductn	0	86	98	32
Spillback Cap Reductn	42	0	40	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.91	0.75	0.78	0.73













Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

**Exhibit D**  
**111 of 175**

**HCM 2010 Signalized Intersection Summary**  
**3: Bass Lake Road & westbound ramp**

9/2/2015





												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕			↕			↑	↗
Volume (veh/h)	0	0	0	136	0	247	83	830	0	0	234	506
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1900	1863	1900	1900	1863	0	0	1863	1863
Adj Flow Rate, veh/h				148	0	0	90	902	0	0	254	0
Adj No. of Lanes				0	1	0	0	2	0	0	1	1
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				0	2	0	2	2	0	0	2	2
Cap, veh/h				195	0	0	173	1823	0	0	311	264
Arrive On Green				0.11	0.00	0.00	0.18	0.18	0.00	0.00	0.17	0.00
Sat Flow, veh/h				1774	0	0	314	3396	0	0	1863	1583
Grp Volume(v), veh/h				148	0	0	530	462	0	0	254	0
Grp Sat Flow(s),veh/h/ln				1774	0	0	1847	1770	0	0	1863	1583
Q Serve(g_s), s				5.7	0.0	0.0	18.1	16.4	0.0	0.0	9.2	0.0
Cycle Q Clear(g_c), s				5.7	0.0	0.0	18.1	16.4	0.0	0.0	9.2	0.0
Prop In Lane				1.00		0.00	0.17		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				195	0	0	1019	977	0	0	311	264
V/C Ratio(X)				0.76	0.00	0.00	0.52	0.47	0.00	0.00	0.82	0.00
Avail Cap(c_a), veh/h				431	0	0	1019	977	0	0	426	362
HCM Platoon Ratio				1.00	1.00	1.00	0.33	0.33	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	0.55	0.55	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				30.3	0.0	0.0	20.2	19.5	0.0	0.0	28.1	0.0
Incr Delay (d2), s/veh				6.0	0.0	0.0	1.0	0.9	0.0	0.0	8.5	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln				3.1	0.0	0.0	9.6	8.3	0.0	0.0	5.5	0.0
LnGrp Delay(d),s/veh				36.3	0.0	0.0	21.3	20.4	0.0	0.0	36.7	0.0
LnGrp LOS				D			C	C			D	
Approach Vol, veh/h					148			992			254	
Approach Delay, s/veh					36.3			20.9			36.7	
Approach LOS					D			C			D	
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>				
Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		42.6				15.7		11.7				
Change Period (Y+Rc), s		4.0				4.0		4.0				
Max Green Setting (Gmax), s		25.0				16.0		17.0				
Max Q Clear Time (g_c+I1), s		20.1				11.2		7.7				
Green Ext Time (p_c), s		2.6				0.6		0.5				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				25.4								
HCM 2010 LOS				C								



Queues

5: Bass Lake Road & eastbound ramp

9/2/2015

				
Lane Group	EBL	EBT	NBT	SBT
Lane Group Flow (vph)	522	507	249	403
v/c Ratio	0.81	0.78	0.69	0.86
Control Delay	32.5	28.2	32.9	35.3
Queue Delay	0.5	0.3	0.0	1.9
Total Delay	33.0	28.5	32.9	37.2
Queue Length 50th (ft)	215	186	86	174
Queue Length 95th (ft)	#398	#363	151	m#298
Internal Link Dist (ft)		850	239	242
Turn Bay Length (ft)	400			
Base Capacity (vph)	647	654	432	469
Starvation Cap Reductn	0	0	0	16
Spillback Cap Reductn	14	13	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.82	0.79	0.58	0.89

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.

















Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

**Exhibit D**  
**113 of 175**

**HCM 2010 Signalized Intersection Summary**  
**5: Bass Lake Road & eastbound ramp**

9/2/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	763	2	182	0	0	0	0	152	77	176	195	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900				0	1863	1900	1900	1863	0
Adj Flow Rate, veh/h	514	442	198				0	165	84	191	212	0
Adj No. of Lanes	1	1	0				0	1	0	0	1	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	733	504	226				0	201	102	209	232	0
Arrive On Green	0.41	0.41	0.41				0.00	0.17	0.17	0.24	0.24	0.00
Sat Flow, veh/h	1774	1220	546				0	1165	593	862	957	0
Grp Volume(v), veh/h	514	0	640				0	0	249	403	0	0
Grp Sat Flow(s),veh/h/ln	1774	0	1766				0	0	1758	1820	0	0
Q Serve(g_s), s	16.8	0.0	23.4				0.0	0.0	9.6	15.1	0.0	0.0
Cycle Q Clear(g_c), s	16.8	0.0	23.4				0.0	0.0	9.6	15.1	0.0	0.0
Prop In Lane	1.00		0.31				0.00		0.34	0.47		0.00
Lane Grp Cap(c), veh/h	733	0	729				0	0	304	442	0	0
V/C Ratio(X)	0.70	0.00	0.88				0.00	0.00	0.82	0.91	0.00	0.00
Avail Cap(c_a), veh/h	733	0	729				0	0	402	442	0	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.00	1.00	0.69	0.00	0.00
Uniform Delay (d), s/veh	17.0	0.0	18.9				0.0	0.0	27.9	25.8	0.0	0.0
Incr Delay (d2), s/veh	5.5	0.0	14.1				0.0	0.0	9.7	17.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(-26165%),veh/ln	9.3	0.0	14.1				0.0	0.0	5.5	9.6	0.0	0.0
LnGrp Delay(d),s/veh	22.5	0.0	33.0				0.0	0.0	37.6	43.2	0.0	0.0
LnGrp LOS	C		C						D	D		
Approach Vol, veh/h		1154						249			403	
Approach Delay, s/veh		28.3						37.6			43.2	
Approach LOS		C						D			D	
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>				
Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		16.1		32.9		21.0						
Change Period (Y+Rc), s		4.0		4.0		4.0						
Max Green Setting (Gmax), s		16.0		25.0		17.0						
Max Q Clear Time (g_c+I1), s		11.6		25.4		17.1						
Green Ext Time (p_c), s		0.5		0.0		0.0						
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			32.9									
HCM 2010 LOS			C									
<b>Notes</b>												
User approved volume balancing among the lanes for turning movement.												



## MEMORANDUM

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Date: September 9, 2015

Project #:  
17666.0

To: Claudia Wade  
County of El Dorado  
2850 Fairlane Court, Building C  
Placerville, CA 95667



From: Chirag Safi

Project: CIP & TIM Fee Update: Western Slope

Subject: Attachment Material for Technical Memorandum 2-3: Missouri Flat Road Interchange

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This memorandum summarizes the existing and future deficiency analysis at the Missouri Flat Road interchange with US 50, including the Mitigation Fee Act (MFA) nexus justification for the improvement concepts to be advanced as part of the Major Capital Improvement Program (CIP) & Traffic Impact Mitigation (TIM) Fee Update. The analysis includes results for both existing conditions and the County adopted Amended General Plan (GP).

Due to close proximity with the adjacent intersections, two additional intersections were included in analysis. As such, the following intersections were analyzed:

1. Missouri Flat Road and Plaza Drive
2. Missouri Flat Road and US 50 Westbound Ramps
3. Missouri Flat Road and US 50 Eastbound Ramps
4. Missouri Flat Road and Mother Lode Drive

## ANALYSIS METHODOLOGY

The existing and future deficiency analysis at the study intersections was performed based on the tools, methodologies and assumptions described in the Draft Technical Memorandum 2-1: Analysis Methodology. SimTraffic simulation models were used to report operational results. The simulation models were calibrated to field observations for another project (Diamond Springs Parkway). The models and associated results should be considered preliminary at this point and will be further refined in the ongoing Missouri Flat Circulation and Financing Plan Phase II (MC&FP-II) study.

## LEVEL OF SERVICE STANDARDS

The following criteria are established to determine whether the vehicular traffic on a roadway facility exceeds the standard operating conditions.

### County Roadways

Circulation Policy TC-Xd of the El Dorado County General Plan provides level of service standards for County-maintained roads and state highways as follows:

*Level of Service (LOS) for County-maintained roads and state highways within the unincorporated areas of the county shall not be worse than LOS E in the Community Regions or LOS D in the Rural Centers and Rural Regions except as specified in Table TC-2. The volume to capacity ratio of the roadway segments listed in Table TC-2 shall not exceed the ratio specified in that table.*

Roadways in the community regions are evaluated against LOS E standard, while those in the rural regions and rural centers were analyzed against LOS D.

### State Facilities

County's Policy TC-Xd is applicable not only to the County roadways, but also to the state facilities. As such, traffic conditions for state facilities within the unincorporated areas of the County shall not be worse than LOS E in the community regions and LOS D in the rural center and rural regions, with except to the locations specified in Table TC-2.

The four study intersections listed earlier are located in the community area, and therefore, the analysis was performed using LOS E threshold which is consistent with Caltrans criteria in the Transportation Concept Report and Corridor System Management Plan.

## EXISTING DEFICIENCY ANALYSIS

Existing AM and PM peak period turning movement counts collected in May 2015 were used to conduct existing deficiency analysis. All counts were collected on a Tuesday, Wednesday or Thursday during the week of May 4<sup>th</sup> when schools were in session. In order to better reflect existing demand, the turning movement counts at ramp intersections were balanced upwardly. Table 1 shows level of service and delays results for the existing conditions. The results denote an average of ten simulation runs. Appendix A provides the analysis worksheets.

**Table 1. Existing (2014) Conditions Level of Service**

Intersection	Control	AM		PM	
		LOS	Delay	LOS	Delay
Missouri Flat Road/Plaza Drive	Signal	B	16.6	C	27
Missouri Flat Road/Westbound Ramps	Signal	C	23.2	C	24.3
Missouri Flat Road/Eastbound Ramps	Signal	B	19.5	C	29.3
Missouri Flat Road/Mother Lode Drive	Signal	A	8.3	B	10.8
Note: Source: Kittelson & Associates, 2015					

The study intersections operate within County’s operational threshold. The 95<sup>th</sup> percentile queues on the off-ramp approaches are accommodated within the available storage.

## FUTURE DEFICIENCY ANALYSIS

Cumulative conditions deficiency analysis utilizes the existing lane configuration and traffic volumes derived from County’s travel demand model. As documented in Draft Technical Memorandum 2-3: Existing and Future Deficiency Analysis, the future forecasts represent the approved allocation of growth in the County’s General Plan. Prior to analysis, post processing adjustments (Furness Method) were performed on the travel forecasts based on the NCHRP Report 255 to yield the future year turn movement volumes. The signal timings were optimized to better adapt to the future demand and travel patterns.

Table 2 shows level of service and delays results for the 2035 cumulative conditions with existing lane configuration and traffic controls. The results denote an average of ten simulation runs. Appendix B provides the analysis worksheets.

The study intersections were projected to operate within County’s level of service threshold during AM and PM peak hours. The 95<sup>th</sup> percentile queues on the off-ramp approaches are accommodated within the available storage. However, the 95<sup>th</sup> percentile vehicular queues were estimated to exceed the available storage for a number of movements at the study intersections, including the southbound approach at Missouri Flat Road/Plaza Drive and the eastbound approach at Missouri Flat Road/Mother Lode Drive. The queues could further degrade overall operations near the interchange, potentially affecting the off-ramp approaches.

**Table 2. Cumulative (2035) Conditions Level of Service with Existing Configuration**

Intersection	Control	AM		PM	
		LOS	Delay	LOS	Delay
Missouri Flat Road/Plaza Drive	Signal	B	14.3	D	54.3
Missouri Flat Road/Westbound Ramps	Signal	B	14.3	C	29.9
Missouri Flat Road/Eastbound Ramps	Signal	B	12.7	C	31.6
Missouri Flat Road/Mother Lode Drive	Signal	A	8.4	C	30.9
Note: Source: Kittelson & Associates, 2015					

## CONCLUSION

Completion of the existing and future deficiency analysis will inform the identification of CIP projects to be funded through the updated TIM Fee program.

None of the study intersections reported an existing deficiency. The study intersections would operate at an acceptable level of service under the cumulative conditions, meeting the County's operational standard. However, the existing non-standard spacing between the eastbound ramp and Mother Lode Drive is considered as a design deficiency. Therefore, this location is should be considered an eligible CIP project which cannot be funded through TIM fees. The County should continue to monitor these intersections and, if necessary, work with Caltrans to adjust the signal timings along the corridor to minimize delays and queues.

This interchange will be further evaluated in the MC&FP-II study with refined land use assumptions and roadway network in travel demand model and simulation models.

