

Memorandum

To: Osama Megalla, Caltrans Dist. 7
Ken Hatai, Caltrans Dist. 7
Ron Kosinski, Caltrans HQ
Karl Price, Caltrans Dist 7

From: Bob Scales, Parsons
Rabindra “Ravi” Puttagunta, Parsons

Copy: Anne Kochoon, Parsons
Gary Petersen, Parsons
Eric Spangler, Parsons

Date: September 17, 2014

Re: High Desert Corridor Traffic Study Revisions Based on HQ Comments

Based on Caltrans Headquarters comments on the Draft Environmental document, Parsons has revised the Final High Desert Corridor Traffic Study Report dated June 2014. We have addressed all the comments and incorporated all of the requested those changes to the traffic report. Please update the final traffic report by substituting the attached sheets with those currently contained within the traffic report.

The electronic copy of the report has been updated separately.

Table 14. Year 2040 Revised Palmdale Access Freeway Mainline Level of Service Analysis Results Summary
(segments operating at LOS E or worse)

	SEGMENT (LOS/TYPE)		
	NO-BUILD	BUILD	BUILD TOLL
AM PEAK			
SR 14 NB	None	None	None
SR 14 SB	SR 14 from north end of the network to West Avenue N off-ramp (F) West Avenue N off-ramp to West Avenue N loop on-ramp (F) West Avenue N loop on-ramp to West Avenue N direct on-ramp (F) West Avenue N direct on-ramp to 10th Street West off-ramp (F) East Avenue S on-ramp to SR 14 SB south end of the network (E overall; F mixed flow)	East Avenue S off-ramp to East Avenue S on-ramp (F) East Avenue S on-ramp to Angeles Forest Highway off-ramp (F overall and mixed flow; E HOV)	East Avenue S on-ramp to Angeles Forest Highway off-ramp (F overall and mixed flow; E HOV)
HDC EB	N/A	West end of the network to SR 14 NB on-ramp (E)	West end of the network to SR 14 NB on-ramp (E)
HDC WB	N/A	None	None
I-15 NB	None	None	None
I-15 SB	None	None	None
PM PEAK			
SR 14 NB	Pearblossom Hwy direct on-ramp to East Avenue S off-ramp (F) East Avenue S off-ramp to East Avenue S on-ramp (F) East Avenue S on-ramp to West Palmdale Blvd off-ramp (F)	Pearblossom Highway direct on-ramp to East Avenue S off-ramp (F overall and mixed flow; E HOV)	Pearblossom Highway direct on-ramp to East Avenue S off-ramp (F overall and mixed flow; E HOV)
SR 14 SB	West Avenue N direct on-ramp to 10th Street West off-ramp (E) HDC off-ramp to 10th Street West on-ramp (F)	None	None
HDC EB	N/A	West end of the network to SR 14 NB on-ramp (E)	West end of the network to SR 14 NB on-ramp (E)
HDC WB	N/A	SB off-ramp to SR 138 west end of network (E)	SB off-ramp to SR 138 west end of network (E)
I-15 NB	South end of network to Palmdale Road off-ramp (E)	South end of network to Palmdale Road off-ramp (E)	South end of network to Palmdale Road off-ramp (F)
I-15 SB	None	None	None

Table 15. Year 2040 Revised Palmdale Access Weaving and Ramp Merging/Diverging Level of Service Analysis Results Summary
(segments operating at LOS E or worse)

	SEGMENT (LOS-TYPE)		
	NO-BUILD	BUILD	BUILD TOLL
AM PEAK			
SR 14 NB	None	None	None
SR 14 SB	West Avenue N loop (E-merging) West Avenue N direct (E-merging) East Avenue S (E-merging)	West Avenue N (E-diverging) 10th Street West (E-diverging)	East Avenue S (E-merging)
HDC EB	N/A	None	None
HDC WB	N/A	None	None
I-15 NB	None	None	None
I-15 SB	None	None	None
PM PEAK			
SR 14 NB	East Avenue S (E-merging) East Avenue S (E-diverging)	West Palmdale Boulevard (E-diverging)	East Avenue S (E-diverging)
SR 14 SB	West Avenue N direct (E-merging) West Rancho Vista Boulevard (E-merging)	10th Street West (E-diverging) West Palmdale Boulevard (E-diverging)	None
HDC EB	N/A	None	None
HDC WB	N/A	None	Route 395 (E-diverging) SR 14 SB (E-diverging)
I-15 NB	Mojave Drive (E-merging) Stoddard Wells Road S (E-merging) Palmdale Road (E-diverging)	Palmdale Road loop (E-merging) Mojave Drive (E-merging) Palmdale Road (E-diverging)	Palmdale Road loop (E-merging) Mojave Drive (E-merging) Palmdale Road (E-diverging)
I-15 SB	None	None	None

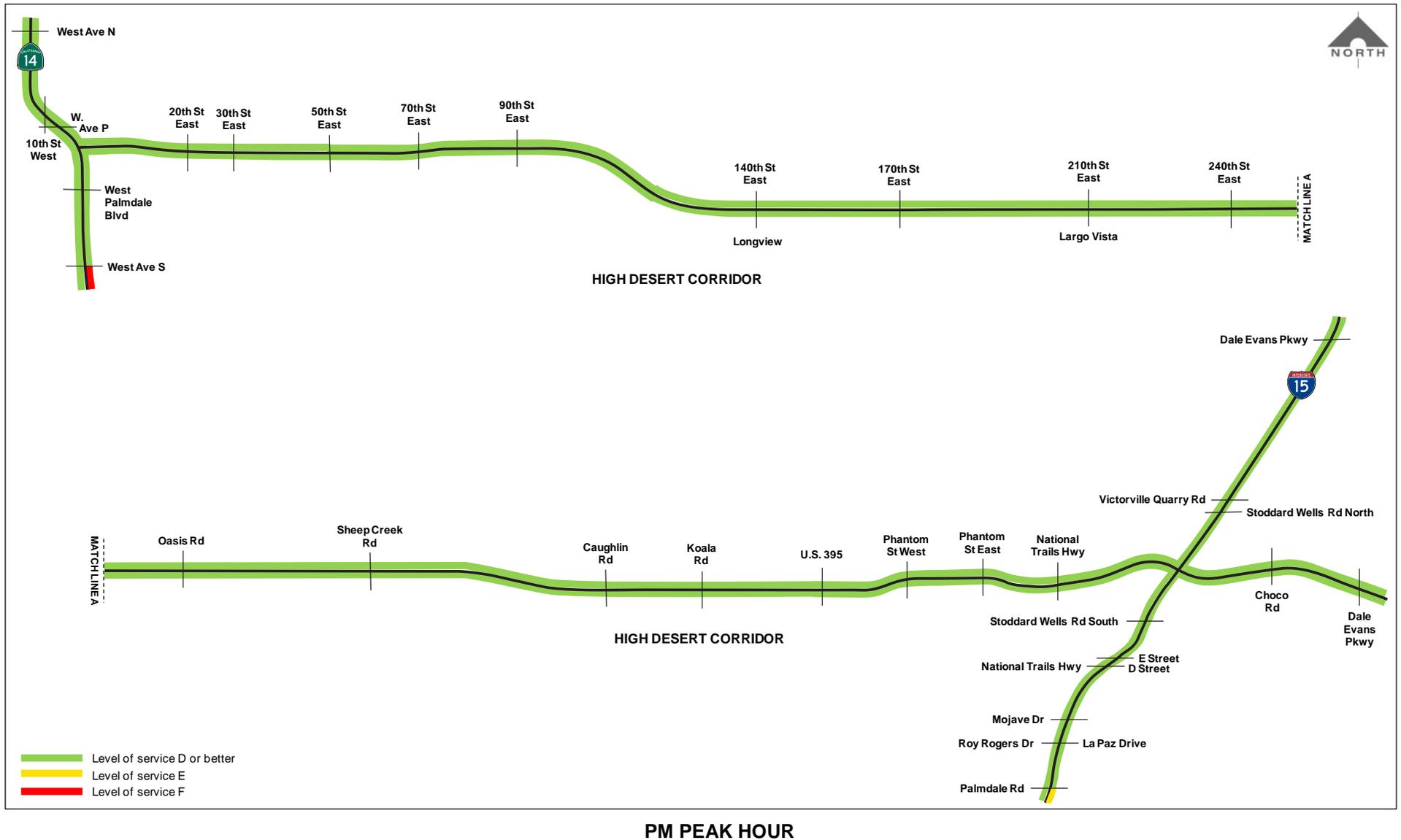


Figure 32: Year 2040 Build Alternative with Revised Palmdale Access Freeway Mainline Level of Service (2 of 2)

Table 18. Year 2040 Initial Results¹ Intersection Level of Service Summary (intersections operating at LOS E or worse) (1 of 3)