Appendix A. Existing Conditions  
Level-of-Service Worksheets

**SimTraffic Performance Report**  
**Existing Conditions**

9/2/2015

**1: Missouri Flat Rd & Plaza Dr Performance by movement**

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.1	0.1	0.1	0.2	0.2	0.2	0.0	0.0	0.0	3.6	1.5	4.0
Total Del/Veh (s)	51.6	49.4	9.0	38.2	37.5	20.3	34.9	8.6	3.7	48.9	13.2	3.8
Vehicles Entered	7	7	81	217	22	51	98	422	288	34	293	7
Vehicles Exited	7	7	81	217	22	51	95	422	289	34	293	7
Hourly Exit Rate	7	7	81	217	22	51	95	422	289	34	293	7
Input Volume	7	7	83	228	23	50	101	419	294	34	288	7
% of Volume	97	97	98	95	96	101	94	101	98	99	102	104

**1: Missouri Flat Rd & Plaza Dr Performance by movement**

Movement	All
Denied Del/Veh (s)	0.4
Total Del/Veh (s)	16.6
Vehicles Entered	1527
Vehicles Exited	1525
Hourly Exit Rate	1525
Input Volume	1542
% of Volume	99

**2: Missouri Flat Rd & US 50 WB Ramps Performance by movement**

Movement	WBL	WBT	WBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	1.1	0.4	1.3	0.1	0.0	0.0	0.0	0.4
Total Del/Veh (s)	38.3	26.3	7.7	44.1	6.2	24.0	2.1	23.2
Vehicles Entered	500	1	287	365	525	506	113	2297
Vehicles Exited	504	1	286	365	526	506	113	2301
Hourly Exit Rate	504	1	286	365	526	506	113	2301
Input Volume	487	1	289	368	528	511	116	2299
% of Volume	103	100	99	99	100	99	98	100

**3: Missouri Flat Rd & US 50 EB Ramps Performance by movement**

Movement	EBL	EBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	1.0	1.5	0.0	0.0	0.2	0.0	0.3
Total Del/Veh (s)	37.3	22.6	10.8	2.9	61.6	16.6	19.5
Vehicles Entered	123	367	762	69	162	836	2319
Vehicles Exited	123	368	763	69	163	837	2323
Hourly Exit Rate	123	368	763	69	163	837	2323
Input Volume	119	358	775	71	161	821	2305
% of Volume	103	103	98	97	101	102	101



**SimTraffic Performance Report**  
**Existing Conditions**

9/2/2015

**4: Missouri Flat Rd & Mother Lode Dr Performance by movement**

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	3.9	0.4	0.1	0.0	0.0	0.0	0.2
Total Del/Veh (s)	40.3	10.1	46.1	4.3	6.4	2.1	8.3
Vehicles Entered	118	40	45	716	1125	78	2122
Vehicles Exited	118	40	45	715	1126	77	2121
Hourly Exit Rate	118	40	45	715	1126	77	2121
Input Volume	119	40	44	727	1102	75	2108
% of Volume	99	101	102	98	102	102	101

**5: Missouri Flat Rd & Forni Rd Performance by movement**

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	3.7	0.7	3.7	3.8	0.8	3.7	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	34.7	30.2	4.3	40.6	37.1	15.5	46.3	19.5	6.5	42.2	12.5	7.4
Vehicles Entered	200	74	14	54	44	169	23	835	60	226	717	231
Vehicles Exited	200	75	14	54	44	169	22	833	61	225	715	231
Hourly Exit Rate	200	75	14	54	44	169	22	833	61	225	715	231
Input Volume	205	75	14	53	41	162	21	841	58	224	706	216
% of Volume	98	100	102	102	108	104	106	99	105	100	101	107

**5: Missouri Flat Rd & Forni Rd Performance by movement**

Movement	All
Denied Del/Veh (s)	0.7
Total Del/Veh (s)	20.3
Vehicles Entered	2647
Vehicles Exited	2643
Hourly Exit Rate	2643
Input Volume	2615
% of Volume	101

**Queuing and Blocking Report**  
**Existing Conditions**

9/2/2015

**Intersection: 1: Missouri Flat Rd & Plaza Dr**

Movement	EB	EB	WB	WB	NB	NB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	R	L	LTR	L	L	T	T	R	L	T	TR
Maximum Queue (ft)	103	48	183	191	55	85	141	135	102	95	184	141
Average Queue (ft)	35	14	92	85	12	40	43	62	46	29	65	40
95th Queue (ft)	74	37	158	161	38	75	106	117	85	72	142	105
Link Distance (ft)	348	348	469	469			444	444	444		714	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)					300	300					120	400
Storage Blk Time (%)											0	2
Queuing Penalty (veh)											0	4

**Intersection: 2: Missouri Flat Rd & US 50 WB Ramps**

Movement	WB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	LT	R	R	L	L	T	T	T	T
Maximum Queue (ft)	292	357	137	84	189	230	272	148	262	224
Average Queue (ft)	152	201	55	37	127	151	41	46	144	102
95th Queue (ft)	256	308	103	66	202	222	149	102	231	191
Link Distance (ft)		630	630				456	456	444	444
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	400			400	140	140				
Storage Blk Time (%)		0			4	16	0			
Queuing Penalty (veh)		0			10	42	0			

**Intersection: 3: Missouri Flat Rd & US 50 EB Ramps**

Movement	EB	EB	EB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	LTR	R	T	T	R	L	L	T	T
Maximum Queue (ft)	252	326	274	188	183	153	126	164	305	340
Average Queue (ft)	68	170	106	125	92	24	57	82	150	184
95th Queue (ft)	195	280	227	208	178	87	108	133	262	302
Link Distance (ft)		710		166	166				456	456
Upstream Blk Time (%)				4	1	0				
Queuing Penalty (veh)				17	5	0				
Storage Bay Dist (ft)	400		400			80	140	140		
Storage Blk Time (%)		0			9	0	0	1	7	
Queuing Penalty (veh)		0			6	0	0	3	12	

**Queuing and Blocking Report**  
**Existing Conditions**

9/2/2015

**Intersection: 4: Missouri Flat Rd & Mother Lode Dr**

Movement	EB	EB	EB	NB	NB	NB	SB	SB
Directions Served	L	L	R	L	T	T	T	T
Maximum Queue (ft)	104	106	66	101	176	132	190	193
Average Queue (ft)	48	48	24	42	51	35	110	100
95th Queue (ft)	94	91	55	86	138	96	200	198
Link Distance (ft)			566		286	286	166	166
Upstream Blk Time (%)							2	2
Queuing Penalty (veh)							8	7
Storage Bay Dist (ft)	200	200		140				
Storage Blk Time (%)				0	1			
Queuing Penalty (veh)				0	0			

**Intersection: 5: Missouri Flat Rd & Forni Rd**

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB
Directions Served	L	L	T	R	L	T	R	L	T	T	R	L
Maximum Queue (ft)	150	166	116	63	121	134	178	89	291	337	240	301
Average Queue (ft)	44	78	48	11	45	39	71	17	134	163	27	143
95th Queue (ft)	99	141	96	42	90	94	130	60	250	290	131	251
Link Distance (ft)			704			757		480	480			
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	200	200		160	200		200	240			160	300
Storage Blk Time (%)	0	0	0				0		1	8		1
Queuing Penalty (veh)	0	0	0				0		0	5		4

**Intersection: 5: Missouri Flat Rd & Forni Rd**

Movement	SB	SB	SB
Directions Served	T	T	R
Maximum Queue (ft)	260	264	155
Average Queue (ft)	86	91	39
95th Queue (ft)	195	196	108
Link Distance (ft)	1991	1991	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			160
Storage Blk Time (%)	0	2	
Queuing Penalty (veh)	0	4	

**SimTraffic Performance Report**  
**Existing Conditions**

9/2/2015

**1: Missouri Flat Rd & Plaza Dr Performance by movement**

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.3	0.3	0.2	0.3	0.3	0.3	0.0	0.0	0.0	3.5	1.6	3.7
Total Del/Veh (s)	47.1	54.8	24.6	38.2	38.1	25.5	32.4	17.8	6.5	54.2	33.1	21.8
Vehicles Entered	27	53	337	424	44	51	345	295	431	47	336	18
Vehicles Exited	27	54	336	423	45	51	341	295	431	47	338	18
Hourly Exit Rate	27	54	336	423	45	51	341	295	431	47	338	18
Input Volume	28	51	331	432	43	50	336	297	419	47	338	19
% of Volume	96	106	102	98	105	102	101	99	103	99	100	94

**1: Missouri Flat Rd & Plaza Dr Performance by movement**

Movement	All
Denied Del/Veh (s)	0.4
Total Del/Veh (s)	27.0
Vehicles Entered	2408
Vehicles Exited	2406
Hourly Exit Rate	2406
Input Volume	2392
% of Volume	101

**2: Missouri Flat Rd & US 50 WB Ramps Performance by movement**

Movement	WBL	WBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.7	2.9	0.1	0.0	0.4	0.4	0.7
Total Del/Veh (s)	33.3	8.5	40.3	10.7	32.5	3.0	24.3
Vehicles Entered	632	402	365	672	941	184	3196
Vehicles Exited	636	402	366	672	938	184	3198
Hourly Exit Rate	636	402	366	672	938	184	3198
Input Volume	636	394	366	662	942	187	3187
% of Volume	100	102	100	102	100	99	100

**3: Missouri Flat Rd & US 50 EB Ramps Performance by movement**

Movement	EBL	EBT	EBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	2.5	4.1	3.5	0.0	0.0	0.2	0.0	0.8
Total Del/Veh (s)	39.1	42.8	37.9	17.2	5.3	62.3	23.8	29.3
Vehicles Entered	190	3	586	838	109	370	1194	3290
Vehicles Exited	190	4	587	838	109	373	1199	3300
Hourly Exit Rate	190	4	587	838	109	373	1199	3300
Input Volume	191	4	587	830	106	376	1194	3288
% of Volume	99	100	100	101	103	99	100	100

**SimTraffic Performance Report**  
**Existing Conditions**

9/2/2015

**4: Missouri Flat Rd & Mother Lode Dr Performance by movement**

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	3.8	0.6	0.0	0.0	0.0	0.0	0.3
Total Del/Veh (s)	43.2	19.2	42.7	7.9	8.6	1.7	10.8
Vehicles Entered	168	64	54	778	1574	211	2849
Vehicles Exited	170	64	54	780	1575	210	2853
Hourly Exit Rate	170	64	54	780	1575	210	2853
Input Volume	168	64	52	771	1564	216	2836
% of Volume	101	100	103	101	101	97	101

**5: Missouri Flat Rd & Forni Rd Performance by movement**

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Denied Del/Veh (s)	3.5	1.3	3.4	3.7	0.7	3.7	0.0	0.0	0.0	0.1	0.0	0.0
Total Del/Veh (s)	54.8	35.8	5.1	44.3	41.9	18.2	47.5	45.9	23.4	5.8	51.5	52.3
Vehicles Entered	453	32	42	32	50	185	3	45	754	23	8	134
Vehicles Exited	455	32	42	33	51	186	3	45	753	23	8	135
Hourly Exit Rate	455	32	42	33	51	186	3	45	753	23	8	135
Input Volume	461	34	42	31	48	179	4	43	759	22	8	138
% of Volume	99	95	101	107	106	104	75	105	99	103	100	98

**5: Missouri Flat Rd & Forni Rd Performance by movement**

Movement	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.8
Total Del/Veh (s)	23.9	14.9	28.7
Vehicles Entered	1144	332	3237
Vehicles Exited	1140	331	3237
Hourly Exit Rate	1140	331	3237
Input Volume	1137	327	3232
% of Volume	100	101	100

**Queuing and Blocking Report**  
**Existing Conditions**

9/2/2015

**Intersection: 1: Missouri Flat Rd & Plaza Dr**

Movement	EB	EB	WB	WB	NB	NB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	R	L	LTR	L	L	T	T	R	L	T	TR
Maximum Queue (ft)	302	251	282	279	173	188	108	130	151	152	253	221
Average Queue (ft)	158	76	156	146	76	107	41	67	75	42	114	85
95th Queue (ft)	260	182	244	238	143	163	89	111	125	104	226	192
Link Distance (ft)	670	670	469	469			443	443	443		713	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)					300	300				120		400
Storage Blk Time (%)										0	11	0
Queuing Penalty (veh)										1	26	0

**Intersection: 2: Missouri Flat Rd & US 50 WB Ramps**

Movement	WB	WB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	LT	R	R	L	L	T	T	T	T	R
Maximum Queue (ft)	307	288	150	95	189	236	328	215	434	430	86
Average Queue (ft)	183	171	68	47	125	150	93	81	282	232	6
95th Queue (ft)	270	258	123	80	192	216	216	170	422	388	90
Link Distance (ft)	630	630					456	456	443	443	
Upstream Blk Time (%)							0	0	1	1	0
Queuing Penalty (veh)							0	0	8	3	0
Storage Bay Dist (ft)			400	400	140	140					380
Storage Blk Time (%)					2	14	1			1	
Queuing Penalty (veh)					8	48	4			2	

**Intersection: 3: Missouri Flat Rd & US 50 EB Ramps**

Movement	EB	EB	EB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	LTR	R	T	T	R	L	L	T	T
Maximum Queue (ft)	416	427	377	185	181	165	190	240	455	451
Average Queue (ft)	153	239	192	162	117	45	132	164	250	268
95th Queue (ft)	356	404	349	198	194	122	198	244	416	410
Link Distance (ft)	710			166	166				456	456
Upstream Blk Time (%)	0			15	3	0			0	0
Queuing Penalty (veh)	0			70	12	0			3	3
Storage Bay Dist (ft)		400	400			80	140	140		
Storage Blk Time (%)	0	2	0		17	0	9	23	20	
Queuing Penalty (veh)	1	2	0		18	1	56	137	78	

**Queuing and Blocking Report**  
**Existing Conditions**

9/2/2015

**Intersection: 4: Missouri Flat Rd & Mother Lode Dr**

Movement	EB	EB	EB	NB	NB	NB	SB	SB
Directions Served	L	L	R	L	T	T	T	T
Maximum Queue (ft)	168	117	101	153	260	164	212	201
Average Queue (ft)	73	54	38	47	99	49	151	146
95th Queue (ft)	137	102	81	102	208	124	219	217
Link Distance (ft)			566		279	279	166	166
Upstream Blk Time (%)					0		8	7
Queuing Penalty (veh)					1		46	42
Storage Bay Dist (ft)	200	200		140				
Storage Blk Time (%)	0			0	4			
Queuing Penalty (veh)	0			0	2			

**Intersection: 5: Missouri Flat Rd & Forni Rd**

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB
Directions Served	L	L	T	R	L	T	R	UL	T	T	R	UL
Maximum Queue (ft)	286	343	189	89	82	119	174	129	303	328	135	257
Average Queue (ft)	165	200	33	25	31	42	83	36	146	168	12	106
95th Queue (ft)	282	317	123	62	70	89	143	90	266	288	85	207
Link Distance (ft)			704			758			476	476		
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	200	200		160	200		200	240			160	300
Storage Blk Time (%)	4	15	0				0		1	11		0
Queuing Penalty (veh)	3	12	0				0		0	2		0

**Intersection: 5: Missouri Flat Rd & Forni Rd**

Movement	SB	SB	SB
Directions Served	T	T	R
Maximum Queue (ft)	417	456	240
Average Queue (ft)	200	218	120
95th Queue (ft)	374	409	282
Link Distance (ft)	1996	1996	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			160
Storage Blk Time (%)	3	14	0
Queuing Penalty (veh)	4	47	0

Appendix B. Cumulative  
Conditions Level-of-Service  
Worksheets



**SimTraffic Performance Report**  
**Cumulative Conditions**

9/2/2015

**1: Missouri Flat Rd & Plaza Dr Performance by movement**

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.1	0.1	0.1	0.2	0.3	0.2	0.0	0.0	0.0	3.3	1.6	3.4
Total Del/Veh (s)	33.8	40.6	8.3	41.2	46.3	26.2	37.2	7.4	3.3	41.5	9.1	3.4
Vehicles Entered	8	7	80	223	21	53	101	666	295	33	507	8
Vehicles Exited	8	7	80	223	21	53	101	666	295	33	508	8
Hourly Exit Rate	8	7	80	223	21	53	101	666	295	33	508	8
Input Volume	7	7	83	228	23	50	101	656	294	34	502	7
% of Volume	110	97	96	98	92	105	100	101	100	97	101	110

**1: Missouri Flat Rd & Plaza Dr Performance by movement**

Movement	All
Denied Del/Veh (s)	0.5
Total Del/Veh (s)	14.3
Vehicles Entered	2002
Vehicles Exited	2003
Hourly Exit Rate	2003
Input Volume	1992
% of Volume	101

**2: Missouri Flat Rd & US 50 WB Ramps Performance by movement**

Movement	WBL	WBT	WBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.4	0.5	2.8	0.0	0.0	0.0	0.0	0.4
Total Del/Veh (s)	29.1	20.4	9.9	19.2	5.7	15.4	2.2	14.3
Vehicles Entered	494	1	343	361	721	642	183	2745
Vehicles Exited	495	1	343	359	721	642	184	2745
Hourly Exit Rate	495	1	343	359	721	642	184	2745
Input Volume	487	1	345	368	709	646	180	2737
% of Volume	102	100	99	98	102	99	102	100

**3: Missouri Flat Rd & US 50 EB Ramps Performance by movement**

Movement	EBL	EBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	1.2	3.4	0.0	0.0	0.1	0.0	0.6
Total Del/Veh (s)	27.4	22.0	11.0	3.2	22.0	7.0	12.7
Vehicles Entered	125	472	959	108	185	951	2800
Vehicles Exited	125	474	959	108	184	951	2801
Hourly Exit Rate	125	474	959	108	184	951	2801
Input Volume	125	469	954	105	182	946	2781
% of Volume	100	101	100	103	101	101	101

**SimTraffic Performance Report**  
**Cumulative Conditions**

9/2/2015

**4: Missouri Flat Rd & Mother Lode Dr Performance by movement**

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	3.9	0.5	0.0	0.0	0.0	0.0	0.2
Total Del/Veh (s)	26.7	13.6	33.3	5.6	8.5	1.3	8.4
Vehicles Entered	121	65	47	1126	1346	75	2780
Vehicles Exited	122	65	48	1126	1347	75	2783
Hourly Exit Rate	122	65	48	1126	1347	75	2783
Input Volume	119	62	49	1122	1335	75	2762
% of Volume	103	105	97	100	101	100	101

**Total Zone Performance**

Denied Del/Veh (s)	1.7
Total Del/Veh (s)	421.7
Vehicles Entered	2618
Vehicles Exited	239
Hourly Exit Rate	239
Input Volume	10272
% of Volume	2

**Queuing and Blocking Report**  
**Cumulative Conditions**

9/2/2015

**Intersection: 1: Missouri Flat Rd & Plaza Dr**

Movement	EB	EB	WB	WB	NB	NB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	R	L	LTR	L	L	T	T	R	L	T	TR
Maximum Queue (ft)	86	41	171	195	69	92	141	142	110	93	200	148
Average Queue (ft)	32	14	85	90	15	43	49	68	43	27	74	47
95th Queue (ft)	62	34	150	172	46	77	109	124	82	69	151	111
Link Distance (ft)	670	670	469	469			442	442	442		713	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)					300	300					120	400
Storage Blk Time (%)											0	2
Queuing Penalty (veh)											0	6

**Intersection: 2: Missouri Flat Rd & US 50 WB Ramps**

Movement	WB	WB	WB	WB	NB	NB	NB	NB	SB	SB	
Directions Served	L	LT	R	R	L	L	T	T	T	T	
Maximum Queue (ft)	225	218	128	115	171	192	104	101	209	174	
Average Queue (ft)	129	124	64	42	85	114	32	33	110	83	
95th Queue (ft)	196	195	110	84	153	168	76	82	182	151	
Link Distance (ft)	1283	1283					456	456	442	442	
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)			400	400	140	140					
Storage Blk Time (%)						0	2	0			
Queuing Penalty (veh)						1	6	0			

**Intersection: 3: Missouri Flat Rd & US 50 EB Ramps**

Movement	EB	EB	EB	NB	NB	NB	SB	SB	SB	SB	
Directions Served	L	LTR	R	T	T	R	L	L	T	T	
Maximum Queue (ft)	127	253	222	197	188	164	119	131	167	201	
Average Queue (ft)	57	135	94	139	131	38	51	74	36	53	
95th Queue (ft)	107	220	191	210	200	116	100	115	110	140	
Link Distance (ft)	1027			165	165					456	456
Upstream Blk Time (%)				4	2	0					
Queuing Penalty (veh)				20	12	0					
Storage Bay Dist (ft)			400	400			80	140	140		
Storage Blk Time (%)					13	0	0	0	0		
Queuing Penalty (veh)					14	0	0	0	1		

**Queuing and Blocking Report**  
**Cumulative Conditions**

9/2/2015

**Intersection: 4: Missouri Flat Rd & Mother Lode Dr**

Movement	EB	EB	EB	NB	NB	NB	SB	SB
Directions Served	L	L	R	L	T	T	T	T
Maximum Queue (ft)	80	112	86	112	208	198	205	185
Average Queue (ft)	29	47	34	39	76	64	139	130
95th Queue (ft)	68	91	74	84	162	148	212	199
Link Distance (ft)			893		280	280	165	165
Upstream Blk Time (%)					0	0	4	3
Queuing Penalty (veh)					2	2	19	14
Storage Bay Dist (ft)	200	200		140				
Storage Blk Time (%)				0	1			
Queuing Penalty (veh)				0	1			

**Zone Summary**

Zone wide Queuing Penalty: 97

**SimTraffic Performance Report**  
**Cumulative Conditions**

9/2/2015

**1: Missouri Flat Rd & Plaza Dr Performance by movement**

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.3	0.3	0.2	0.4	0.5	0.4	0.0	0.0	0.0	56.7	68.2	73.4
Total Del/Veh (s)	34.2	32.7	20.5	53.7	46.1	32.6	57.7	22.6	6.3	140.6	127.1	96.1
Vehicles Entered	25	50	333	424	42	55	336	614	416	44	659	18
Vehicles Exited	25	51	334	428	42	55	338	615	417	43	649	18
Hourly Exit Rate	25	51	334	428	42	55	338	615	417	43	649	18
Input Volume	28	51	331	432	43	50	336	630	419	47	689	19
% of Volume	90	100	101	99	97	109	101	98	100	91	94	96

**1: Missouri Flat Rd & Plaza Dr Performance by movement**

Movement	All
Denied Del/Veh (s)	16.7
Total Del/Veh (s)	54.3
Vehicles Entered	3016
Vehicles Exited	3015
Hourly Exit Rate	3015
Input Volume	3074
% of Volume	98

**2: Missouri Flat Rd & US 50 WB Ramps Performance by movement**

Movement	WBL	WBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.5	2.6	0.0	0.0	0.2	0.0	0.5
Total Del/Veh (s)	37.1	14.9	22.9	8.5	56.2	5.0	29.9
Vehicles Entered	647	460	452	908	1165	248	3880
Vehicles Exited	645	459	451	909	1161	249	3874
Hourly Exit Rate	645	459	451	909	1161	249	3874
Input Volume	643	457	462	927	1198	254	3942
% of Volume	100	100	98	98	97	98	98

**3: Missouri Flat Rd & US 50 EB Ramps Performance by movement**

Movement	EBL	EBT	EBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	1.8	4.1	3.3	0.0	0.0	0.0	0.1	0.7
Total Del/Veh (s)	26.7	44.3	31.2	22.1	5.8	45.1	38.2	31.6
Vehicles Entered	233	3	662	1127	115	422	1390	3952
Vehicles Exited	234	3	661	1127	115	421	1390	3951
Hourly Exit Rate	234	3	661	1127	115	421	1390	3951
Input Volume	241	4	653	1148	124	439	1408	4017
% of Volume	97	75	101	98	93	96	99	98

**SimTraffic Performance Report**  
**Cumulative Conditions**

9/2/2015

**4: Missouri Flat Rd & Mother Lode Dr Performance by movement**

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	25.5	19.8	0.0	0.0	0.0	0.0	1.6
Total Del/Veh (s)	371.0	72.7	49.4	12.2	11.3	1.8	30.9
Vehicles Entered	165	69	62	1111	1825	221	3453
Vehicles Exited	142	66	62	1111	1824	222	3427
Hourly Exit Rate	142	66	62	1111	1824	222	3427
Input Volume	173	66	65	1110	1832	224	3469
% of Volume	82	100	95	100	100	99	99

**Total Zone Performance**

Denied Del/Veh (s)	15.5
Total Del/Veh (s)	2352.2
Vehicles Entered	3905
Vehicles Exited	20
Hourly Exit Rate	20
Input Volume	14502
% of Volume	0

**Queuing and Blocking Report**  
**Cumulative Conditions**

9/2/2015

**Intersection: 1: Missouri Flat Rd & Plaza Dr**

Movement	EB	EB	WB	WB	NB	NB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	R	L	LTR	L	L	T	T	R	L	T	TR
Maximum Queue (ft)	263	196	374	356	222	234	224	235	153	180	733	499
Average Queue (ft)	136	60	193	174	109	129	107	123	71	96	504	362
95th Queue (ft)	221	140	339	317	198	211	187	194	120	219	887	617
Link Distance (ft)	670	670	469	469			442	442	442		713	
Upstream Blk Time (%)			1	1								30
Queuing Penalty (veh)			0	0								0
Storage Bay Dist (ft)					300	300				120		400
Storage Blk Time (%)					0	0	0			1	71	28
Queuing Penalty (veh)					0	0	0			5	291	106

**Intersection: 2: Missouri Flat Rd & US 50 WB Ramps**

Movement	WB	WB	WB	WB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	LT	R	R	L	L	T	T	T	T	R
Maximum Queue (ft)	306	301	209	178	189	223	184	142	482	490	430
Average Queue (ft)	178	182	99	64	128	152	51	56	369	333	105
95th Queue (ft)	271	274	171	130	199	212	121	116	561	558	410
Link Distance (ft)	1283	1283					456	456	442	442	
Upstream Blk Time (%)									9	4	0
Queuing Penalty (veh)									63	29	0
Storage Bay Dist (ft)			400	400	140	140					380
Storage Blk Time (%)					1	6	0			11	0
Queuing Penalty (veh)					3	28	0			27	0

**Intersection: 3: Missouri Flat Rd & US 50 EB Ramps**

Movement	EB	EB	EB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	LTR	R	T	T	R	L	L	T	T
Maximum Queue (ft)	206	321	291	211	213	165	190	240	485	477
Average Queue (ft)	103	213	182	174	171	60	140	192	352	354
95th Queue (ft)	176	296	271	202	205	161	211	268	524	519
Link Distance (ft)	1027			165	165				456	456
Upstream Blk Time (%)				25	19	0			1	2
Queuing Penalty (veh)				158	122	0			14	14
Storage Bay Dist (ft)		400	400			80	140	140		
Storage Blk Time (%)					36	0	7	17	40	
Queuing Penalty (veh)					45	1	49	119	178	

**Queuing and Blocking Report**  
**Cumulative Conditions**

9/2/2015

**Intersection: 4: Missouri Flat Rd & Mother Lode Dr**

Movement	EB	EB	EB	NB	NB	NB	SB	SB
Directions Served	L	L	R	L	T	T	T	T
Maximum Queue (ft)	288	382	665	175	276	258	198	215
Average Queue (ft)	195	240	267	56	147	139	174	177
95th Queue (ft)	345	443	799	124	244	235	187	198
Link Distance (ft)			893		280	280	165	165
Upstream Blk Time (%)			12		0	0	16	14
Queuing Penalty (veh)			0		2	1	110	98
Storage Bay Dist (ft)	200	200		140				
Storage Blk Time (%)	44	47	2	1	8			
Queuing Penalty (veh)	29	31	3	3	5			

**Zone Summary**

Zone wide Queuing Penalty: 1535





## MEMORANDUM

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Date: March 31, 2016

Project #:  
17666.0

To: Claudia Wade  
County of El Dorado  
2850 Fairlane Court, Building C  
Placerville, CA 95667



From: Chirag Safi

Project: CIP & TIM Fee Update: Western Slope

Subject: Attachment Material for Technical Memorandum 2-3: Cameron Park Drive Interchange

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This memorandum summarizes the existing deficiency analysis at the Cameron Park Drive interchange with US 50, including the Mitigation Fee Act (MFA) nexus justification for the improvement concepts to be advanced as part of the Major Capital Improvement Program (CIP) & Traffic Impact Mitigation (TIM) Fee Update.

Two intersections were included in analysis, as listed below.