ID NO.	INTERSECTION	TYPE OF CONTROL	EXISTING CONDITION				DESIGN YEAR 2040 NO-BUILD CONDITION				DESIGN YEAR 2040 BUILD ALTERNATIVE				DESIGN YEAR 2040 BUILD ALTERNATIVE (MODIFIED ALIGNMENT)*				DESIGN YEAR 2040 BUILD ALTERNATIVE WITH TOLL			
			AM PEAK		PM PEAK		AM PEAK		PM PEAK		AM PEAK		PM PEAK		AM PEAK		PM PEAK		AM PEAK		PM PEAK	
			LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY
HIGH DESERT CORRIDOR																						
1	SR 14 southbound off-ramp and West Avenue N	Existing–stop NB/SB; future–signal	A	7.2	B	12.6	A	5.4	E	69.7	A	5.6	A	6.0	B	12.9	B	16.9	A	5.6	A	5.3
6	10th Street West and SR 14 southbound off-ramp	Signal	B	13.2	B	11.4	C	21.3	D	54.8	C	25.5	C	21.8	F	80.6	D	48.4	C	23.9	B	18.0
8	10th Street West and West Avenue P	Signal	C	31.3	C	30.3	C	32.7	E	74.8	C	27.5	C	27.8	E	62.1	E	76.0	C	28.1	C	33.1
9	Lowe's Driveway and West Avenue P	Signal	B	10.2	C	29.1	B	18.2	E	65.7	B	18.9	B	19.6	C	22.2	C	34.1	B	19.8	B	18.9
10	SR 14 southbound on-ramp and West Avenue P	Existing–stop NB/SB; future–signal	A	1.4	A	1.0	A	1.7	E	43.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11	SR 14 northbound off-ramp and West Avenue P	Signal	B	14.3	C	20.6	A	8.5	E	55.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
15*	Division Street and East Palmdale Boulevard	Signal	C	27.9	C	28.0	E	64.1	E	71.4	D	35.3	F	83.7	C	33.2	E	63.0	C	27.9	C	31.1
18*	Sierra Highway and East Avenue P	Signal	C	33.4	C	34.6	D	45.1	E	58.5	D	36.5	D	51.9	C	34.7	D	41.2	C	34.5	D	42.1
19*	Sierra Highway and Technology Drive	Signal	B	14.3	B	16.8	D	50.9	F	115.4	B	14.1	B	18.0	B	13.9	B	17.4	B	13.9	B	17.7
22*	6th Street East and East Palmdale Boulevard	Signal	C	20.7	C	25.3	E	55.7	E	78.0	C	30.2	C	33.1	C	29.1	C	30.6	C	28.7	C	30.5
23*	Sierra Highway and East Palmdale Boulevard	Signal	C	25.5	C	27.3	F	82.1	F	94.6	C	34.1	D	42.8	C	31.0	D	35.4	C	30.9	D	35.1
24	10th Street East and East Avenue P	Existing–stop NB/SB; future–signal	E*	39.0	F*	>300	B*	16.3	C*	20.8	C	27.1	C	30.2	C	24.0	C	26.5	C	21.1	C	22.2
28*	10th Street East and East Palmdale Boulevard	Signal	B	17.2	C	20.0	C	31.3	D	50.6	C	34.3	E	69.1	C	30.1	D	47.4	C	29.1	D	49.5
30*	15th Street East and East Palmdale Boulevard	Stop NB/SB	D	25.2	E	36.1	F	>300	F	>300	F	>300	F	>300	F	>300	F	>300	F	>300	F	>300
35*	20th Street East and East Palmdale Boulevard	Signal	B	19.9	C	22.9	C	34.1	E	63.8	C	28.4	D	53.9	C	28.0	D	45.4	C	26.4	D	42.7
36*	25th Street East and East Palmdale Boulevard	Signal	C	26.2	C	30.9	D	42.2	E	64.5	C	33.6	D	38.9	C	33.1	D	36.5	C	33.2	D	36.2
38*	30th Street East and East Avenue Q	4-way stop	B	11.6	B	11.6	E	46.0	F	145.3	C	23.2	F	84.0	C	20.4	F	65.4	C	18.2	F	51.8
40*	40th Street East and East Avenue Q	Stop EB/WB	C	16.2	C	16.0	D	34.4	F	98.6	C	21.9	D	26.8	C	19.1	C	24.2	C	19.3	C	22.7
41*	40th Street East and East Palmdale Boulevard	Signal	C	21.9	C	23.7	D	39.1	E	71.6	C	29.4	D	38.3	C	27.8	C	33.2	C	28.4	D	35.4
45*	50th Street East and East Palmdale Avenue	Roundabout	B	14.0	A	8.9	F	>300	F	>300	F	270.2	F	134.6	F	93.6	F	77.4	F	119.5	F	56.7
49*	70th Street East and East Palmdale Boulevard	Stop NB/SB	F	>300	C	20.9	F	>300	F	>300	C	15.6	F	60.1	F	>300	F	>300	B	14.0	E	35.0

RAMP TERMINI AND STUDY AREA INTERSECTION ANALYSIS SUMMARY

All ramp termini intersections perform at LOS D or better for year 2020, except for stop sign controlled intersections at the I-15 and Stoddard Wells Road south interchange. The level of service improves to LOS A or B with the installation of traffic signals at these locations (intersections 130-133). For the ramp termini intersections reported in year 2040, all ramp intersections for the build alternative perform at LOS D or better, assuming that traffic signals are installed at the I-15 and Stoddard Wells south interchange (intersections 130–133). The same finding is the case with respect to the build alternative with tolls, except that intersection 16, the southbound SR 14 off-ramp termini at West Avenue S, performs at LOS E during the AM peak hour.

For the remaining study area intersections, the no-build alternative performs poorly when compared to the build alternative. For the no-build 2020 opening year scenario, 115 intersections are analyzed. During the AM peak hour, nine intersections (eight percent) are projected to operate at LOS E or LOS F. During the PM peak hour, this number increases to 20 intersections, equal to 17 percent of the intersections studied.

The build alternative performs much better. Only two of 164 intersections studied perform at LOS E or LOS F during the AM peak hour, while five intersections perform poorly during the PM peak hour. These poorly performing intersections are listed below.

- ▶ #30—15th Street East and East Palmdale Boulevard (AM, PM)
- ▶ #45—50th Street East and East Palmdale Boulevard (AM, PM)
- ▶ #56—140th Street East and East Palmdale Boulevard (PM–Toll Alternative)
- ▶ #59—140th Street East and East Avenue R (PM–Toll Alternative)
- ▶ #70—SR 138 and SR 18 (PM)

The partial build alternative performs much better than the no-build alternative, but worse than the build alternative, insofar as the intersection level of service.

Insofar as overall performance for the no-build and build alternatives, the number of study intersections projected to operate at LOS E or LOS F is summarized below.

Summary of Study Intersection Year 2040 Level of Service Performance *(Initial Results)*

	NO-BUILD		BUILD		BUILD WITH TOLLS	
	AM	PM	AM	PM	AM	PM
Number of intersections studied	115		159		159	
Intersections performing at LOS E or F	23	45	2	11	5	7
Percent performing at LOS E or F	20%	39%	1%	7%	3%	4%

Summary of Study Intersection Year 2040 Level of Service Performance

(Revised Palmdale Access Results)

	NO-BUILD		BUILD		BUILD WITH TOLLS	
	AM	PM	AM	PM	AM	PM
Number of intersections studied	116		159		159	
Intersections performing at LOS E or F	23	45	2	8	5	7
Percent performing at LOS E or F	20%	39%	1%	5%	3%	4%

The operational performance for most intersections under the rail feeder service alternatives will be the same as reported for the build alternative and the build alternative with tolls. Key study intersections located near the Palmdale and Victorville train stations will be affected, however.

The Infraconsult report details the methodology used to forecast ridership for the Palmdale to Victorville and Victorville to Las Vegas segments of the potential high speed rail service. A two-seat ride between Los Angeles and Las Vegas, whereby a transfer would be required between Metrolink and XpressWest trains at the Palmdale Transportation Center, is assumed for the purpose of the High Desert Corridor Traffic Study. Day by day traffic data collected at the California/Nevada border, by direction was subsequently used by Parsons to distribute passengers by day of the week and direction. Table 3-23 presents these daily forecasts for the opening year of the freeway facility, 2020, and the 2040 design year.

Passenger trips diverted from auto and bus modes to rail will reduce traffic volumes on the High Desert Corridor freeway/tollway between SR 14 and I-15. Approximately 13.4 percent of the rail ridership is forecast to be diverted from the air transportation mode, and these riders will not affect vehicular use of the High Desert Corridor.

Approximately 81.2 percent of the ridership will be diverted from the auto mode. The average auto occupancy is assumed to be 2.0 based on Las Vegas Convention and Visitors Authority research data specific to Southern California visitors.³⁷

Table 3-23. Daily Distribution of Palmdale to Victorville High Speed Rail Ridership

DAY	2020		2040	
	NORTH/EAST BOUND	SOUTH/WEST BOUND	NORTH/EAST BOUND	SOUTH/WEST BOUND
Monday	6,329	8,355	8,417	11,111
Tuesday	5,886	5,933	7,826	7,891
Wednesday	6,134	5,844	8,156	7,770
Thursday	7,076	6,423	9,410	8,543
Friday	11,541	7,933	15,352	10,549
Saturday	10,099	7,381	13,430	9,817
Sunday	8,743	13,939	11,628	18,538
Weekly Total	55,808	55,808	74,219	74,219
Annual	2,910,000	2,910,000	3,870,000	3,870,000

Source: Parsons, 2014

Note: Reflects two-seat ride from Los Angeles to Las Vegas.

Approximately 5.3 percent of the rail passenger ridership is forecast to be diverted from intercity bus. The average bus occupancy is assumed to be 40 passengers per vehicle. Taking all three modes (air, auto and bus) into account, the number of rail passengers can be converted to vehicles removed from the High Desert Corridor using a rate of 2.454 passengers per vehicle, excluding reductions due to passenger trips diverted from the air mode.

Peak hour diverted vehicle volumes were derived based on the diurnal (hourly) distribution of vehicle trips at the California border for holiday and non-holiday days of the week. The diurnal distribution of traffic is reported on Figure 3-29. While these day-by-day, hour-by-hour traffic volumes were collected from March 2003 to February 2004, traffic volumes in 2013 are essentially the same (9 percent higher) as recorded in 2003/2004.

³⁷ Las Vegas Visitor Profile, Calendar Year 2013, Southern California and International Visitors Version, GLS Research

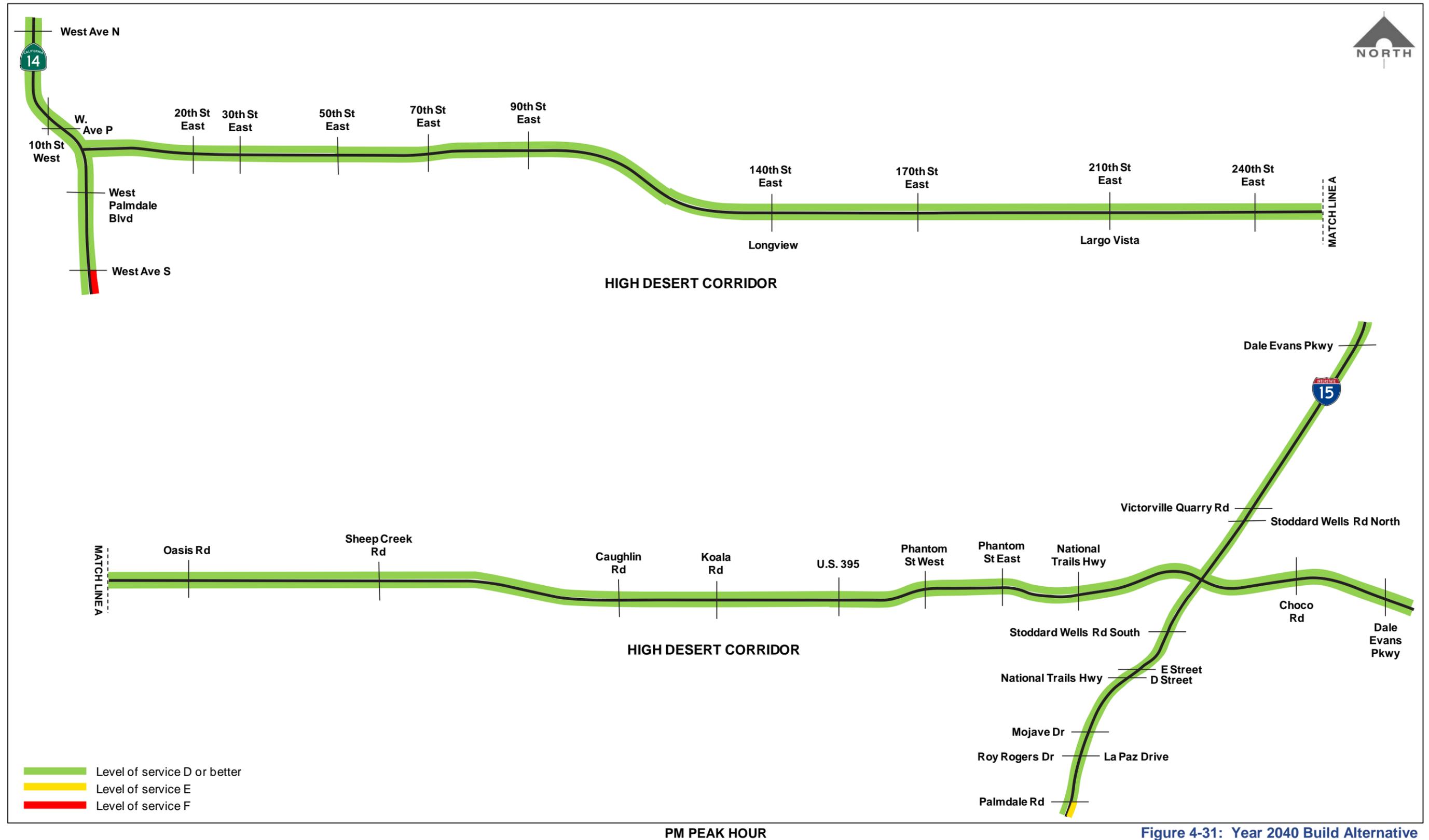


Figure 4-31: Year 2040 Build Alternative with Revised Palmdale Access Freeway Mainline Level of Service (2 of 2)

Table 4-38. Year 2040 Build Alternative with Revised Palmdale Access Freeway Mainline Analysis Results (1 of 4)