1. Cameron Park Drive and Country Club Drive/US 50 Westbound Ramps
2. Cameron Park Drive and US 50 Eastbound Ramps

## ANALYSIS METHODOLOGY

The existing deficiency analysis at the study intersections was performed based on the tools, methodologies and assumptions described in the Technical Memorandum 2-1: Analysis Methodology. Synchro models were used to report operational results.

## LEVEL OF SERVICE STANDARDS

The following criteria are established to determine whether the vehicular traffic on a roadway facility exceeds the standard operating conditions.

### County Roadways

Circulation Policy TC-Xd of the El Dorado County General Plan provides level of service standards for County-maintained roads and state highways as follows:

*Level of Service (LOS) for County-maintained roads and state highways within the unincorporated areas of the county shall not be worse than LOS E in the Community Regions or LOS D in the Rural Centers and Rural Regions except as specified in Table TC-2. The volume to capacity ratio of the roadway segments listed in Table TC-2 shall not exceed the ratio specified in that table.*

Roadways in the community regions are evaluated against LOS E standard, while those in the rural regions and rural centers were analyzed against LOS D.

**State Facilities**

County’s Policy TC-Xd is applicable not only to the County roadways, but also to the state facilities. As such, traffic conditions for state facilities within the unincorporated areas of the County shall not be worse than LOS E in the community regions and LOS D in the rural center and rural regions, with except to the locations specified in Table TC-2.

The two study intersections listed earlier are located in the community area, and therefore, the analysis was performed using LOS E threshold which is consistent with Caltrans criteria in the Transportation Concept Report and Corridor System Management Plan.

**EXISTING DEFICIENCY ANALYSIS**

Existing AM and PM peak period turning movement counts collected in March 2016 were used to conduct existing deficiency analysis. All counts were collected on Wednesday, March 3, 2016. The schools were in session and weather was dry. In order to better reflect existing demand, the turning movement counts at ramp intersections were balanced upwardly. Table 1 shows level of service and delay results for the existing conditions. Appendix A provides the analysis worksheets.

**Table 1. Existing (2016) Conditions Level of Service**

Intersection	Control	AM		PM	
		LOS	Delay	LOS	Delay
Cameron Park Drive/Country Club Drive/US 50 Westbound Ramps	Signal	C	33.5	C	25.8
Cameron Park Drive/US 50 Eastbound Ramps	Signal	B	16.2	C	27.7
Source: Kittelson & Associates, 2016					

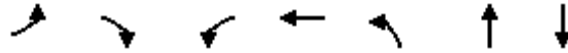
The study intersections currently operate within the County’s and Caltrans operational threshold. The 95<sup>th</sup> percentile queues on the off-ramp approaches are accommodated within the available storage.

## CONCLUSION

Completion of the existing and future deficiency analysis will inform the identification of CIP projects to be funded through the updated TIM Fee program. None of the study intersections reported an existing deficiency. Therefore, this interchange is considered an eligible CIP project which can be funded through TIM fees.

Appendix A. Existing Conditions  
Level-of-Service Worksheets

**Queues**  
**4: Cameron Park Dr & Country Club Dr/US 50 WB off ramp**























Lane Group	EBL	EBR	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	52	220	205	470	61	583	1144
v/c Ratio	0.37	0.49	0.70	0.64	0.39	0.31	0.54
Control Delay	46.2	29.8	47.8	9.9	47.6	8.3	18.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.2	29.8	47.8	9.9	47.6	8.3	18.1
Queue Length 50th (ft)	29	101	111	32	37	70	135
Queue Length 95th (ft)	60	155	166	112	76	93	206
Internal Link Dist (ft)				817		107	395
Turn Bay Length (ft)	130		75				
Base Capacity (vph)	194	510	389	741	233	1907	2108
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.43	0.53	0.63	0.26	0.31	0.54

**Intersection Summary**

**Exhibit D**  
**141 of 175**

**HCM 2010 Signalized Intersection Summary**  
**4: Cameron Park Dr & Country Club Dr/US 50 WB off ramp**

Existing AM  
3/31/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	45	0	191	178	50	359	53	319	188	0	973	23
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	0	1845	1845	1845	1900	1845	1845	1900	0	1845	1900
Adj Flow Rate, veh/h	52	0	220	205	57	413	61	367	0	0	1118	26
Adj No. of Lanes	1	0	1	1	1	0	1	2	0	0	3	0
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	3	0	3	3	3	3	3	3	3	0	3	3
Cap, veh/h	66	0	0	622	53	380	78	1955	0	0	2404	56
Arrive On Green	0.04	0.00	0.00	0.35	0.27	0.27	0.09	1.00	0.00	0.00	0.47	0.47
Sat Flow, veh/h	1757	52		1757	194	1403	1757	3597	0	0	5229	118
Grp Volume(v), veh/h	52	50.4		205	0	470	61	367	0	0	741	403
Grp Sat Flow(s),veh/h/ln	1757	D		1757	0	1597	1757	1752	0	0	1679	1824
Q Serve(g_s), s	2.6			7.7	0.0	24.4	3.1	0.0	0.0	0.0	13.4	13.4
Cycle Q Clear(g_c), s	2.6			7.7	0.0	24.4	3.1	0.0	0.0	0.0	13.4	13.4
Prop In Lane	1.00			1.00		0.88	1.00		0.00	0.00		0.06
Lane Grp Cap(c), veh/h	66			622	0	433	78	1955	0	0	1594	866
V/C Ratio(X)	0.79			0.33	0.00	1.09	0.78	0.19	0.00	0.00	0.47	0.47
Avail Cap(c_a), veh/h	195			622	0	433	234	1955	0	0	1594	866
HCM Platoon Ratio	1.00			1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00			1.00	0.00	1.00	1.00	1.00	0.00	0.00	0.70	0.70
Uniform Delay (d), s/veh	42.9			21.2	0.0	32.8	40.6	0.0	0.0	0.0	15.9	15.9
Incr Delay (d2), s/veh	7.4			0.2	0.0	68.2	11.9	0.2	0.0	0.0	0.7	1.3
Initial Q Delay(d3),s/veh	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4			3.7	0.0	18.9	1.7	0.1	0.0	0.0	6.3	7.0
LnGrp Delay(d),s/veh	50.4			21.5	0.0	101.0	52.5	0.2	0.0	0.0	16.6	17.2
LnGrp LOS	D			C		F	D	A			B	B
Approach Vol, veh/h					675			428			1144	
Approach Delay, s/veh					76.9			7.7			16.8	
Approach LOS					E			A			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3		5	6	7	8				
Phs Duration (G+Y+Rc), s		54.6	35.4		7.5	47.1	6.9	28.5				
Change Period (Y+Rc), s		* 4.4	3.5		3.5	4.4	3.5	4.1				
Max Green Setting (Gmax), s		* 44	20.0		12.0	28.1	10.0	24.4				
Max Q Clear Time (g_c+I1), s		2.0	9.7		5.1	15.4	4.6	26.4				
Green Ext Time (p_c), s		8.7	0.3		0.0	5.8	0.0	0.0				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			33.5									
HCM 2010 LOS			C									
<b>Notes</b>												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

Queues  
5: Cameron Park Dr & US 50 EB ramps





















Lane Group	EBT	EBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	199	229	403	168	427	615
v/c Ratio	0.59	0.76	0.22	0.19	0.75	0.25
Control Delay	39.4	49.9	13.9	4.6	49.6	2.5
Queue Delay	0.0	0.0	0.3	0.3	0.0	0.0
Total Delay	39.4	49.9	14.2	5.0	49.6	2.5
Queue Length 50th (ft)	104	124	64	0	126	30
Queue Length 95th (ft)	155	183	120	38	176	38
Internal Link Dist (ft)	664		196			285
Turn Bay Length (ft)					250	
Base Capacity (vph)	545	487	1793	884	659	2496
Starvation Cap Reductn	0	0	806	357	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.47	0.41	0.32	0.65	0.25

Intersection Summary

**Exhibit D**  
**143 of 175**

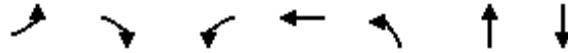
**HCM 2010 Signalized Intersection Summary**  
**5: Cameron Park Dr & US 50 EB ramps**

Existing AM  
3/31/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	185	0	213	0	0	0	0	375	156	397	572	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1845	1845				0	1845	1845	1845	1845	0
Adj Flow Rate, veh/h	199	0	229				0	403	168	427	615	0
Adj No. of Lanes	0	1	1				0	2	1	2	2	0
Peak Hour Factor	0.93	0.93	0.93				0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	3	3	3				0	3	3	3	3	0
Cap, veh/h	302	0	269				0	1945	870	492	2568	0
Arrive On Green	0.17	0.00	0.17				0.00	1.00	1.00	0.29	1.00	0.00
Sat Flow, veh/h	1757	0	1568				0	3597	1568	3408	3597	0
Grp Volume(v), veh/h	199	0	229				0	403	168	427	615	0
Grp Sat Flow(s),veh/h/ln	1757	0	1568				0	1752	1568	1704	1752	0
Q Serve(g_s), s	9.5	0.0	12.7				0.0	0.0	0.0	10.7	0.0	0.0
Cycle Q Clear(g_c), s	9.5	0.0	12.7				0.0	0.0	0.0	10.7	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	302	0	269				0	1945	870	492	2568	0
V/C Ratio(X)	0.66	0.00	0.85				0.00	0.21	0.19	0.87	0.24	0.00
Avail Cap(c_a), veh/h	547	0	488				0	1945	870	644	2568	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	2.00	2.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.99	0.99	1.00	1.00	0.00
Uniform Delay (d), s/veh	34.8	0.0	36.1				0.0	0.0	0.0	31.2	0.0	0.0
Incr Delay (d2), s/veh	0.9	0.0	2.9				0.0	0.2	0.5	8.1	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.7	0.0	5.8				0.0	0.1	0.1	5.5	0.1	0.0
LnGrp Delay(d),s/veh	35.7	0.0	39.0				0.0	0.2	0.5	39.3	0.2	0.0
LnGrp LOS	D		D					A	A	D	A	
Approach Vol, veh/h		428						571			1042	
Approach Delay, s/veh		37.5						0.3			16.2	
Approach LOS		D						A			B	
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	16.0	54.5		19.5		70.5						
Change Period (Y+Rc), s	3.0	4.6		4.0		4.6						
Max Green Setting (Gmax), s	17.0	33.4		28.0		53.4						
Max Q Clear Time (g_c+I1), s	12.7	2.0		14.7		2.0						
Green Ext Time (p_c), s	0.3	5.6		0.7		5.8						
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			16.2									
HCM 2010 LOS			B									



**Queues**  
**4: Cameron Park Dr & Country Club Dr/US 50 WB off ramp**



Lane Group	EBL	EBR	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	78	155	218	453	175	1208	1203
v/c Ratio	0.55	0.28	0.72	0.83	0.73	0.66	0.67
Control Delay	57.8	22.5	52.0	36.0	62.8	15.6	32.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.8	22.5	52.0	36.0	62.8	15.6	32.7
Queue Length 50th (ft)	48	67	133	200	120	198	242
Queue Length 95th (ft)	95	106	197	283	m175	271	#409
Internal Link Dist (ft)				817		107	395
Turn Bay Length (ft)	130		75				
Base Capacity (vph)	175	578	525	681	270	1824	1794
Starvation Cap Reductn	0	0	0	0	0	35	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.45	0.27	0.42	0.67	0.65	0.68	0.67





















**Intersection Summary**

- # 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

**Exhibit D**  
**145 of 175**

**HCM 2010 Signalized Intersection Summary**  
**4: Cameron Park Dr & Country Club Dr/US 50 WB off ramp**

Existing PM  
3/31/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	75	0	149	209	54	381	168	855	304	0	1107	48
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	0	1845	1845	1845	1900	1845	1845	1900	0	1845	1900
Adj Flow Rate, veh/h	78	0	155	218	56	397	175	891	0	0	1153	50
Adj No. of Lanes	1	0	1	1	1	0	1	2	0	0	3	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	3	0	3	3	3	3	3	3	3	0	3	3
Cap, veh/h	112	0	0	732	62	437	203	1768	0	0	1751	76
Arrive On Green	0.06	0.00	0.00	0.42	0.31	0.31	0.23	1.00	0.00	0.00	0.35	0.35
Sat Flow, veh/h	1757	78		1757	197	1400	1757	3597	0	0	5116	215
Grp Volume(v), veh/h	78	48.8		218	0	453	175	891	0	0	782	421
Grp Sat Flow(s),veh/h/ln	1757	D		1757	0	1598	1757	1752	0	0	1679	1807
Q Serve(g_s), s	4.4			8.3	0.0	27.2	9.6	0.0	0.0	0.0	19.6	19.6
Cycle Q Clear(g_c), s	4.4			8.3	0.0	27.2	9.6	0.0	0.0	0.0	19.6	19.6
Prop In Lane	1.00			1.00		0.88	1.00		0.00	0.00		0.12
Lane Grp Cap(c), veh/h	112			732	0	498	203	1768	0	0	1188	639
V/C Ratio(X)	0.70			0.30	0.00	0.91	0.86	0.50	0.00	0.00	0.66	0.66
Avail Cap(c_a), veh/h	176			732	0	597	264	1768	0	0	1188	639
HCM Platoon Ratio	1.00			1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00			1.00	0.00	1.00	1.00	1.00	0.00	0.00	0.91	0.91
Uniform Delay (d), s/veh	45.9			19.4	0.0	33.1	37.6	0.0	0.0	0.0	27.2	27.2
Incr Delay (d2), s/veh	2.9			0.2	0.0	16.1	18.4	1.0	0.0	0.0	2.6	4.8
Initial Q Delay(d3),s/veh	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2			4.0	0.0	14.2	5.6	0.3	0.0	0.0	9.6	10.7
LnGrp Delay(d),s/veh	48.8			19.6	0.0	49.2	56.0	1.0	0.0	0.0	29.8	32.0
LnGrp LOS	D			B		D	E	A			C	C
Approach Vol, veh/h					671			1066			1203	
Approach Delay, s/veh					39.6			10.1			30.6	
Approach LOS					D			B			C	
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>				
Assigned Phs		2	3		5	6	7	8				
Phs Duration (G+Y+Rc), s		54.9	45.1		15.1	39.8	9.9	35.3				
Change Period (Y+Rc), s		* 4.4	3.5		3.5	4.4	3.5	4.1				
Max Green Setting (Gmax), s		* 41	30.0		15.0	22.1	10.0	37.4				
Max Q Clear Time (g_c+I1), s		2.0	10.3		11.6	21.6	6.4	29.2				
Green Ext Time (p_c), s		14.3	0.4		0.1	0.4	0.0	1.9				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			25.8									
HCM 2010 LOS			C									
<b>Notes</b>												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