FREeway SEGMENT	AM PEAK—OVERALL										AM PEAK—MIXED-FLOW LANES										AM PEAK—HOV LANE									
	DEMAND (vph)	SERVED (vph)	% SERVED	TRAVEL TIME (sec/veh)	DELAY TIME (sec/veh)	SPEED (mph)	DENSITY (veh/ln/mi)	LOS (HCM 2000)	CUMULATIVE TIME (sec/veh)	DEMAND (vph)	SERVED (vph)	% SERVED	TRAVEL TIME (sec/veh)	DELAY TIME (sec/veh)	SPEED (mph)	DENSITY (veh/ln/mi)	LOS (HCM 2000)	CUMULATIVE TIME (sec/veh)	DEMAND (vph)	SERVED (vph)	% SERVED	TRAVEL TIME (sec/veh)	DELAY TIME (sec/veh)	SPEED (mph)	DENSITY (veh/ln/mi)	LOS (HCM 2000)	CUMULATIVE TIME (sec/veh)			
SR 14 NB MAINLINE																														
Pearblossom Hwy direct on-ramp to East Avenue S off-ramp	2,825	2,823	100%	184.2	31.0	56	13.9	B	184	2,825	2,823	100%	184.2	31.0	56	13.9	B	184	—	—	—	—	—	—	—	—	—	—	—	—
East Avenue S off-ramp to East Avenue S on-ramp	2,625	2,625	100%	28.0	2.4	60	11.2	B	212	2,625	2,625	100%	28.0	2.4	60	11.2	B	212	—	—	—	—	—	—	—	—	—	—	—	—
East Avenue S on-ramp to West Palmdale Blvd off-ramp	3,340	3,340	100%	58.2	4.0	61	11.1	B	270	3,340	3,340	100%	58.2	4.0	61	11.1	B	270	—	—	—	—	—	—	—	—	—	—	—	—
West Palmdale Blvd off-ramp to HDC off-ramp	2,895	2,890	100%	16.8	0.8	61	11.8	B	287	2,895	2,890	100%	16.8	0.8	61	11.8	B	287	—	—	—	—	—	—	—	—	—	—	—	—
HDC off-ramp to West Palmdale Blvd loop on-ramp	1,510	1,510	100%	5.0	0.2	63	8.0	A	292	1,510	1,510	100%	5.0	0.2	63	8.0	A	292	—	—	—	—	—	—	—	—	—	—	—	—
West Palmdale Blvd loop on-ramp to 10th St West off-ramp	2,365	2,360	100%	49.7	2.4	62	9.6	A	342	2,365	2,360	100%	49.7	2.4	62	9.6	A	342	—	—	—	—	—	—	—	—	—	—	—	—
10th St West off-ramp to HDC on-ramp	1,950	1,940	99%	23.0	1.3	61	10.5	A	365	1,950	1,940	99%	23.0	1.3	61	10.5	A	365	—	—	—	—	—	—	—	—	—	—	—	—
HDC on-ramp to 10th St West on-ramp	3,845	3,634	95%	48.0	2.5	61	11.8	B	413	3,845	3,634	95%	48.0	2.5	61	11.8	B	413	—	—	—	—	—	—	—	—	—	—	—	—
10th St W loop on-ramp to 10th St W direct on-ramp	4,567	4,330	95%	16.7	1.0	61	13.1	B	430	4,567	4,330	95%	16.7	1.0	61	13.1	B	430	—	—	—	—	—	—	—	—	—	—	—	—
10th St W direct on-ramp to West Avenue N off-ramp	4,760	4,500	95%	66.6	4.3	61	14.4	B	496	4,760	4,500	95%	66.6	4.3	61	14.4	B	496	—	—	—	—	—	—	—	—	—	—	—	—
West Avenue N off-ramp to West Avenue N loop on-ramp	4,450	4,247	95%	17.8	0.7	62	17.1	B	514	4,450	4,247	95%	17.8	0.7	62	17.1	B	514	—	—	—	—	—	—	—	—	—	—	—	—
West Avenue N loop on-ramp to West Avenue N direct on-ramp	4,790	4,586	96%	9.4	0.4	62	14.8	B	523	4,790	4,586	96%	9.4	0.4	62	14.8	B	523	—	—	—	—	—	—	—	—	—	—	—	—
West Avenue N direct on-ramp to West Avenue M off-ramp	4,960	4,754	96%	30.5	1.2	63	14.8	B	554	4,960	4,754	96%	30.5	1.2	63	14.8	B	554	—	—	—	—	—	—	—	—	—	—	—	—
SR 14 SB MAINLINE																														
West Avenue M on-ramp to West Avenue N off-ramp	6,860	6,859	100%	38.3	3.6	59	29.2	D	38	5,140	5,196	101%	38.3	3.6	59	29.5	D	38	1,720	1,662	97%	38.4	3.6	59	28.3	D	38			
West Avenue N off-ramp to West Avenue N loop on-ramp	6,540	6,532	100%	19.1	1.7	59	27.6	D	57	4,820	4,872	101%	18.9	1.5	60	27.3	D	57	1,720	1,660	97%	19.4	2.0	58	28.7	D	58			
West Avenue N loop on-ramp to West Avenue N direct on-ramp	6,605	6,596	100%	11.3	0.9	60	22.1	C	69	4,885	4,936	101%	11.2	0.8	60	20.5	C	68	1,720	1,660	97%	11.6	1.1	58	28.6	D	69			
West Avenue N direct on-ramp to 10th St W off-ramp	6,975	6,970	100%	89.7	13.6	56	24.6	C	158	5,268	5,511	105%	91.1	15.1	55	24.5	C	160	1,708	1,459	85%	84.5	8.2	59	24.9	C	154			
10th St W off-ramp to HDC off-ramp	6,145	6,142	100%	19.0	3.1	54	28.8	D	177	4,450	5,005	112%	19.5	3.5	52	32.1	D	179	1,695	1,137	67%	16.9	1.0	61	18.8	C	171			
HDC off-ramp to 10th St W on-ramp	2,807	2,762	98%	22.4	1.3	61	15.1	B	200	1,112	1,625	146%	22.0	0.9	62	13.1	B	201	1,695	1,137	67%	22.9	1.8	60	19.1	C	194			
10th St W on-ramp to Palmdale Blvd off-ramp	4,265	4,204	99%	34.0	2.2	60	17.4	B	234	2,310	2,989	129%	33.4	1.7	61	16.3	B	234	1,955	1,215	62%	35.2	3.5	58	20.8	C	229			
West Palmdale Blvd off-ramp to HDC on-ramp	3,652	3,651	100%	32.9	1.7	61	15.0	B	267	1,697	2,311	136%	32.0	0.8	63	12.3	B	266	1,955	1,340	69%	34.4	3.2	58	22.9	C	263			
HDC on-ramp to West Palmdale Blvd loop on-ramp	5,110	5,000	98%	24.4	1.9	59	16.3	B	291	3,405	4,002	118%	24.2	1.8	59	16.2	B	291	1,705	998	59%	24.9	2.3	58	17.2	B	288			
West Palmdale Blvd loop on-ramp to West Palmdale Blvd direct on-ramp	5,775	5,705	99%	14.7	1.9	56	22.5	C	306	4,060	4,137	102%	14.4	1.6	57	20.7	C	305	1,715	1,568	91%	15.3	2.4	54	28.9	D	304			
West Palmdale Blvd direct on-ramp to East Avenue S off-ramp	6,455	6,361	99%	71.2	8.4	57	27.3	D	377	4,614	4,711	102%	71.0	8.3	57	26.7	D	376	1,841	1,650	90%	71.7	8.6	57	29.2	D	375			
East Avenue S off-ramp to East Avenue S on-ramp	6,070	5,996	99%	42.1	21.7	32	47.5	F	419	4,103	4,325	105%	49.5	29.1	37	53.7	F	426	1,967	1,671	85%	23.0	2.3	58	28.8	D	398			
East Avenue S on-ramp to Angeles Forest Hwy off-ramp	7,660	7,324	96%	328.9	140.1	39	49.0	F	748	5,693	5,464	96%	343.1	154.2	38	50.6	F	769	1,967	1,861	95%	285.3	96.9	44	43.8	E	683			
PM PEAK—OVERALL																														
PM PEAK—MIXED-FLOW LANES																														
PM PEAK—HOV LANE																														
SR 14 NB MAINLINE																														
Pearblossom Hwy direct on-ramp to East Avenue S off-ramp	9,490	7,025	74%	404.3	249.8	28	67.7	F	404	7,080	5,152	73%	464.4	310.0	45	75.2	F	464	2,410	1,873	78%	247.4	92.7	45	45.2	F	247			
East Avenue S off-ramp to East Avenue S on-ramp	7,900	5,724	72%	29.3	3.5	57	25.1	C	434	5,490	4,043	74%	29.6	3.8	57	23.8	C	494	2,410	1,681	70%	28.8	2.9	58	28.9	D	276			
East Avenue S on-ramp to West Palmdale Blvd off-ramp	8,440	6,277	74%	60.7	6.0	58	21.6	C	494	6,270	5,069	81%	61.2	6.5	58	22.0	C	555	2,170	1,208	56%	58.4	3.9	61	20.0	C	335			
West Palmdale Blvd off-ramp to HDC off-ramp	6,990	5,218	75%	17.4	1.4	59	22.1	C	512	4,900	4,283	87%	17.4	1.4	59	24.3	C	573	2,090	935	45%	17.0	1.1	60	15.5	B	352			
HDC off-ramp to West Palmdale Blvd loop on-ramp	4,410	3,327	75%	5.2	0.4	60	18.4	C	517	2,320	2,395	103%	5.2	0.3	61	19.8	C	578	2,090	932	45%	5.3	0.4	60	15.5	B	357			
West Palmdale Blvd loop on-ramp to 10th St West off-ramp	5,185	4,077	79%	51.3	3.9	60	17.0	B	568	3,118	3,143	101%	51.3	3.8	60	17.5	B	629	2,067	934	45%	51.3	3.9	60	15.6	B	408			
10th St West off-ramp to HDC on-ramp	4,366	3,411	78%	23.7	1.9	60	19.1	C	592	2,346	2,535	108%	23.7	1.9	60	21.3	C	653	2,020	876	43%	23.6	1.9	60	14.7	B	432			
HDC on-ramp to 10th St West on-ramp	7,655	5,997	78%	49.3	3.7	60	20.1	C	641	5,630	4,789	85%	48.8	3.2	60	19.8	C	701	2,025	1,208	60%	51.3	5.5	57	21.2	C	483			
10th St W loop on-ramp to 10th St W direct on-ramp	8,194	6,539	80%	17.3	1.4	59	20.4	C	658	6,164	5,250	85%	17.2	1.3	60	20.0	C	719	2,030	1,289	63%	17.7	1.8	58	22.3	C	501			
10th St W direct on-ramp to West Avenue N off-ramp	8,315	6,642	80%	72.2	9.8	56	23.0	C	731	6,258	5,395	86%	72.9	10.5	56	23.5	C	792	2,057	1,247	61%	69.1	6.5	58	21.3	C	570			
West Avenue N off-ramp to West Avenue N loop on-ramp	7,760	6,235	80%	18.8	1.8	59	26.5	D	750	5,690	4,970	87%	18.8	1.7	59	28.1	D	810	2,070	1,265	61%	19.1	2.0	58	21.9	C	589			
West Avenue N loop on-ramp to West Avenue N direct on-ramp	7,970	6,432	81%	9.8	0.8	59	21.7	C	759	5,900	5,154	87%	9.7	0.7	60	21.6	C	820	2,070	1,278	62%	10.0	1.0	58	22.1	C	599			
West Avenue N direct on-ramp to West Avenue M off-ramp	8,170	6,628	81%	31.8	2.3	60	21.5	C	791	6,100	5,305	87%	31.4	1.9	61	21.0	C	851	2,070	1,323	64%	33.5	3.9	57	23.2	C	632			
SR 14 SB MAINLINE																														
West Avenue M on-ramp to West Avenue N off-ramp	6,870	6,868	100%	39.0	4.3	58	29.8	D	39	6,870	6,868	100%	39.0	4.3	58	29.8	D	39	—	—	—	—	—	—	—	—	—	—	—	—
West Avenue N off-ramp to West Avenue N loop on-ramp	6,350	6,321	100%	19.0	1.6	59	26.7	D	58	6,350	6,321	100%	19.0	1.6	59	26.7	D	58	—	—	—	—	—	—	—	—	—	—	—	—
West Avenue N loop on-ramp to West Avenue N direct on-ramp	6,470	6,433	99%	11.3	0.9	60	21.5	C	69	6,470	6,433	99%	11.3	0.9	60	21.5	C	69	—	—	—	—	—	—	—	—	—	—	—	—
West Avenue N direct on-ramp to 10th St W off-ramp	6,835	6,819	100%	85.3	9.2	58	23.2	C	155	6,835	6,819	100%	85.3	9.2	58	23.2	C	155	—	—	—	—	—	—	—	—	—	—	—	—
10th St W off-ramp to HDC off-ramp	5,595	5,547	99%	18.0	2.0	57	24.4	C	173	5,595	5,547	99%	18.0	2.0	57	24.4	C	173	—	—	—	—	—	—	—	—	—	—	—	—
HDC off-ramp to 10th St W on-ramp	2,551	2,519	99%	22.0	0.9	62	13.5	B	195	2,551	2,519	99%	22.0	0.9	62	13.5	B	195	—	—	—	—	—	—	—	—	—	—	—	—
10th St W on-ramp to Palmdale Blvd off-ramp	3,500	3,512	100%	33.6	1.9	61	14.4	B	228	3,500	3,512	100%	33.6	1.9	61	14.4	B	228	—	—	—	—	—	—	—	—	—	—	—	—
West Palmdale Blvd off-ramp to HDC on-ramp	2,463	2,466	100%	32.0	0.9	63	9.8	A	26																					

Table 4-38. Year 2040 Build Alternative with Revised Palmdale Access Freeway Mainline Analysis Results (2 of 4)