Queues  
5: Cameron Park Dr & US 50 EB ramps



Lane Group	EBT	EBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	435	403	919	362	405	807
v/c Ratio	0.90	0.93	0.57	0.39	0.81	0.36
Control Delay	58.0	65.5	22.0	3.3	61.9	7.4
Queue Delay	0.0	0.0	25.6	1.0	0.0	0.0
Total Delay	58.0	65.5	47.6	4.3	61.9	7.4
Queue Length 50th (ft)	261	245	229	0	143	73
Queue Length 95th (ft)	#431	#418	295	51	#193	107
Internal Link Dist (ft)	664		196			285
Turn Bay Length (ft)					250	
Base Capacity (vph)	508	454	1619	919	544	2237
Starvation Cap Reductn	0	0	730	317	0	0
Spillback Cap Reductn	0	0	19	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.86	0.89	1.03	0.60	0.74	0.36



















Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

**Exhibit D**  
**147 of 175**

**HCM 2010 Signalized Intersection Summary**  
**5: Cameron Park Dr & US 50 EB ramps**

Existing PM  
3/31/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	426	0	395	0	0	0	0	901	355	397	791	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1845	1845				0	1845	1845	1845	1845	0
Adj Flow Rate, veh/h	435	0	403				0	919	362	405	807	0
Adj No. of Lanes	0	1	1				0	2	1	2	2	0
Peak Hour Factor	0.98	0.98	0.98				0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	3	3	3				0	3	3	3	3	0
Cap, veh/h	485	0	432				0	1657	741	462	2237	0
Arrive On Green	0.28	0.00	0.28				0.00	0.47	0.47	0.27	1.00	0.00
Sat Flow, veh/h	1757	0	1568				0	3597	1568	3408	3597	0
Grp Volume(v), veh/h	435	0	403				0	919	362	405	807	0
Grp Sat Flow(s),veh/h/ln	1757	0	1568				0	1752	1568	1704	1752	0
Q Serve(g_s), s	23.8	0.0	25.1				0.0	18.7	15.8	11.4	0.0	0.0
Cycle Q Clear(g_c), s	23.8	0.0	25.1				0.0	18.7	15.8	11.4	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	485	0	432				0	1657	741	462	2237	0
V/C Ratio(X)	0.90	0.00	0.93				0.00	0.55	0.49	0.88	0.36	0.00
Avail Cap(c_a), veh/h	509	0	455				0	1657	741	545	2237	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.87	0.87	1.00	1.00	0.00
Uniform Delay (d), s/veh	34.9	0.0	35.3				0.0	18.8	18.1	35.7	0.0	0.0
Incr Delay (d2), s/veh	17.3	0.0	24.8				0.0	1.2	2.0	12.0	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	13.9	0.0	13.8				0.0	9.3	7.2	6.1	0.1	0.0
LnGrp Delay(d),s/veh	52.2	0.0	60.1				0.0	20.0	20.1	47.7	0.5	0.0
LnGrp LOS	D		E					C	C	D	A	
Approach Vol, veh/h		838						1281			1212	
Approach Delay, s/veh		56.0						20.0			16.2	
Approach LOS		E						C			B	
<b>Timer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	16.5	51.9		31.6		68.4						
Change Period (Y+Rc), s	3.0	4.6		4.0		4.6						
Max Green Setting (Gmax), s	16.0	43.4		29.0		62.4						
Max Q Clear Time (g_c+I1), s	13.4	20.7		27.1		2.0						
Green Ext Time (p_c), s	0.2	10.4		0.5		13.6						
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			27.7									
HCM 2010 LOS			C									

ATTACHMENT F

GRAPHICS FOR FAIR SHARE ANALYSIS RESULTS

## Capital Improvement Program Projects Funding Allocation by Zone Geography

<b>A-1</b>	US 50 Auxiliary Lane Eastbound from Sacramento County to El Dorado Hills Boulevard	50.00% External	
<b>A-2</b>	US 50 Auxiliary Lane Eastbound from Bass Lake Road to Cambridge Road	25.13% External	
<b>A-3</b>	US 50 Auxiliary Lane Eastbound from Cambridge Road to Cameron Park Drive	34.11% External	
<b>A-4</b>	US 50 Auxiliary Lane Eastbound from Cameron Park Drive to Ponderosa Road	32.11% External	
<b>A-5</b>	US 50 Auxiliary Lane Westbound from Ponderosa Road to Cameron Park Drive	32.11% External	
<b>A-6</b>	US 50 Auxiliary Lane Westbound from Cambridge Road to Bass Lake Road	25.13% External	
<b>A-7</b>	US 50 Auxiliary Lane Westbound from Cambridge Road to Bass Lake Road	23.20% External	

## Capital Improvement Program Projects Funding Allocation by Zone Geography

<b>A-8</b>	US 50 Auxiliary Lane Westbound from El Dorado Hills Boulevard to Sacramento County	50.00% External	
<b>I-1</b>	US 50 Interchange Improvement Cameron Park Drive	7.77% External	
<b>I-2</b>	US 50 Interchange Improvement El Dorado Hills Boulevard	16.64% External	
<b>I-3</b>	US 50 Interchange Improvement El Dorado Road	15.66% External	
<b>I-4</b>	US 50 Interchange Improvement Ponderosa Road	22.06% External	
<b>I-5</b>	US 50 Interchange Improvement Bass Lake Road	12.63% External	
<b>I-6</b>	US 50 Interchange Improvement Cambridge Road	12.75% External	



## Capital Improvement Program Projects Funding Allocation by Zone Geography

I-7	US 50 Interchange Improvement Silva Valley Parkway (Phase II)		<p>16.30% External</p>
R-1	Roadway Improvements Cameron Park Drive from Palmer Drive to Hacienda Road		<p>6.57% External</p>
R-2	Roadway Improvements Green Valley Road from Sacramento County to Sophia Parkway		<p>0.00% External</p>
R-3	Roadway Improvements Green Valley Road from Francisco Drive to Silva Valley Parkway		<p>48.67% External</p>
R-4	Roadway Improvements Green Valley Road from Deer Valley Road to Lotus Road		<p>4.64% External</p>
R-5	Roadway Improvements White Rock Road from Post Street to Silva Valley Road		<p>0.00% External</p>
R-6	Roadway Improvements Saratoga Way from Sacramento County to El Dorado Hills Boulevard		<p>50.18% External</p>



## Capital Improvement Program Projects Funding Allocation by Zone Geography

<b>R-7</b>	<p>Roadway Improvements</p> <p>Country Club Drive from El Dorado Hills Boulevard to Silva Valley Parkway</p>	<p>3.34% External</p>
<b>R-8</b>	<p>Roadway Improvements</p> <p>Country Club Drive from Silva Valley Parkway to Tong Road</p>	<p>29.58% External</p>
<b>R-9</b>	<p>Roadway Improvements</p> <p>Country Club Drive from Tong Road to Bass Lake Road</p>	<p>15.63% External</p>
<b>R-10</b>	<p>Roadway Improvements</p> <p>Country Club Drive from Bass Lake Road to Tierra de Dios Drive</p>	<p>16.26% External</p>
<b>R-11</b>	<p>Roadway Improvements</p> <p>Diamond Springs Parkway from Missouri Flat Road to SR 49</p>	<p>17.71% External</p>
<b>R-12</b>	<p>Roadway Improvements</p> <p>Latrobe Road Extension from Sacramento County to Golden Foothill Parkway</p>	<p>57.33% External</p>
<b>R-13</b>	<p>Roadway Improvements</p> <p>Headington Road Extension from El Dorado Road Missouri Flat Road</p>	<p>0.17% External</p>

## Memorandum

**To:** Shawna Purvines, County of El Dorado

**From:** Matt Kowta, Principal  
Nina Meigs, Associate

**Date:** March 14, 2013

**Re:** 2035 Growth Projections

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### Introduction

The County of El Dorado commissioned BAE Urban Economics, Inc. (BAE) to prepare an updated set of housing and employment growth projections, to assist the County in the preparation of an updated Travel Demand Model. The Travel Demand Model will be used to prepare the Traffic Chapter of the Environmental Impact Report (EIR) for the Targeted General Plan Amendment and Comprehensive Zoning Code Update. The updated growth projections cover the western slope of El Dorado County, and covers the period from 2010 to 2035.

### General Plan and Zoning Ordinance Amendments With Potential to Influence Growth Rates

County staff provided BAE with information to summarize proposed General Plan and Zoning Ordinance changes that the County is considering. In turn, BAE evaluated the changes and identified the potential changes that may influence the projected growth rates over the next 20 to 25 years. Following is a summary of these potential changes:

#### Increase residential density

- Policy 2.1.1.3: Consider amending allowable residential density by increasing residential use as a part of Mixed-use Development from 16 units to 20 units per acre.
- Policy 2.2.1.2: Consider amending multi-family density from 24 units per acre to 30 units per acre.
- Policy 2.2.1.2: Consider analyzing the effects of increasing High Density Residential Land Use density from a maximum of 5 units per acre to 8 units per acre.

#### Reduce policy barriers to commercial and industrial employment in rural areas

- Policy 2.2.1.2: Consider allowing commercial and industrial uses in rural regions.
- Policy 2.2.1.2: Consider deleting the requirement for Industrial lands to be located in or within close proximity to Community Regions and Rural Centers. Delete the requirement that Industrial lands in the Rural Region can only provide for on-site support of agriculture and natural resource uses.
- Policy 8.2.4.2: Consider deleting requirement for special use permit for Agriculture Support Services.

- Policy 8.2.4.4: Consider amending to allow for ranch marketing activities on grazing lands.
- Policy-various: Increase potential uses to provide additional agricultural support, recreation, home occupation, and other rural residential, tourist-serving, and commercial uses in zones in the Rural Region.

#### **Increase flexibility for mixed-Use developments**

- Policy 2.2.1.2: Encourage a full range of housing types including small lot single family detached design without a requirement for Planned Development.
- Policy 2.1.1.3, 2.1.2.5 and 2.2.1.2: Allow up to 15% of the project area in Multi-Family zones for commercial uses as part of a Mixed Use development.
- Policy 2.2.1.2: Consider deleting the sentence, “The residential component of the [mixed use] shall only be implemented following or concurrent with the commercial component.”

#### **Encourage infill**

- New Policy Proposed: Set criteria for and identify infill and opportunity areas that will provide incentives substantial enough to encourage the development of these vacant/underutilized areas. This amendment would set criteria for California Environmental Quality Act (CEQA) streamlining opportunities but would not amend current land uses or densities.
- Policy 2.2.3.1: Provide alternative means to open space requirement as part of a planned development to provide more flexibility and incentives for infill development and focus on built recreation options in the Community Regions and Rural Centers.

#### **Other**

- Policy TC-1y: Consider analyzing the potential for deleting the El Dorado Hills Business Park employment cap limits.

The overall effect of these proposed changes is to increase the number of locations where development of different types would be allowed within the County, and to increase the flexibility to plan and develop residential and commercial uses within the County. Although these changes would not be expected to fundamentally change the County’s competitive position to capture a share of regional growth over the next 20 to 25 years, the changes could have a marginal impact on where developers choose to accommodate demand for residential and non-residential development within different sub-areas of the County over the projection period.

### **Base Year Housing and Employment Estimates**

It is necessary to establish a starting-point for the projections exercise. This is made challenging by the fact that the projections cover only the western slope of the county (i.e., the area outside of the Lake Tahoe Basin, which is under the jurisdiction of the Tahoe Regional Planning Agency). Outside of the Sacramento Area Council of Governments (SACOG), no government agency compiles data specifically for the portion of the County on the western slope. Even SACOG has limited information on the housing and employment within this area. Table 1 provides estimates of 2010 population and housing within this area, as estimated using 2010 Census data approximated for the area by using aggregations of Census block groups. Table 1 provides an estimate of the 2010 employment in this area using an

aggregation of SACOG Traffic Analysis Zone (TAZ)-level estimates from 2008 and projections for 2014.

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**Table 1: Baseline Conditions, West Slope, Less City of Placerville**

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	<u>2010</u>
Population (a)	139,941
Housing Units (a)	59,668
Employment (b)	32,597

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Notes:

(a) Based on 2010 Census. El Dorado countywide population, minus population in census tracts located in Tahoe Basin, minus City of Placerville. Tahoe Basin is defined by census tracts 302, 303.01, 303.02, 304.01, 304.02, 305.02, 305.04, 305.05, 316, 320, 9900.

(b) Based on Draft SACOG TAZ-level employment estimates for 2008 and projections for 2014, for El Dorado County West Slope, less employment in City of Placerville area. Assumes constant average annual rate of growth between 2008 and 2014, to estimate 2010 employment.

Sources: U.S. Census, 2010; SACOG, 2012; BAE, 2012.

As shown on Table 1, it is estimated that the West Slope, less Placerville, had 139,941 residents, 59,668 housing units, and 32,597 jobs, as of 2010.