FREeway SEGMENT	AM PEAK—OVERALL									PM PEAK—OVERALL								
	DEMAND (vph)	SERVED (vph)	% SERVED	TRAVEL TIME (sec/veh)	DELAY TIME (sec/veh)	SPEED (mph)	DENSITY (veh/ln/mi)	LOS (HCM 2000)	CUMULATIVE TIME (sec/veh)	DEMAND (vph)	SERVED (vph)	% SERVED	TRAVEL TIME (sec/veh)	DELAY TIME (sec/veh)	SPEED (mph)	DENSITY (veh/ln/mi)	LOS (HCM 2000)	CUMULATIVE TIME (sec/veh)
HIGH DESERT CORRIDOR EB MAINLINE																		
SR 138 EB west end of the network to SR 14 NB on-ramp	3,500	3,500	100%	21.8	2.6	46	38.7	E	22	3,150	3,137	100%	21.4	2.2	47	33.2	D	21
SR 14 NB on-ramp to 20th St East off-ramp	5,270	5,270	100%	98.7	7.4	60	21.5	C	121	6,055	5,547	92%	99.1	7.6	60	21.5	C	120
20th St East off-ramp to 20th St East on-ramp	4,500	4,500	100%	43.8	2.3	61	18.5	C	164	4,875	4,468	92%	43.8	2.2	62	17.7	B	164
20th St East on-ramp to 30th St East off-ramp	4,815	4,815	100%	17.2	1.4	59	20.4	C	182	5,360	4,922	92%	17.5	1.7	58	20.7	C	182
30th St East off-ramp to 30th St East on-ramp	4,465	4,465	100%	57.0	2.9	61	18.5	C	239	4,740	4,317	91%	56.8	2.7	62	17.5	B	239
30th St East on-ramp to 50th St East off-ramp	4,885	4,885	100%	66.1	6.0	59	20.4	C	305	5,290	4,850	92%	65.1	4.9	60	19.7	C	304
50th St East off-ramp to 50th St East on-ramp	4,210	4,214	100%	44.5	3.1	60	23.3	C	349	4,135	3,793	92%	43.9	2.5	61	20.7	C	347
50th St East on-ramp to 90th St East off-ramp	4,845	4,754	98%	202.9	19.0	59	26.7	D	552	4,725	4,298	91%	200.0	16.2	59	23.8	C	548
90th St East off-ramp to 90th St East on-ramp	4,610	4,470	97%	46.7	3.8	60	25.0	C	599	4,255	3,807	89%	45.8	2.9	61	20.9	C	593
90th St East on-ramp to 140th St East off-ramp	4,835	4,571	95%	279.9	25.3	59	25.5	C	879	4,555	4,025	88%	277.1	22.5	59	22.2	C	870
140th St East off-ramp to 140th St East on-ramp	4,525	4,186	93%	47.4	3.9	59	23.5	C	926	3,980	3,463	87%	46.3	2.8	61	19.0	C	917
140th St East on-ramp to 170th St East off-ramp	4,740	4,344	92%	139.9	12.5	59	23.9	C	1,066	4,240	3,698	87%	137.6	10.3	60	20.0	C	1,054
170th St East off-ramp to 170th St East on-ramp	4,640	4,201	91%	48.2	4.0	59	23.6	C	1,114	4,045	3,486	86%	47.4	3.3	60	19.3	C	1,102
170th St East on-ramp to 210th St East off-ramp	4,960	4,438	89%	201.9	20.2	58	24.9	C	1,316	4,295	3,671	85%	196.7	15.2	60	20.0	C	1,298
210th St East off-ramp to 210th St East on-ramp	4,910	4,299	88%	45.1	4.2	59	24.4	C	1,361	4,230	3,550	84%	44.2	3.3	60	19.7	C	1,343
210th St East on-ramp to 240th St East off-ramp	5,080	4,411	87%	145.7	15.0	58	24.6	C	1,507	4,310	3,580	83%	141.6	11.2	60	19.4	C	1,484
240th St East off-ramp to 240th St East on-ramp	4,900	4,189	85%	48.6	4.1	59	23.6	C	1,555	4,270	3,511	82%	48.0	3.7	60	19.6	C	1,532
240th St East on-ramp to Oasis Rd off-ramp	5,300	4,542	86%	143.3	16.4	57	25.8	C	1,699	4,495	3,680	82%	138.3	11.7	59	20.1	C	1,670
Oasis Rd off-ramp to Oasis Rd on-ramp	5,125	4,308	84%	48.7	4.1	59	24.2	C	1,747	4,370	3,530	81%	48.2	3.7	60	19.6	C	1,719
Oasis Rd on-ramp to Sheep Creek Rd off-ramp	5,275	4,364	83%	203.5	23.3	57	25.0	C	1,951	4,470	3,563	80%	196.4	16.4	59	19.6	C	1,915
Sheep Creek Rd off-ramp to Sheep Creek Rd on-ramp	4,405	3,569	81%	49.4	3.3	60	19.7	C	2,000	3,955	3,108	79%	49.0	3.1	61	17.1	B	1,964
Sheep Creek Rd on-ramp to Caughlin Rd off-ramp	4,700	3,788	81%	263.9	21.6	59	21.0	C	2,264	4,325	3,396	79%	263.8	22.2	59	18.8	C	2,228
Caughlin Rd off-ramp to Caughlin Rd on-ramp	3,920	3,062	78%	47.1	2.6	61	16.7	B	2,311	3,535	2,710	77%	46.8	2.5	61	14.7	B	2,275
Caughlin Rd on-ramp to Koala Rd off-ramp	4,065	3,170	78%	72.9	5.0	60	16.9	B	2,384	3,640	2,801	77%	72.4	4.6	61	14.8	B	2,347
Koala Rd off-ramp to Koala Rd loop on-ramp	3,685	2,834	77%	32.7	1.8	61	15.5	B	2,417	3,450	2,648	77%	32.8	2.0	61	14.5	B	2,380
Koala Rd loop on-ramp to Koala Rd direct on-ramp	4,624	3,757	81%	18.8	2.9	54	20.3	C	2,436	3,914	3,111	79%	17.6	1.8	58	15.8	B	2,397
Koala Rd direct on-ramp to Route 395 off-ramp	4,705	3,810	81%	108.6	9.5	59	20.8	C	2,544	4,025	3,202	80%	107.4	8.3	59	17.2	B	2,505
Route 395 off-ramp to Route 395 loop on-ramp	3,885	3,155	81%	26.2	1.4	61	17.2	B	2,570	3,365	2,661	79%	26.0	1.2	62	14.4	B	2,531
Route 395 loop on-ramp to Route 395 direct on-ramp	5,182	4,429	85%	24.6	4.0	55	25.2	C	2,595	4,409	3,739	85%	23.2	2.7	58	20.2	C	2,554
Route 395 direct on-ramp to Phantom St West off-ramp	5,260	4,474	85%	69.2	14.5	52	28.2	D	2,664	4,510	3,820	85%	60.6	5.9	59	21.1	C	2,615
Phantom St West off-ramp to Phantom St West loop on-ramp	3,825	3,309	87%	28.1	1.3	62	17.9	B	2,692	3,590	3,075	86%	28.0	1.3	62	16.6	B	2,643
Phantom St West loop on-ramp to Phantom St West direct on-ramp	3,908	3,389	87%	12.6	0.6	62	15.6	B	2,705	3,945	3,433	87%	12.8	0.8	61	16.1	B	2,655
Phantom St West direct on-ramp to Phantom St East direct off-ramp	4,160	3,630	87%	58.0	3.5	61	19.2	C	2,763	4,365	3,825	88%	58.8	4.5	60	20.5	C	2,714
Phantom St East direct off-ramp to Phantom St East loop on-ramp	3,535	3,062	87%	36.1	1.6	62	16.6	B	2,799	3,970	3,455	87%	36.4	2.0	61	18.8	C	2,751
Phantom St East loop on-ramp to Phantom St East direct on-ramp	3,831	3,325	87%	16.3	1.1	60	18.3	C	2,815	4,780	4,176	87%	17.5	2.3	56	24.7	C	2,768
Phantom St East direct on-ramp to National Trails Hwy off-ramp	4,160	3,648	88%	41.9	2.9	60	20.3	C	2,857	5,300	4,718	89%	44.0	5.2	57	27.5	D	2,812
National Trails Hwy off-ramp to National Trails Hwy on-ramp	3,780	3,318	88%	43.5	2.3	61	18.1	C	2,901	4,825	4,325	90%	44.0	2.8	61	23.8	C	2,856
National Trails Hwy on-ramp to I-15 NB/SB off-ramp	4,055	3,565	88%	104.3	5.8	61	14.6	B	3,005	5,075	4,555	90%	107.0	8.7	59	19.2	C	2,963
I-15 NB/SB off-ramp to I-15 NB on-ramp	1,935	1,697	88%	80.6	2.3	63	9.0	A	3,086	1,930	1,782	92%	80.5	2.3	63	9.5	A	3,044
I-15 NB/SB on-ramp to Choco Rd off-ramp	2,305	2,060	89%	57.6	2.3	62	8.3	A	3,143	2,505	2,323	93%	57.6	2.3	62	9.4	A	3,101
Choco Rd off-ramp to Choco Rd on-ramp	2,155	1,782	83%	33.7	1.5	62	10.2	A	3,177	2,140	1,881	88%	33.7	1.6	62	10.8	A	3,135
Choco Rd on-ramp to Dale Evans Pkwy off-ramp	2,205	1,718	78%	73.0	3.3	62	10.1	A	3,250	2,265	1,868	82%	72.8	3.2	62	10.9	A	3,208
Dale Evans Pkwy off-ramp to Dale Evans Pkwy direct on-ramp	1,815	1,296	71%	37.5	1.3	62	8.1	A	3,288	1,955	1,558	80%	37.6	1.4	62	9.5	A	3,245
Dale Evans Pkwy direct on-ramp to HDC EB east end of the network	1,900	1,454	77%	32.5	1.4	62	8.5	A	3,320	2,100	1,680	80%	32.5	1.5	62	9.7	A	3,278

Source: Parsons
 Level of service based on HCM 2000
 Level of service E
 Level of service F

Table 4-38. Year 2040 Build Alternative with Revised Palmdale Access Freeway Mainline Analysis Results (3 of 4)

FREEWAY SEGMENT	AM PEAK—OVERALL									PM PEAK—OVERALL								
	DEMAND (vph)	SERVED (vph)	% SERVED	TRAVEL TIME (sec/veh)	DELAY TIME (sec/veh)	SPEED (mph)	DENSITY (veh/ln/mi)	LOS (HCM 2000)	CUMULATIVE TIME (sec/veh)	DEMAND (vph)	SERVED (vph)	% SERVED	TRAVEL TIME (sec/veh)	DELAY TIME (sec/veh)	SPEED (mph)	DENSITY (veh/ln/mi)	LOS (HCM 2000)	CUMULATIVE TIME (sec/veh)
HIGH DESERT CORRIDOR WB MAINLINE																		
HDC WB west end of the network to Dale Evans Pkwy off-ramp	1,400	1,400	100%	37.8	2.9	59	11.9	B	38	2,520	2,471	98%	40.0	4.9	55	22.7	C	40
Dale Evans Pkwy off-ramp to Dale Evans Pkwy direct on-ramp	1,380	1,272	92%	36.8	1.7	62	10.3	A	75	2,320	2,264	98%	37.6	2.4	61	18.7	C	78
Dale Evans Pkwy direct on-ramp to Choco Rd off-ramp	1,490	1,489	100%	81.6	4.6	61	11.5	B	156	2,825	2,755	98%	85.1	8.1	58	22.3	C	163
Choco Rd off-ramp to Choco Rd on-ramp	1,385	1,285	93%	35.4	1.6	62	7.4	A	192	2,810	2,664	95%	36.8	3.1	59	15.4	B	199
Choco Rd on-ramp to I-15 NB/SB off-ramp	1,720	1,686	98%	57.0	1.7	63	6.7	A	249	3,045	2,972	98%	57.9	2.6	62	12.0	B	257
I-15 NB/SB off-ramp to I-15 SB on-ramp	1,386	1,350	97%	100.2	2.4	63	7.1	A	349	2,635	2,549	97%	102.4	4.5	62	13.7	B	360
I-15 NB on-ramp to I-15 NB on-ramp	2,465	2,403	97%	11.5	1.0	59	11.5	B	360	3,505	3,366	96%	11.6	1.2	58	16.3	B	371
I-15 SB on-ramp to National Trails Hwy off-ramp	3,735	3,633	97%	68.5	5.1	60	15.1	B	429	4,960	4,795	97%	72.1	8.6	57	21.0	C	444
National Trails Hwy off-ramp to National Trails Hwy on-ramp	3,505	3,401	97%	43.1	2.4	61	18.5	C	472	4,670	4,470	96%	44.6	3.8	59	25.1	C	488
National Trails Hwy on-ramp to Phantom St East off-ramp	3,895	3,750	96%	61.5	11.6	53	23.3	C	533	5,135	4,898	95%	58.5	8.5	55	28.6	D	547
Phantom St East off-ramp to Phantom St East loop on-ramp	2,490	2,391	96%	33.5	1.4	62	12.8	B	567	4,395	4,189	95%	34.6	2.4	60	23.2	C	581
Phantom St East loop on-ramp to Phantom St East direct on-ramp	2,775	2,637	95%	5.4	0.3	61	14.3	B	572	5,001	4,681	94%	6.1	0.9	55	28.3	D	587
Phantom St East direct on-ramp to Phantom St West off-ramp	2,805	2,697	96%	59.4	3.3	61	14.7	B	632	5,574	5,344	96%	67.8	11.7	54	33.4	D	655
Phantom St West off-ramp to Phantom St West on-ramp	2,060	1,952	95%	42.5	1.3	63	10.4	A	674	5,219	4,953	95%	45.0	3.8	59	27.9	D	700
Phantom St West on-ramp to Route 395 off-ramp	2,845	2,739	96%	54.5	2.8	61	11.1	B	729	6,230	5,923	95%	60.9	9.2	55	27.2	D	761
Route 395 off-ramp to Route 395 on-ramp	1,895	1,835	97%	46.9	0.8	64	7.2	A	776	4,825	4,445	92%	48.6	2.4	62	18.1	C	810
Route 395 on-ramp to Koala Rd off-ramp	2,490	2,393	96%	101.0	3.1	62	9.3	A	877	5,735	5,322	93%	107.2	9.2	59	22.0	C	917
Koala Rd off-ramp to Koala Rd on-ramp	2,005	1,917	96%	48.7	1.0	64	7.5	A	925	4,625	4,220	91%	50.3	2.4	62	17.1	B	967
Koala Rd on-ramp to Caughlin Rd off-ramp	2,155	2,063	96%	66.9	1.6	63	7.9	A	992	4,995	4,579	92%	69.5	4.1	61	18.3	C	1,037
Caughlin Rd off-ramp to Caughlin Rd on-ramp	2,055	1,949	95%	49.4	1.1	63	7.7	A	1,042	4,825	4,419	92%	51.4	3.0	61	18.1	C	1,088
Caughlin Rd on-ramp to Sheep Creek Rd off-ramp	2,615	2,474	95%	248.2	7.6	63	9.7	A	1,290	5,635	5,113	91%	260.8	19.6	60	21.1	C	1,349
Sheep Creek Rd off-ramp to Sheep Creek Rd loop on-ramp	2,325	2,175	94%	45.2	1.2	63	8.6	A	1,335	5,275	4,695	89%	47.2	3.1	61	19.4	C	1,396
Sheep Creek Rd direct on-ramp to Oasis Rd off-ramp	2,465	2,285	93%	184.4	5.5	63	8.9	A	1,519	6,345	5,678	89%	197.0	17.2	58	23.9	C	1,593
Oasis Rd off-ramp to Oasis Rd loop on-ramp	2,385	2,197	92%	47.9	1.4	63	8.7	A	1,567	6,185	5,421	88%	50.5	3.8	60	22.7	C	1,643
Oasis Rd direct on-ramp to 240th St East off-ramp	2,465	2,236	91%	128.8	4.0	63	8.7	A	1,696	6,390	5,553	87%	137.1	11.7	59	23.0	C	1,781
240th St East off-ramp to 240th St East on-ramp	2,290	2,051	90%	43.9	1.2	63	8.1	A	1,740	5,865	5,031	86%	46.1	3.2	60	20.9	C	1,827
240th St East on-ramp to 210th St East off-ramp	2,315	2,053	89%	134.6	4.2	63	8.0	A	1,875	6,110	5,209	85%	149.9	18.8	56	22.8	C	1,976
210th St East off-ramp to 210th St East on-ramp	2,250	1,973	88%	42.4	1.4	63	10.5	A	1,917	5,735	4,816	84%	46.3	5.1	57	27.9	D	2,023
210th St East on-ramp to 170th St East off-ramp	2,310	1,997	86%	189.6	7.4	62	10.4	A	2,107	5,790	4,779	83%	204.4	21.0	58	26.9	D	2,227
170th St East off-ramp to 170th St East on-ramp	2,130	1,799	84%	44.6	1.6	63	9.6	A	2,151	5,425	4,357	80%	47.1	3.9	59	24.5	C	2,274
170th St East on-ramp to 140th St East off-ramp	2,310	1,947	84%	135.8	5.4	62	10.1	A	2,287	5,550	4,401	79%	144.2	13.2	59	24.3	C	2,418
140th St East off-ramp to 140th St East on-ramp	2,150	1,771	82%	36.6	1.3	63	9.4	A	2,324	5,305	4,137	78%	38.7	3.3	59	23.3	C	2,457
140th St East on-ramp to 90th St East off-ramp	2,690	2,284	85%	270.7	12.3	62	12.1	B	2,594	5,630	4,340	77%	287.6	28.2	58	24.5	C	2,745
90th St East off-ramp to 90th St East on-ramp	2,460	2,052	83%	44.5	1.9	62	11.0	A	2,639	5,265	3,952	75%	46.8	4.0	59	22.3	C	2,792
90th St East on-ramp to 70th St East off-ramp	2,905	2,488	86%	193.4	10.2	61	13.3	B	2,832	5,640	4,245	75%	206.5	22.7	58	24.3	C	2,998
50th St East off-ramp to 50th St East on-ramp	2,380	1,992	84%	43.2	1.7	62	10.6	A	2,875	4,920	3,637	74%	44.9	3.2	60	20.2	C	3,043
50th St East on-ramp to 30th St East off-ramp	3,375	3,002	89%	66.4	3.2	61	12.2	B	2,942	5,735	4,433	77%	67.9	4.6	60	18.4	C	3,111
30th St East off-ramp to 30th St East on-ramp	2,925	2,603	89%	54.3	2.0	62	10.4	A	2,996	5,185	3,981	77%	55.6	3.2	61	16.3	B	3,166
30th St East on-ramp to 20th St East off-ramp	3,335	2,997	90%	16.7	0.9	61	11.1	B	3,013	5,560	4,331	78%	17.3	1.4	59	16.6	B	3,184
20th St East off-ramp to 20th St East on-ramp	2,960	2,643	89%	41.2	1.4	63	10.5	A	3,054	5,100	3,976	78%	42.3	2.4	61	16.3	B	3,226
20th St East on-ramp to SR 14 SB off-ramp	3,850	3,474	90%	96.2	4.7	61	13.9	B	3,150	5,900	4,725	80%	102.8	11.4	57	20.3	C	3,329
SR 14 SB off-ramp to SR 138 WB west end of the network	2,230	1,986	89%	12.6	0.5	54	18.3	C	3,163	3,870	3,046	79%	13.6	1.4	50	30.4	D	3,342

Source: Parsons

Note: Level of service based on HCM 2000

- Level of service E
- Level of service F

Table 4-38. Year 2040 Build Alternative with Revised Palmdale Access Freeway Mainline Analysis Results (4 of 4)