### **Residential Growth Projections**

Table 2 presents residential growth projections for El Dorado County as a whole and for the West Slope, from the California State Department of Finance (DOF), from SACOG, and a third set of projections that are based on historic construction trend data furnished by El Dorado County. Due to differences in methodology and geography inherent in the source data, these three sets of projections offer distinct estimates of future growth in El Dorado County. By setting the three sets of projections side by side, Table 2 depicts a range of growth scenarios and provides the information needed to develop one single reasonable growth trend, upon which the rest of the report's calculations are based.

More specifically, DOF projects that overall countywide population will increase by about 67,700 people between 2010 and 2035, including growth in the Tahoe basin. This equates to a 1.28 percent average annual growth rate for the time period.

For the West Slope, less the City of Placerville, the SACOG growth projections indicate residential housing unit growth of 10,500 units during the 2010 to 2035 time frame, for an average annual growth rate of 0.72 percent.

As shown in the lower part of the table, a residential growth projection that is based on a continuation of the County's historic West Slope residential growth trend over the 2010 to 2035 time period yields an average annual growth rate of 1.03 percent. This is based on building permit data compiled by El Dorado County (see Appendix A). As this estimate falls in the middle of the range between the DOF and SACOG residential growth rates, this growth trend has been deemed a reasonable basis to project residential growth through 2035. Table 2 further assumes that the 2010 West Slope residential vacancy rate will prevail, and that the number of occupied housing units will therefore track the growth in residential units over time. Finally, Table 2 assumes that the 2010 average household size will remain the same, yielding estimates of the growth in West Slope residential population through 2035.

**Exhibit D  
158 of 175**

**Table 2: Projected Residential Growth Rates, 2010 to 2035**

	<b>Base</b>	<b>Projection</b>					<b>Avg. Ann. Growth</b>
	<b>2010</b>	<b>2015</b>	<b>2020</b>	<b>2025</b>	<b>2030</b>	<b>2035</b>	<b>2010-2035</b>
<b>CA Department of Finance Projection</b>							
Countywide Population	180,921	184,195	203,095	220,384	234,485	248,623	<b>1.28%</b>
<b>SACOG Projection</b>							
SACOG West Slope Housing Units, Less Mkt. Area 4	53,429		56,972	59,297		63,955	<b>0.72%</b>
<b>2000-2011 Growth Trend, Excluding Placerville</b>							
West Slope Housing Units (a)	59,668	62,803	66,102	69,575	73,230	77,077	<b>1.03%</b>
Vacancy Rate (b)	7.98%	7.98%	7.98%	7.98%	7.98%	7.98%	
Occupied Housing Units	54,904	57,788	60,824	64,020	67,383	70,923	
West Slope Population (c)	139,941	147,360	155,102	163,251	171,827	180,854	

Note:

(a) This projection is for the West Slope, less City of Placerville, starting from Census 2010 housing unit estimate (See Table 1). Assumes constant average annual rate of growth from 2010 through 2035, based on average annual rate of of new units permitted between 2000 and 2011, applied to 2010 base. The resulting annual average growth rate is applied for each subsequent year, through 2035. Actual new units in any given year may vary from projections due to economic fluctuations and other factors; however, the overall average annual growth rate is assumed to be valid over the 2010 to 2035 time period.

(b) Assumes 2010 Census vacancy rate remains constant.

(c) Assumes 2010 Census average persons per occupied housing unit remains constant.

2.55 persons per occupied housing unit

Sources: Ca. Dept. of Finance, 2013; SACOG, 2012; County of El Dorado, 2012; BAE, 2013.

## Residential Growth Allocations Within the West Slope of El Dorado County

The next step in the residential growth projections process was to allocate the total growth projected for the West Slope to the various sub-county Market Areas defined by El Dorado County for planning purposes. Figure 1 shows the boundaries of the 14 different El Dorado County Market Areas. Note that Market Area 12 represents the portion of El Dorado County that lies east of the Sierra Crest and therefore in the Lake Tahoe Basin, which is excluded from this analysis. Note also that Market Area 4 encompasses the City of Placerville. Since the purpose of these calculations is to estimate growth projections for the unincorporated County, in most cases the reported Market Area 4 figures reflect only the growth projected for areas that are outside of Placerville's current city limits. Exceptions are clearly noted in table footnotes.

Growth allocations within the West Slope area are done based on the distribution of new development in El Dorado County over the 2000 to 2011 time period. These historic trends are summarized in Appendix A for residential development. It should be noted that there were a number of issues that constrained the development pattern within the County during the first half of the 2000-2011 time period for which the historic trend data was analyzed. This included legal restrictions on development due to environmental issues relating to rare plant species. In addition, the alignment for the Diamond Springs Parkway was not resolved until 2011. In order to test for the possible effect of changes in the development pattern due to the lifting of these constraints, County staff provided BAE with data on development application activity from 2006 through the present, which indicated that, if anything, the trend since that time has shown even greater interest in developing within Market Areas 1 and 2 than indicated by the longer term historic trend. However, this may have been the result of pent up demand due to the constraints in the prior period; thus, the historic trend in development is used as the first step in allocating countywide demand for new development.

Table 3 calculates the increase in the number of housing units in each Market Area, during each time frame. These figures are not cumulative. In other words, for Market Area 1, the model projects an increase of 861 housing units between 2010 and 2015. Then the model projects an increase of 906 housing units between 2015 and 2020. The total number of new housing units in Market Area 1 between 2010 and 2020 is thus 1,767 (861+906).

Table 3 also splits housing units between single-family units and multifamily units, in a two-step process. First, it is assumed that the split of new units between 2010 and 2035 will be similar to the split in units permitted between 2000 and 2011, in areas which currently have capacity to accommodate multifamily units, which was 10.3 percent of all units built in those areas. However, if a given Market Area does not have sufficient capacity on land designated for multifamily units to accommodate the full 10.3 percent for the entire period, then the multifamily units assigned to the area are capped at the maximum capacity, and those multifamily units are assumed to be absorbed in a nearby Market Area that has capacity. In the Market Areas which have no multifamily residential capacity, zero multifamily residential units have been assigned.



**Table 3: Projected Residential Growth, West Slope of El Dorado County, 2010-2035**

	<u>2010</u>	<u>2015</u>	<u>2020</u>	<u>2025</u>	<u>2030</u>	<u>2035</u>
<b>Total Housing Units</b>	59,668	62,803	66,102	69,575	73,230	77,077

**New Housing Units Each Period**

<u>Market Area (a)</u>	<u>Incremental Growth from Prior 5 Years</u>					<u>Total</u>
	<u>2015</u>	<u>2020</u>	<u>2025</u>	<u>2030</u>	<u>2035</u>	
<b>#1 - El Dorado Hills</b>	<b>861</b>	<b>906</b>	<b>954</b>	<b>1,004</b>	<b>1,057</b>	<b>4,781</b>
<i>Single-family Units</i>	772	812	855	973	1,057	4,469
<i>Multifamily Units</i>	89	94	99	31	0	312
<b>#2 - Cameron Park/Shingle Springs</b>	<b>755</b>	<b>795</b>	<b>837</b>	<b>881</b>	<b>927</b>	<b>4,195</b>
<i>Single-family Units</i>	677	713	750	717	702	3,560
<i>Multifamily Units</i>	78	82	86	164	225	635
<b>#3 - Diamond Springs</b>	<b>164</b>	<b>172</b>	<b>181</b>	<b>191</b>	<b>201</b>	<b>909</b>
<i>Single-family Units</i>	147	155	163	171	180	815
<i>Multifamily Units</i>	17	18	19	20	21	94
<b>#4 - Unincorporated Placerville Area</b>	<b>82</b>	<b>86</b>	<b>90</b>	<b>95</b>	<b>100</b>	<b>454</b>
<i>Single-family Units</i>	73	77	81	85	70	387
<i>Multifamily Units</i>	8	9	9	10	30	67
<b>#5 - Coloma/Gold Hill</b>	<b>166</b>	<b>175</b>	<b>184</b>	<b>193</b>	<b>204</b>	<b>921</b>
<i>Single-family Units</i>	166	175	184	193	204	921
<i>Multifamily Units</i>	0	0	0	0	0	0
<b>#6 - Pollock Pines</b>	<b>203</b>	<b>214</b>	<b>225</b>	<b>237</b>	<b>250</b>	<b>1,129</b>
<i>Single-family Units</i>	182	172	178	188	218	938
<i>Multifamily Units</i>	21	42	47	50	32	191
<b>#7 - Pleasant Valley</b>	<b>208</b>	<b>219</b>	<b>230</b>	<b>243</b>	<b>255</b>	<b>1,155</b>
<i>Single-family Units</i>	186	216	230	243	255	1,131
<i>Multifamily Units</i>	21	3	0	0	0	24
<b>#8 - Latrobe</b>	<b>17</b>	<b>18</b>	<b>19</b>	<b>20</b>	<b>21</b>	<b>94</b>
<i>Single-family Units</i>	17	18	19	20	21	94
<i>Multifamily Units</i>	0	0	0	0	0	0
<b>#9 - Somerset</b>	<b>125</b>	<b>131</b>	<b>138</b>	<b>145</b>	<b>153</b>	<b>692</b>
<i>Single-family Units</i>	125	131	138	145	153	692
<i>Multifamily Units</i>	0	0	0	0	0	0
<b>#10 - Cool/Pilot Hill</b>	<b>166</b>	<b>175</b>	<b>184</b>	<b>194</b>	<b>204</b>	<b>924</b>
<i>Single-family Units</i>	166	175	184	194	204	924
<i>Multifamily Units</i>	0	0	0	0	0	0
<b>#11 - Georgetown/Garden Valley</b>	<b>245</b>	<b>258</b>	<b>271</b>	<b>286</b>	<b>301</b>	<b>1,361</b>
<i>Single-family Units</i>	245	258	271	286	301	1,361
<i>Multifamily Units</i>	0	0	0	0	0	0
<b>#12 - Tahoe Basin</b>	<b>n.a.</b>	<b>n.a.</b>	<b>n.a.</b>	<b>n.a.</b>	<b>n.a.</b>	<b>n.a.</b>
<i>Single-family Units</i>	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
<i>Multifamily Units</i>	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
<b>#13 - American River</b>	<b>91</b>	<b>95</b>	<b>100</b>	<b>106</b>	<b>111</b>	<b>503</b>
<i>Single-family Units</i>	91	95	100	106	111	503
<i>Multifamily Units</i>	0	0	0	0	0	0
<b>#14 - Mosquito</b>	<b>52</b>	<b>55</b>	<b>58</b>	<b>61</b>	<b>64</b>	<b>291</b>
<i>Single-family Units</i>	52	55	58	61	64	291
<i>Multifamily Units</i>	0	0	0	0	0	0
<b>Total</b>	<b>3,135</b>	<b>3,299</b>	<b>3,473</b>	<b>3,655</b>	<b>3,847</b>	<b>17,409</b>

**Notes:**

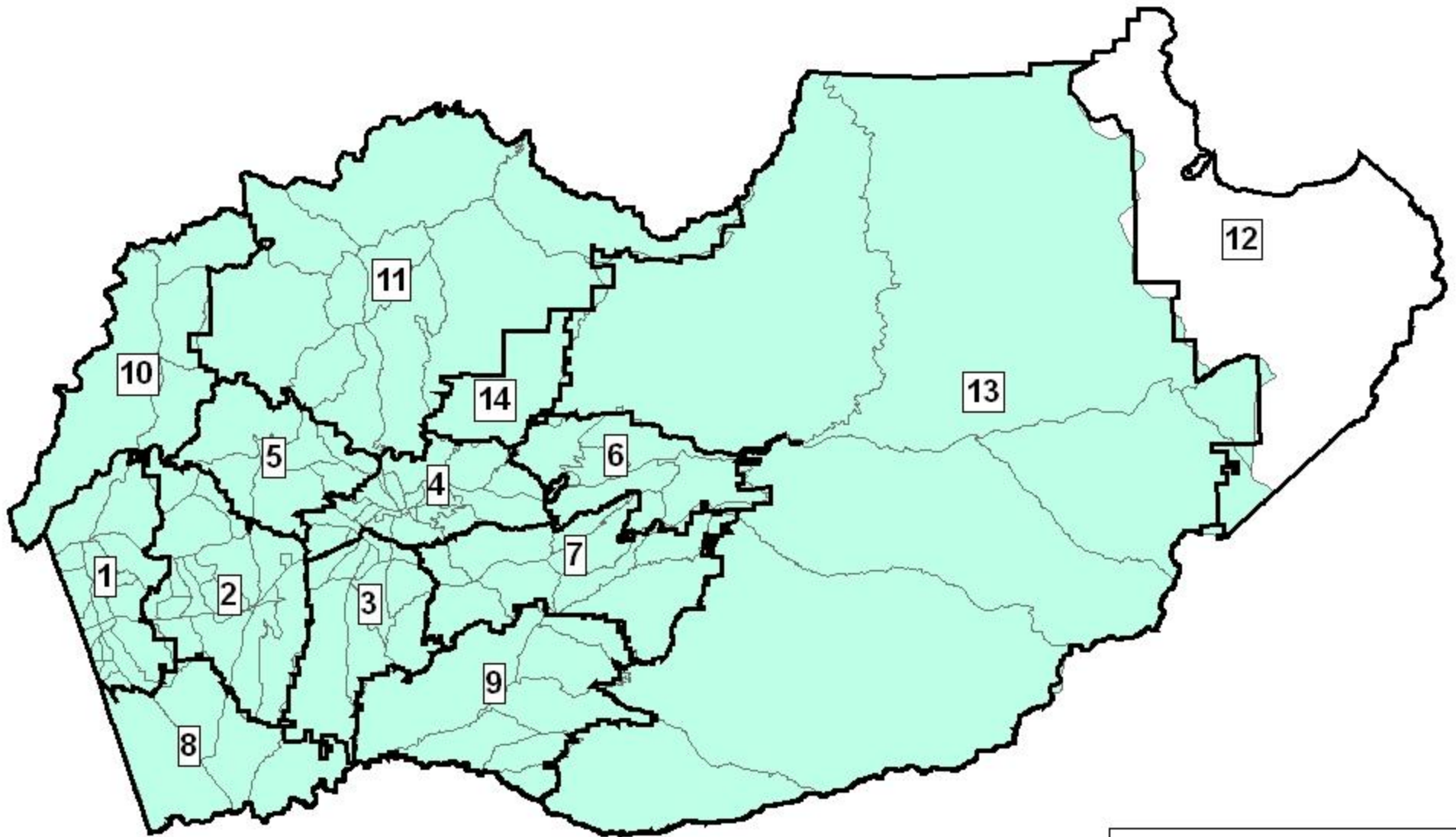
Figures in columns may not sum to totals due to rounding.

For the geographic boundaries of the various Market Areas, please refer to Figure 1 on page 9.

(a) Projected overall growth is allocated to Market Areas based on each Market Area's proportionate share of West Slope, less City of Placerville growth from 2000 to 2011. See Appendix A.

Sources: El Dorado County, BAE, 2013.

Figure 1 El Dorado County Market Areas and SACOG TAZ Boundaries



0 5 10 20 Miles

**Legend**

-  Market Area Boundaries
-  SACOG TAZ Boundaries

## **Non-Residential Growth Allocations Within the West Slope of El Dorado County**

This set of employment projections follows the same general methodology as that used to prepare the 2002 El Dorado County growth projections. That is, it assumes that an overall relationship between housing growth and job growth will prevail through 2035, which is expressed in terms of the ratio between jobs and housing in a given area. Due to the West Slope's varied geography and the diverse range of communities found there, jobs/housing ratios vary significantly from Market Area to Market Area, with those located closer to Sacramento, and closer to the County's major transportation corridor (Highway 50) tending to have the highest jobs/housing ratios, and those more isolated communities tending to have the lower jobs/housing ratios. The non-residential growth projections assume that as residential growth proceeds in the West Slope area, the increase in jobs will track the increase in housing, based on each Market Area's jobs/housing ratio.

Table 4 is the first step in calculating the projected job growth. For each Market Area, Table 4 shows the anticipated jobs/housing ratio for the increment of new residential and non-residential growth, according to SACOG's latest regional projections. The jobs/housing ratios are based on the projected number of new households (equal to the number of new occupied housing units) and the projected number of new jobs. Note that, since SACOG's projections differ from the growth projections assumed in Table 3, only the jobs/housing ratio calculated in Table 4 is incorporated into the non-residential growth calculations in Tables 5 and 6, not SACOG's absolute projected growth figures or SACOG's projected rate of growth. These jobs/housing ratios are used only to establish the future relationship between anticipated population growth and anticipated job growth.

The upper part of Table 5 then translates the new housing unit growth by Market Area from Table 3 into an estimate of new occupied housing units, assuming the same overall housing vacancy rate from the 2010 Census. Then, the lower part of Table 5 projects the overall increase in jobs in each Market Area assuming that the jobs/housing ratios from Table 4 apply through 2035.

Finally, Table 6 breaks out the overall job growth in each Market Area, from Table 5, into various land use sectors. These assume the same percentage allocation of jobs to different sectors as projected in SACOG's latest regional forecast; however, they are keyed to the Table 5 job increase numbers, which are linked to the projected residential growth from Table 2, rather than to SACOG's overall employment projections for the area.

**Table 4: Projected New Jobs to New Household Ratios, by Market Area, 2008 - 2035**

<b>Market Area</b>	<b>New Households</b>	<b>New Jobs</b>	<b>Jobs to Housing</b>
	<b>2008 - 2035</b>	<b>2008 - 2035</b>	<b>Ratio</b>
#1 - El Dorado Hills	5,340	9,532	1.79
#2 - Cameron Park/ Shingle Springs	4,259	4,498	1.06
#3 - Diamond Springs	890	1,264	1.42
#4 - Placerville Area	1,348	1,818	1.35
#5 - Coloma/Gold Hill	62	82	1.32
#6 - Pollock Pines	42	0	0.00
#7 - Pleasant Valley	157	83	0.53
#8 - Latrobe	n.a.	n.a.	n.a.
#9 - Somerset	43	0	0.00
#10 - Cool/Pilot Hill	36	0	0.00
#11 - Georgetown/Garden Valley (a)	-88	-12	0.14
#12 - Tahoe Basin	n.a.	n.a.	n.a.
#13 - American River	187	4	0.02
#14 - Mosquito	122	12	0.10

**Notes:**

For the geographic boundaries of the various Market Areas, please refer to Figure 1 on page 9.

Table 4 excludes the Tahoe Basin but includes the City of Placerville.

(a) Reflects SACOG projections of declining population and jobs in TAZs associated with Market Area 11. Negative figures do not affect overall growth projections, as only the resulting jobs/housing ratios are used for the purposes of the growth projections.

Source: SACOG, 2012.

**Table 5: Projected New Jobs by Market Area, 2010-2035**

<b>Market Area</b>	<b>New Households (i.e., occupied units) Each Period (a)</b>					<b>Total</b>
	<b>2015</b>	<b>2020</b>	<b>2025</b>	<b>2030</b>	<b>2035</b>	
#1 - El Dorado Hills	792	834	878	924	972	4,400
#2 - Cameron Park/ Shingle Springs	695	732	770	811	853	3,860
#3 - Diamond Springs	151	159	167	176	185	837
#4 - Unincorporated Placerville Area	75	79	83	88	92	417
#5 - Coloma/Gold Hill	153	161	169	178	187	848
#6 - Pollock Pines	187	197	207	218	230	1,039
#7 - Pleasant Valley	191	201	212	223	235	1,063
#8 - Latrobe	16	16	17	18	19	87
#9 - Somerset	115	121	127	134	141	637
#10 - Cool/Pilot Hill	153	161	170	178	188	850
#11 - Georgetown/Garden Valley	225	237	250	263	277	1,252
#12 - Tahoe Basin	n.a.	n.a.	n.a.	n.a.	n.a.	0
#13 - American River	83	88	92	97	102	463
#14 - Mosquito	48	51	53	56	59	267
<b>Total</b>	<b>2,885</b>	<b>3,036</b>	<b>3,196</b>	<b>3,363</b>	<b>3,540</b>	<b>16,020</b>

<b>Market Area (a)</b>	<b>New Jobs Each Period (b)</b>					<b>Total</b>
	<b>2015</b>	<b>2020</b>	<b>2025</b>	<b>2030</b>	<b>2035</b>	
#1 - El Dorado Hills	1,414	1,488	1,567	1,649	1,735	7,853
#2 - Cameron Park/ Shingle Springs	734	773	813	856	901	4,077
#3 - Diamond Springs	214	225	237	250	263	1,188
#4 - Unincorporated Placerville Area	101	107	112	118	124	563
#5 - Coloma/Gold Hill	202	212	224	235	248	1,121
#6 - Pollock Pines	0	0	0	0	0	0
#7 - Pleasant Valley	101	106	112	118	124	561
#8 - Latrobe (c)	22	23	24	25	27	121
#9 - Somerset	0	0	0	0	0	0
#10 - Cool/Pilot Hill	0	0	0	0	0	0
#11 - Georgetown/Garden Valley	31	33	35	36	38	174
#12 - Tahoe Basin	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
#13 - American River	8	9	9	10	10	46
#14 - Mosquito	67	71	74	78	82	373
<b>Total</b>	<b>2,895</b>	<b>3,047</b>	<b>3,207</b>	<b>3,376</b>	<b>3,553</b>	<b>16,078</b>

Notes:

Figures in columns may not sum to totals due to rounding.

For the geographic boundaries of the various Market Areas, please refer to Figure 1 on page 9.

(a) Converts new housing units from Table 3 into new households assuming 7.98 percent average vacancy rate, from Table 2.

(b) Projects new jobs based on SACOG's projected ratio of new jobs to new households, from Table 4.

(c) Due to an anomaly in SACOG's projections for Market Area 8, BAE utilized the average jobs/housing ratio from all other market areas to estimate the Market Area 8 job growth.

Sources: U.S. Census, 2010; SACOG, 2012; El Dorado County, 2012; BAE, 2013.

**Exhibit D**  
**165 of 175**

**Table 6: New Jobs, by Sector**

Market Area	Education Sector					Office Sector				
	10 to 15	15 to 20	20 to 25	25 to 30	30 to 35	10 to 15	15 to 20	20 to 25	25 to 30	30 to 35
#1 - El Dorado Hills	35	37	39	41	43	822	866	911	959	1,009
#2 - Cameron Park/Shingle Springs	58	61	64	68	71	71	75	78	83	87
#3 - Diamond Springs	(1)	(1)	(1)	(1)	(1)	32	34	36	38	40
#4 - Unincorporated Placerville Area	2	2	2	2	2	22	23	24	26	27
#5 - Coloma/Gold Hill	-	-	-	-	-	62	66	69	73	76
#6 - Pollock Pines	-	-	-	-	-	-	-	-	-	-
#7 - Pleasant Valley	3	3	3	4	4	9	10	10	11	11
#8 - Latrobe	-	-	-	-	-	7	7	7	8	8
#9 - Somerset	-	-	-	-	-	-	-	-	-	-
#10 - Cool/Pilot Hill	-	-	-	-	-	-	-	-	-	-
#11 - Georgetown/Garden Valley	-	-	-	-	-	8	9	9	9	10
#12 - Tahoe Basin	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
#13 - American River	3	4	4	4	4	3	4	4	4	4
#14 - Mosquito	-	-	-	-	-	17	18	19	20	21
<b>Total</b>	<b>100</b>	<b>105</b>	<b>111</b>	<b>117</b>	<b>123</b>	<b>1,055</b>	<b>1,110</b>	<b>1,168</b>	<b>1,230</b>	<b>1,294</b>

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Notes:

Figures in columns may not sum to totals due to rounding.

For the geographic boundaries of the various Market Areas, please refer to Figure 1 on page 9.

Sources: SACOG, TAZ-level growth projections (2008-2035), 2012; BAE, 2012.

**Exhibit D  
166 of 175**

**Table 6: New Jobs, by Sector (continued)**

Market Area	Retail Sector					Service Sector				
	10 to 15	15 to 20	20 to 25	25 to 30	30 to 35	10 to 15	15 to 20	20 to 25	25 to 30	30 to 35
#1 - El Dorado Hills	136	143	151	159	167	137	144	151	159	168
#2 - Cameron Park/Shingle Springs	374	394	415	436	459	162	170	179	188	198
#3 - Diamond Springs	71	75	79	83	87	63	67	70	74	78
#4 - Unincorporated Placerville Area	28	30	31	33	35	37	39	41	43	45
#5 - Coloma/Gold Hill	15	16	17	17	18	10	10	11	12	12
#6 - Pollock Pines	-	-	-	-	-	-	-	-	-	-
#7 - Pleasant Valley	39	41	43	45	48	37	39	41	44	46
#8 - Latrobe	3	3	3	3	3	2	2	2	2	2
#9 - Somerset	-	-	-	-	-	-	-	-	-	-
#10 - Cool/Pilot Hill	-	-	-	-	-	-	-	-	-	-
#11 - Georgetown/Garden Valley	8	8	8	9	9	14	15	16	17	18
#12 - Tahoe Basin	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
#13 - American River	1	1	1	1	1	1	1	1	1	1
#14 - Mosquito	16	17	18	19	20	31	32	34	36	38
<b>Total</b>	<b>691</b>	<b>727</b>	<b>765</b>	<b>805</b>	<b>848</b>	<b>493</b>	<b>519</b>	<b>546</b>	<b>575</b>	<b>605</b>

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Notes:

Figures in columns may not sum to totals due to rounding.

For the geographic boundaries of the various Market Areas, please refer to Figure 1 on page 9.

Sources: SACOG, TAZ-level growth projections (2008-2035), 2012; BAE, 2012.

**Exhibit D**  
**167 of 175**

**Table 6: New Jobs, by Sector (continued)**

Market Area	Medical Sector					Industrial Sector				
	10 to 15	15 to 20	20 to 25	25 to 30	30 to 35	10 to 15	15 to 20	20 to 25	25 to 30	30 to 35
#1 - El Dorado Hills	161	170	179	188	198	123	129	136	143	151
#2 - Cameron Park/Shingle Springs	14	15	15	16	17	56	58	61	65	68
#3 - Diamond Springs	8	8	9	9	10	40	42	44	47	49
#4 - Unincorporated Placerville Area	7	7	8	8	9	6	6	6	7	7
#5 - Coloma/Gold Hill	5	5	6	6	6	110	115	121	128	135
#6 - Pollock Pines	-	-	-	-	-	-	-	-	-	-
#7 - Pleasant Valley	4	4	4	4	4	9	9	10	10	11
#8 - Latrobe	1	1	1	1	1	11	11	12	12	13
#9 - Somerset	-	-	-	-	-	-	-	-	-	-
#10 - Cool/Pilot Hill	-	-	-	-	-	-	-	-	-	-
#11 - Georgetown/Garden Valley	1	1	1	1	2	-	-	-	-	-
#12 - Tahoe Basin	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
#13 - American River	-	-	-	-	-	-	-	-	-	-
#14 - Mosquito	3	3	3	3	3	-	-	-	-	-
<b>Total</b>	<b>203</b>	<b>214</b>	<b>225</b>	<b>237</b>	<b>249</b>	<b>353</b>	<b>372</b>	<b>391</b>	<b>412</b>	<b>433</b>

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Notes:

Figures in columns may not sum to totals due to rounding.

For the geographic boundaries of the various Market Areas, please refer to Figure 1 on page 9.

Sources: SACOG, TAZ-level growth projections (2008-2035), 2012; BAE, 2012.