FREEWAY SEGMENT	AM PEAK—OVERALL									PM PEAK—OVERALL								
	DEMAND (vph)	SERVED (vph)	% SERVED	TRAVEL TIME (sec/veh)	DELAY TIME (sec/veh)	SPEED (mph)	DENSITY (veh/ln/mi)	LOS (HCM 2000)	CUMULATIVE TIME (sec/veh)	DEMAND (vph)	SERVED (vph)	% SERVED	TRAVEL TIME (sec/veh)	DELAY TIME (sec/veh)	SPEED (mph)	DENSITY (veh/ln/mi)	LOS (HCM 2000)	CUMULATIVE TIME (sec/veh)
I-15 NB MAINLINE																		
I-15 NB south end of the network to Palmdale Rd off-ramp	3,690	3,690	100%	151.1	9.8	61	20.2	C	151	6,000	5,666	94%	208.7	67.2	44	43.2	E	209
Palmdale Rd off Ramp to Palmdale Rd loop on-ramp	3,215	3,215	100%	22.5	1.5	61	17.7	B	174	5,350	5,000	93%	25.0	3.9	55	30.4	D	234
Palmdale Rd loop on-ramp to Palmdale Rd direct on-ramp	3,600	3,596	100%	11.7	1.3	58	20.5	C	185	5,755	5,399	94%	12.6	2.2	54	33.4	D	246
Palmdale Rd direct on-ramp to Roy Rogers Dr off-ramp	4,050	4,050	100%	22.5	1.9	60	17.1	B	208	6,260	5,937	95%	24.8	4.2	54	27.4	D	271
Roy Rogers Dr off-ramp to Roy Rogers Dr on-ramp	3,490	3,490	100%	24.5	1.8	60	19.4	C	232	5,640	5,326	94%	27.2	4.4	55	32.5	D	298
Roy Rogers Dr on-ramp to Mojave Dr off-ramp	3,915	3,915	100%	17.1	1.3	60	16.5	B	249	6,205	5,861	94%	18.3	2.5	56	26.3	D	317
Mojave Dr off-ramp to Mojave Dr on-ramp	3,310	3,310	100%	21.0	1.2	61	18.2	C	270	5,415	5,087	94%	22.1	2.3	58	29.2	D	339
Mojave Dr on-ramp to D St off-ramp	3,760	3,760	100%	51.1	3.9	60	18.3	C	321	5,805	5,473	94%	53.7	6.5	57	28.3	D	392
D St off-ramp to E St off-ramp	2,575	2,528	98%	9.8	0.4	62	13.5	B	331	4,710	4,412	94%	10.2	0.7	60	24.5	C	403
E St off-ramp to D St on-ramp	2,525	2,472	98%	28.4	1.2	62	13.2	B	360	4,640	4,338	93%	29.4	2.1	60	24.0	C	432
D St on-ramp to E St on-ramp	2,815	2,737	97%	11.1	0.7	61	14.9	B	371	5,010	4,654	93%	11.7	1.2	58	26.7	D	444
E St on-ramp to Stoddard Wells Rd off-ramp	2,865	2,802	98%	30.4	1.9	61	15.4	B	401	5,065	4,732	93%	34.0	5.4	54	29.0	D	478
Stoddard Wells Rd off-ramp to Stoddard Wells Rd on-ramp	2,370	2,328	98%	20.3	0.8	62	12.5	B	422	4,445	4,119	93%	21.3	1.7	60	23.1	C	499
Stoddard Wells Rd on-ramp to HDC EB/WB off-ramp	2,810	2,760	98%	39.4	2.2	61	11.4	B	461	5,155	4,798	93%	40.9	3.8	58	20.7	C	540
HDC EB/WB off-ramp to HDC WB on-ramp	1,560	1,519	97%	70.7	1.9	63	8.0	A	532	3,970	3,681	93%	73.3	4.6	61	20.2	C	613
HDC WB on-ramp to HDC EB on-ramp	1,730	1,693	98%	7.7	0.3	62	7.0	A	539	4,180	3,891	93%	8.0	0.6	60	16.8	B	621
HDC EB on-ramp to Stoddard Wells Rd off-ramp (Quarry Rd)	2,865	2,696	94%	36.7	1.8	61	11.0	A	576	6,185	5,340	86%	40.8	6.1	54	24.8	C	662
Stoddard Wells Rd off-ramp (Quarry Rd) to Stoddard Wells Rd on-ramp (Quarry Rd)	2,620	2,462	94%	22.9	0.9	62	13.2	B	599	5,920	5,045	85%	24.5	2.4	58	28.8	D	686
Stoddard Wells Rd on-ramp (Quarry Rd) to Dale Evans Pkwy off-ramp	2,880	2,696	94%	217.3	11.3	61	14.6	B	816	6,160	5,230	85%	229.8	23.8	58	30.1	D	916
Dale Evans Pkwy off-ramp to Dale Evans Pkwy on-ramp	2,450	2,279	93%	31.9	1.5	62	12.3	B	848	5,735	4,810	84%	33.4	3.0	59	27.2	D	950
Dale Evans Pkwy on-ramp to I-15 NB north end of the network	2,890	2,686	93%	64.2	3.3	61	14.6	B	912	6,190	5,204	84%	68.8	7.8	57	30.4	D	1,018
I-15 SB MAINLINE																		
I-15 SB north end of the network to Dale Evans Pkwy off-ramp	4,675	4,675	100%	60.8	5.6	59	26.5	D	61	3,900	3,900	100%	59.3	4.1	60	21.6	C	59
Dale Evans Pkwy off-ramp to Dale Evans Pkwy on-ramp	4,260	4,259	100%	37.5	3.2	60	23.8	C	98	3,380	3,380	100%	36.7	2.4	61	18.5	C	96
Dale Evans Pkwy on-ramp to Quarry Rd off-ramp	4,660	4,659	100%	221.6	22.1	58	26.7	D	320	3,835	3,835	100%	217.0	17.5	60	21.6	C	313
Quarry Rd off-ramp to Quarry Rd on-ramp	4,440	4,437	100%	25.5	2.5	59	25.1	C	345	3,560	3,560	100%	25.0	2.0	60	19.9	C	338
Quarry Rd on-ramp to HDC EB/WB off-ramp	4,710	4,710	100%	53.8	5.6	58	20.2	C	399	3,920	3,920	100%	53.4	5.1	59	16.9	B	391
HDC EB/WB off-ramp to HDC EB/WB on-ramp	3,240	3,240	100%	83.0	5.4	61	17.9	B	482	2,205	2,205	100%	81.3	3.6	62	12.0	B	473
HDC EB/WB on-ramp to Stoddard Wells Rd off-ramp	4,390	4,390	100%	35.9	3.7	58	19.8	C	518	3,545	3,545	100%	35.4	3.1	59	16.9	B	508
Stoddard Wells Rd off-ramp to Stoddard Wells Rd direct on-ramp	3,665	3,531	96%	33.7	2.2	61	19.4	C	552	2,970	2,970	100%	33.1	1.6	62	16.6	B	541
Stoddard Wells Rd direct on-ramp to D St off-ramp	4,280	4,134	97%	38.9	4.5	58	23.8	C	591	3,555	3,555	100%	37.7	3.3	60	20.4	C	579
D St off-ramp to D St on-ramp	3,935	3,794	96%	21.9	1.5	61	20.9	C	613	3,240	3,240	100%	21.6	1.2	61	18.0	B	600
D St on-ramp to Mojave Dr off-ramp	4,860	4,739	98%	53.5	5.1	59	19.8	C	666	4,450	4,423	99%	52.7	4.2	60	18.6	C	653
Mojave Dr off-ramp to Mojave Dr on-ramp	4,485	4,317	96%	20.8	1.8	59	24.2	C	687	3,955	3,905	99%	20.5	1.5	60	22.2	C	674
Mojave Dr on-ramp to Roy Rogers Dr off-ramp	5,210	5,029	97%	15.5	1.8	57	22.1	C	703	4,635	4,600	99%	15.2	1.5	58	20.0	C	689
Roy Rogers Dr off-ramp to Roy Rogers Dr on-ramp	4,755	4,568	96%	27.7	2.6	59	25.9	C	730	4,160	4,105	99%	27.1	1.9	60	23.1	C	716
Roy Rogers Dr on-ramp to Palmdale Rd off-ramp	5,190	4,986	96%	23.6	1.8	60	20.9	C	754	4,740	4,720	100%	23.6	1.8	60	20.0	C	739
Palmdale Rd off Ramp to Palmdale Rd loop on-ramp	4,335	4,172	96%	12.9	0.9	60	23.0	C	767	3,745	3,730	100%	12.7	0.8	61	20.5	C	752
Palmdale Rd loop on-ramp to Palmdale Rd direct on-ramp	4,560	4,359	96%	8.6	0.7	60	24.4	C	775	3,985	3,962	99%	8.5	0.6	60	22.0	C	761
Palmdale Rd direct on-ramp to I-15 SB south end of the network	4,870	4,625	95%	171.3	15.3	59	26.2	D	946	4,320	4,278	99%	168.5	12.5	60	23.8	C	929

Source: Parsons

Note: Level of service based on HCM 2000

Level of service E
Level of service F

Table 4-39. Year 2040 Build Alternative with Revised Palmdale Access Weaving and Ramp Merging/Diverging Analysis Results (1 of 4)

Summary of SR 14

LOCATION	ANALYSIS TYPE	AM PEAK			PM PEAK		
		SPEED (mph)	DENSITY (veh/ln/mi)	LOS (HCM 2000)	SPEED (mph)	DENSITY (veh/ln/mi)	LOS (HCM 2000)
NORTHBOUND							
East Avenue S	Merging	57	12.5	B	58	21.1	C
West Palmdale Blvd loop	Merging	60	10.7	B	60	17.0	B
SR 138 WB	Merging	61	13	B	58	20	C
10th St W. loop	Merging	60	16.0	B	58	20.5	C
10th St W. direct	Merging	61	16.4	B	60	20.1	C
West Avenue N loop	Merging	61	15.9	B	59	20.1	C
West Avenue N direct	Merging	61	13.4	B	60	17.6	B
East Avenue S	Diverging	63	13.0	B	48	38.7	E
West Palmdale Blvd	Diverging	60	13.5	B	57	21.3	C
SR 138 EB	Diverging	60	13.9	B	59	22.1	C
10th St W.	Diverging	60	10.9	B	58	17.5	B
West Avenue N	Diverging	59	17.1	B	53	23.7	C
SOUTHBOUND							
West Avenue N loop	Merging	60	20.6	C	61	17.7	B
West Avenue N direct	Merging	60	18.1	B	61	14.4	B
10th St W.	Merging	61	17.5	B	62	15.0	B
SR 138 WB	Merging	60	15.4	B	60	13.1	B
West Palmdale Blvd loop	Merging	55	24.2	C	59	18.3	B
West Palmdale Blvd direct	Merging	55	26.8	C	59	20.0	B
East Avenue S	Merging	31	52.3	E	56	19.1	B
West Avenue N	Diverging	58	30.1	D	54	33.7	D
10th St W.	Diverging	54	26.1	C	55	27.9	C
SR 138 EB	Diverging	54	28.8	D	56	28.0	C
West Palmdale Blvd	Diverging	60	19.3	B	59	18.7	B
East Avenue S	Diverging	56	29.4	D	56	24.0	C