**Exhibit D  
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**Table 6: New Jobs, by Sector (continued)**

<b>Market Area</b>	<b>Total, All Sectors</b>					<b>Total</b>
	<b>10 to 15</b>	<b>15 to 20</b>	<b>20 to 25</b>	<b>25 to 30</b>	<b>30 to 35</b>	<b>10 to 35</b>
#1 - El Dorado Hills	1,414	1,488	1,567	1,649	1,735	7,853
#2 - Cameron Park/Shingle Springs	734	773	813	856	901	4,077
#3 - Diamond Springs	214	225	237	250	263	1,188
#4 - Unincorporated Placerville Area	101	107	112	118	124	563
#5 - Coloma/Gold Hill	202	212	224	235	248	1,121
#6 - Pollock Pines	-	-	-	-	-	-
#7 - Pleasant Valley	101	106	112	118	124	561
#8 - Latrobe	22	23	24	25	27	121
#9 - Somerset	-	-	-	-	-	-
#10 - Cool/Pilot Hill	-	-	-	-	-	-
#11 - Georgetown/Garden Valley	31	33	35	36	38	174
#12 - Tahoe Basin	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
#13 - American River	8	9	9	10	10	46
#14 - Mosquito	67	71	74	78	82	373
<b>Total</b>	<b>2,895</b>	<b>3,047</b>	<b>3,207</b>	<b>3,376</b>	<b>3,553</b>	<b>16,078</b>

Notes:

Figures in columns may not sum to totals due to rounding.

For the geographic boundaries of the various Market Areas, please refer to Figure 1 on page 9.

Sources: SACOG, TAZ-level growth projections (2008-2035), 2012; BAE, 2012.

## **Capacity to Accommodate Projected Growth**

The last step in the growth projections process was to compare the 2010 to 2035 projected levels of growth with the existing supply of appropriately-zoned vacant land, taking into account existing zoning and parcel assembly patterns. Appendix B estimates the capacity of the existing vacant single-family residential and multifamily residential land in each Market Area to accommodate residential growth. As summarized in Appendix B, there is more than adequate capacity in the available land on an overall basis and within each Market Area to accommodate projected residential growth through 2035. An oversupply of residential and non-residential land use designations in order to provide market and landowner flexibility to more feasibly accommodate the market is an identified General Plan objective.

Appendix C compares the number of currently vacant acres zoned for job-generating uses with estimates of the acreage that would be required to accommodate the projected 2010–2035 demand for non-residential development. These estimates rely on job density assumptions and Floor Area Ratio (FAR) assumptions which were developed for different use types, and are outlined in Appendix D. The assumed FARs range between 0.12 and 0.4, depending on land use. Note that the Appendix D calculations further assume that, on average, commercial developments achieve 85 percent of the maximum FAR allowed by zoning regulations. For example, the table assumes that retail land will be built out at 85 percent of the allowed 0.25 FAR, achieving a FAR of 0.2125 in practice.

Appendix D indicates that all Market Areas, with the exception of Market Area 7 and Market Area 14 have sufficient vacant land to accommodate projected growth. In Market Area 7, the estimated land shortfall is about four acres. In Market Area 14, the estimated shortfall is approximately 10 acres. Assuming additional land is not designated to accommodate the projected growth in these two market areas, it is likely that the excess job growth that could not be accommodated on the available land would shift to adjacent Market Areas, such as Market Area 4 and Market Area 6, which both have more than sufficient vacant land to accommodate their projected job growth as well as any excess from Market Areas 7 and 14.

## **Projection Variance Under the No Project Alternative**

The no project alternative assumes that El Dorado County would not enact the proposed targeted General Plan amendments and the Comprehensive Zoning Ordinance Update, and instead leave existing policies in place. As mentioned previously, it is not likely that the proposed General Plan amendments and Zoning Code updates will significantly alter the County's position to compete for a share of regional growth; however, it is possible that the proposed changes would lead to some slight changes in the locations in which developers propose to accommodate growth within the County's various sub-areas, potentially increasing development interest in those Market Areas where the increased flexibility would apply.

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**Appendix A: Summary of Historic Distribution of Housing Permits, 2000-2011**

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<b>Market Area</b>	<b>Single Family Units (a) Permitted (2000-2011)</b>	<b>Multifamily Units Permitted 2000-2011</b>	<b>Total Units Permitted 2000-2011</b>	<b>% of West Slope</b>
#1 - El Dorado Hills	1,842	182	2,024	27.5%
#2 - Cameron Park/Shingle Springs	1,538	238	1,776	24.1%
#3 - Diamond Springs	263	122	385	5.2%
#4 - Unincorporated Placerville Area	192	0	192	2.6%
#5 - Coloma/Gold Hill	390	0	390	5.3%
#6 - Pollock Pines	478	0	478	6.5%
#7 - Pleasant Valley	489	0	489	6.6%
#8 - Latrobe	40	0	40	0.5%
#9 - Somerset	293	0	293	4.0%
#10 - Cool/Pilot Hill	391	0	391	5.3%
#11 - Georgetown/Garden Valley	576	0	576	7.8%
#12 - Tahoe Basin	n.a.	n.a.	n.a.	n.a.
#13 - American River	213	0	213	2.9%
#14 - Mosquito	123	0	123	1.7%
<b>Total</b>	<b>6,828</b>	<b>542</b>	<b>7,370</b>	<b>100.0%</b>

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Note:

Figures in columns may not sum to totals due to rounding.

For the geographic boundaries of the various Market Areas, please refer to Figure 1 on page 9.

(a) Includes single family homes, two-family homes, manufactured homes, and second dwelling units.

(b) Includes townhouses, apartment units, and condominiums.

Source: El Dorado County permit records, 2012.

**Exhibit D**  
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**Appendix B: Maximum Residential Capacity on Currently Vacant Parcels**

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<b>Market Area</b>	<b>Outstanding SFR Capacity</b>	<b>Outstanding Multifamily Capacity</b>	<b>Total Outstanding Residential Capacity</b>
#1 - El Dorado Hills	8,033	312	8,345
#2 - Cameron Park/ Shingle Springs	4,660	2,201	6,861
#3 - Diamond Springs	3,870	2,401	6,271
#4 - Unincorporated Placerville Area	941	83	1,024
#5 - Coloma/Gold Hill	925	0	925
#6 - Pollock Pines	1,197	191	1,388
#7 - Pleasant Valley	1,236	24	1,260
#8 - Latrobe	1,275	0	1,275
#9 - Somerset	853	0	853
#10 - Cool/Pilot Hill	2,345	0	2,345
#11 - Georgetown/Garden Valley	2,748	0	2,748
#12 - Tahoe Basin	n.a.	n.a.	n.a.
#13 - American River	1,198	0	1,198
#14 - Mosquito	318	0	318
<b>Total</b>	<b>29,599</b>	<b>5,212</b>	<b>34,811</b>

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Notes and exclusions:

Figures in columns may not sum to totals due to rounding.

For the geographic boundaries of the various Market Areas, please refer to Figure 1 on page 9.

1. Excludes Mixed Use residential capacity on commercial lands.
2. Rural Regions analyses is based on vacant residential lands capacities only, additional underutilized capacity exists but is not analyzed.
3. Community Regions analyses is based on draft land use capacity dated 12/1/12, minor adjustments may be expected prior to completion.
4. Camino/Pollock Pines Community Region analysis is based on underlying land uses only, with no parcel specific analyses (performed for Market Area 6).
5. Vacant Rural Region analyses is based on underlying residential land uses on vacant lands without parcel specific constraints analysis. It does not include vacant agricultural lands.
6. Underdeveloped Rural Region analyses is based on underlying land uses without parcel specific constraints analysis and includes partially developed residential lands and vacant agricultural lands.

Source: Kimley-Horn and Associates, Inc., 2012.

**Exhibit D**  
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**Appendix C: Non-Residential Development Capacity**

<u>Job Sector</u>	<u>Projected Job Growth 2010 - 2035</u>	<u>New Demand for Building Square Feet (a)</u>	<u>Acres Needed to Meet Demand (b)</u>	<u>Currently Vacant Acres Zoned for Compatible Uses (c)</u>
<b>Market Area 1</b>				
Education	193	125,768	28.3	
Office	4,567	1,255,971	135.7	
Retail	755	377,510	40.8	
Service	759	379,568	41.0	
Medical	896	279,942	30.2	
Industrial	683	682,564	46.1	
<b>Total</b>	<b>7,853</b>	<b>3,101,323</b>	<b>322.1</b>	<b>1,267.6</b>
<b>Market Area 2</b>				
Education	323	209,792	47.2	
Office	393	108,205	11.7	
Retail	2,078	1,038,985	112.2	
Service	898	448,776	48.5	
Medical	77	24,082	2.6	
Industrial	308	308,250	20.8	
<b>Total</b>	<b>4,077</b>	<b>2,138,091</b>	<b>243.0</b>	<b>666.6</b>
<b>Market Area 3</b>				
Education	-4	(2,442)	(0.5)	
Office	180	49,455	5.3	
Retail	395	197,563	21.3	
Service	351	175,612	19.0	
Medical	44	13,793	1.5	
Industrial	222	221,863	15.0	
<b>Total</b>	<b>1,188</b>	<b>655,845</b>	<b>61.6</b>	<b>458.8</b>
<b>Market Area 4</b>				
Education	9	5,635	1.3	
Office	122	33,631	3.6	
Retail	157	78,484	8.5	
Service	204	102,169	11.0	
Medical	39	12,191	1.3	
Industrial	32	31,579	2.1	
<b>Total</b>	<b>563</b>	<b>263,688</b>	<b>27.9</b>	<b>297.8</b>
<b>Market Area 5</b>				
Education	0	-	-	
Office	346	95,163	10.3	
Retail	83	41,526	4.5	
Service	55	27,684	3.0	
Medical	28	8,651	0.9	
Industrial	609	609,042	41.1	
<b>Total</b>	<b>1,121</b>	<b>782,066</b>	<b>59.8</b>	<b>146.5</b>
<b>Market Area 6</b>				
Education	0	-	-	
Office	0	-	-	
Retail	0	-	-	
Service	0	-	-	
Medical	0	-	-	
Industrial	0	-	-	
<b>Total</b>	<b>0</b>	<b>-</b>	<b>-</b>	<b>42.1</b>

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**Appendix C: Non-Residential Development Capacity (continued)**

<b>Market Area 7</b>				
Education	17	10,984	2.5	
Office	51	13,941	1.5	
Retail	216	108,151	11.7	
Service	208	103,926	11.2	
Medical	20	6,337	0.7	
Industrial	49	49,006	3.3	
<b>Total</b>	<b>561</b>	<b>292,346</b>	<b>30.9</b>	<b>26.9</b>
<b>Market Area 8</b>				
Education	0	-	-	
Office	37	10,196	1.1	
Retail	14	7,089	0.8	
Service	8	4,215	0.5	
Medical	3	988	0.1	
Industrial	58	58,343	3.9	
<b>Total</b>	<b>121</b>	<b>80,831</b>	<b>6.4</b>	<b>286.9</b>
<b>Market Area 9</b>				
Education	0	-	-	
Office	0	-	-	
Retail	0	-	-	
Service	0	-	-	
Medical	0	-	-	
Industrial	0	-	-	
<b>Total</b>	<b>0</b>	<b>-</b>	<b>-</b>	<b>67.9</b>
<b>Market Area 10</b>				
Education	0	-	-	
Office	0	-	-	
Retail	0	-	-	
Service	0	-	-	
Medical	0	-	-	
Industrial	0	-	-	
<b>Total</b>	<b>0</b>	<b>-</b>	<b>-</b>	<b>171.8</b>
<b>Market Area 11</b>				
Education	0	-	-	
Office	45	12,426	1.3	
Retail	42	20,855	2.3	
Service	80	39,973	4.3	
Medical	7	2,172	0.2	
Industrial	0	-	-	
<b>Total</b>	<b>174</b>	<b>75,427</b>	<b>8.1</b>	<b>111.9</b>
<b>Market Area 13</b>				
Education	19	12,062	2.7	
Office	19	5,103	0.6	
Retail	6	3,093	0.3	
Service	3	1,546	0.2	
Medical	0	-	-	
Industrial	0	-	-	
<b>Total</b>	<b>46</b>	<b>21,805</b>	<b>3.8</b>	<b>110.2</b>

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**Appendix C: Non-Residential Development Capacity (continued)**

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Market Area 14				
Education	0	-	-	
Office	97	26,645	2.9	
Retail	89	44,719	4.8	
Service	171	85,711	9.3	
Medical	15	4,658	0.5	
Industrial	0	-	-	
<b>Total</b>	<b>373</b>	<b>161,732</b>	<b>17.5</b>	<b>7.9</b>

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**Notes:**

Figures in columns may not sum to totals due to rounding.

For the geographic boundaries of the various Market Areas, please refer to Figure 1 on page 9.

(a) Calculations translate projected job growth into new demand for built space using the job density assumptions defined in Appendix C.

(b) Calculations translate building square feet into acres using the FAR assumptions defined in Appendix D, which range between 0.12 and 0.4 FAR depending on the land use. Calculations also assume that developments achieve only 85% of the allowed FAR.

(c) Total includes existing vacant acres zoned for Commercial Use, Retail Use, Office Use, and Industrial Use.

Source: BAE, 2013.

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**Appendix D: West Slope Job Density Assumptions for New Development**

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<b>Land Use</b>	<b>Assumed Building Square Feet per Job</b>	<b>Assumed Floor Area Ratio</b>
Education	650 (a)	0.12
Office	275	0.25
Retail	500	0.25
Service	500	0.25
Medical	312.5 (b)	0.25
Industrial	1,000	0.4

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Notes:

(a) Educational FAR assumes employment density for elementary schools, from Employment Density Summary Report, Natelson Company, for Southern California Association of Governments, 2001.

(b) Per SACOG, medical is assumed as 25% "public" at 650 square feet per employee and 75% office, at 200 square feet per employee.

Sources: SCAG, 2001; County of El Dorado, 2013; SACOG, 2013; BAE, 2013.