Source: Parsons

Notes:

1. Level of service based on HCM 2000
2. Merge/diverge calculations are based on mainline two right-most lanes within 1,500 feet of influence area

Level of service E
 Level of service F

Table 4-39. Year 2040 Build Alternative with Revised Palmdale Access Weaving and Ramp Merging/Diverging Analysis Results (2 of 4)

Summary of High Desert Corridor

LOCATION	ANALYSIS TYPE	AM PEAK			PM PEAK		
		SPEED (mph)	DENSITY (veh/ln/mi)	LOS (HCM 2000)	SPEED (mph)	DENSITY (veh/ln/mi)	LOS (HCM 2000)
EASTBOUND							
SR 14 NB	Merging	58	23	C	58	23	C
20th St E	Merging	58	22	C	56	24	C
30th St E	Merging	60	19	B	59	19	B
50th St E	Merging	53	27	C	56	23	C
90th St E	Merging	58	23	C	58	20	C
140th St E	Merging	57	21	C	59	18	B
170th St E	Merging	54	24	C	59	18	B
210th St E	Merging	57	22	C	59	17	B
240th St E	Merging	52	25	C	58	18	B
Oasis Rd	Merging	58	21	C	59	17	B
Sheep Creek Rd loop	Merging	61	18	B	61	17	B
Sheep Creek Rd direct	Merging	58	18	B	58	17	B
Caughlin Rd loop	Merging	61	16	B	61	14	B
Caughlin Rd direct	Merging	60	15	B	60	13	B
Koala Rd loop	Merging	52	21	C	57	16	B
Koala Rd direct	Merging	59	19	B	59	16	B
Route 395 loop	Merging	50	26	C	55	21	C
Route 395 direct	Merging	58	22	C	60	19	B
Phantom St West loop	Merging	62	13	B	60	15	B
Phantom St West direct	Merging	60	16	B	58	19	B
Phantom St East loop	Merging	60	19	B	55	27	C
Phantom St East direct	Merging	59	21	C	53	31	D
Choco Rd	Merging	62	9	A	62	10	A
Dale Evans Pkwy direct	Merging	62	8	A	62	9	A
20th St E	Diverging	58	25	C	57	27	C
30th St E	Diverging	58	22	C	56	24	C
50th St E	Diverging	57	22	C	59	22	C
90th St E	Diverging	57	28	C	58	26	C
140th St E	Diverging	57	27	C	57	24	C
170th St E	Diverging	59	25	C	59	21	C
210th St E	Diverging	58	26	C	59	21	C
240th St E	Diverging	57	26	C	59	20	C
Oasis Rd	Diverging	57	26	C	59	21	C
Sheep Creek Rd	Diverging	50	29	D	56	21	C
Caughlin Rd	Diverging	55	24	C	56	21	C
Koala	Diverging	59	19	B	60	16	B
Route 395	Diverging	56	24	C	57	20	B
Phantom St West	Diverging	50	31	D	56	25	C
Phantom St East	Diverging	59	21	C	59	23	C
National Trails Hwy	Diverging	60	21	C	58	28	D
Dale Evans Pkwy	Diverging	61	11	B	61	11	B
National Trails Hwy to I-15 NB/SB	Weaving	61	14	B	59	19	B
I-15 NB/SB to Choco Rd	Weaving	62	7	A	62	9	A

Source: Parsons

Notes:

1. Level of service based on HCM 2000
2. Merge/diverge calculations are based on mainline two right-most lanes within 1,500 feet of influence area

Level of service E
 Level of service F

Table 4-39. Year 2040 Build Alternative with Revised Palmdale Access Weaving and Ramp Merging/Diverging Analysis Results (3 of 4)

Summary of High Desert Corridor

LOCATION	ANALYSIS TYPE	AM PEAK			PM PEAK		
		SPEED (mph)	DENSITY (veh/ln/mi)	LOS (HCM 2000)	SPEED (mph)	DENSITY (veh/ln/mi)	LOS (HCM 2000)
WESTBOUND							
Dale Evans Pkwy direct	Merging	60	10	B	56	20	C
I-15 NB	Merging	58	13	B	57	17	B
National Trails Hwy	Merging	57	19	B	54	26	C
Phantom St East loop	Merging	60	14	B	53	30	D
Phantom St East direct	Merging	61	14	B	47	39	E
Phantom St West	Merging	62	11	B	60	23	C
Route 395	Merging	61	10	A	58	19	B
Koala Rd loop	Merging	62	8	A	62	16	B
Koala Rd direct	Merging	62	8	A	60	16	B
Caughlin Rd loop	Merging	62	8	A	61	18	B
Caughlin Rd direct	Merging	61	10	B	55	21	C
Sheep Creek Rd loop	Merging	62	9	A	60	19	B
Sheep Creek Rd direct	Merging	62	8	A	50	26	C
Oasis Rd loop	Merging	62	8	A	59	22	C
Oasis Rd direct	Merging	61	7	A	57	20	C
240th St E	Merging	62	7	A	59	19	B
210th St E	Merging	62	9	A	58	23	C
170th St E	Merging	61	9	A	58	21	C
140th St E	Merging	60	11	B	56	22	C
90th St E	Merging	59	12	B	54	22	C
50th St E	Merging	60	12	B	60	17	B
30th St E	Merging	60	11	B	58	16	B
20th St E	Merging	59	14	B	56	18	B
Dale Evans Pkwy	Diverging	61	11	B	60	20	C
Choco Rd	Diverging	61	12	B	59	23	C
Phantom St East	Diverging	47	30	D	54	31	D
Phantom St West	Diverging	59	17	B	55	33	D
Route 395	Diverging	59	16	B	48	34	D
Koala Rd	Diverging	61	12	B	54	28	D
Caughlin Rd	Diverging	62	9	A	60	19	B
Sheep Creek Rd	Diverging	61	11	B	58	22	C
Oasis Rd	Diverging	62	9	A	58	25	C
240th St E	Diverging	61	9	A	56	25	C
210th St E	Diverging	62	8	A	50	24	C
170th St E	Diverging	61	11	B	54	29	D
140th St E	Diverging	61	11	B	57	25	C
90th St E	Diverging	61	13	B	56	25	C
50th St E	Diverging	60	14	B	53	26	C
30th St E	Diverging	61	13	B	60	18	B
20th St E	Diverging	60	11	B	58	16	B
SR 14 SB	Diverging	61	16	B	54	28	D
Choco to I-15 NB/SB	Weaving	63	6	A	62	10	A
I-15 SB to National Trails Hwy	Weaving	59	17	B	56	22	C
20th St East to 10th St East	Weaving	59	14	B	56	18	B

Source: Parsons

Notes:

1. Level of service based on HCM 2000
2. Merge/diverge calculations are based on mainline two right-most lanes within 1,500 feet of influence area

Level of service E
 Level of service F

Table 4-39. Year 2040 Build Alternative with Revised Palmdale Access Weaving and Ramp Merging/Diverging Analysis Results (4 of 4)

Summary of I-15

LOCATION	ANALYSIS TYPE	AM PEAK			PM PEAK		
		SPEED (mph)	DENSITY (veh/ln/mi)	LOS (HCM 2000)	SPEED (mph)	DENSITY (veh/ln/mi)	LOS (HCM 2000)
NORTHBOUND							
Palmdale Rd loop	Merging	57	23	C	51	35	D
Mojave Dr	Merging	58	23	C	53	34	D
D St	Merging	61	16	B	57	27	C
E St	Merging	60	17	B	55	30	D
HDC WB	Merging	62	6	A	60	15	B
Stoddard Wells Rd (Quarry Rd)	Merging	61	16	B	57	30	D
Dale Evans Pkwy	Merging	60	15	B	55	31	D
Palmdale Rd	Diverging	58	23	C	42	42	E
D St	Diverging	59	17	B	59	22	C
E St	Diverging	62	14	B	60	24	C
Stoddard Wells Rd	Diverging	60	17	B	49	33	D
Dale Evans Pkwy	Diverging	60	15	B	56	30	D
Palmdale Rd direct to Roy Rogers Dr	Weaving	59	17	B	52	26	C
Roy Rogers Dr to Mojave Dr	Weaving	59	17	B	54	25	C
Stoddard Wells Rd to HDC EB/WB	Weaving	60	12	B	57	20	C
HDC EB to Stoddard Wells Rd (Quarry Rd)	Weaving	61	11	B	52	24	C
SOUTHBOUND							
Dale Evans Pkwy	Merging	55	28	D	57	24	C
HDC EB/WB	Merging	56	18	B	57	17	B
Stoddard Wells Rd direct	Merging	54	26	C	56	23	C
Palmdale Rd loop	Merging	59	24	C	59	22	C
Palmdale Rd direct	Merging	57	27	C	58	25	C
Dale Evans Pkwy	Diverging	57	28	D	58	24	C
Quarry Rd	Diverging	57	27	C	58	23	C
Stoddard Wells Rd	Diverging	58	18	B	59	16	B
D St	Diverging	58	24	C	60	21	C
Quarry Rd to HDC EB/WB	Weaving	58	19	B	58	17	B
D St to Mojave Dr	Weaving	58	18	B	59	18	B
Mojave Dr to Roy Rogers Dr	Weaving	56	21	C	57	20	B
Roy Rogers Dr to Palmdale Rd	Weaving	59	20	B	59	20	C

Source: Parsons

Notes:

Level of service based on HCM 2000

Merge/diverge calculations are based on mainline two right-most lanes within 1,500 feet of influence area

- Level of service E
- Level of service F

Table 4-45. Year 2040 Revised Palmdale Access Intersection Level of Service Summary (1 of 5)

ID NO.	INTERSECTION	TYPE OF CONTROL	EXISTING CONDITION				DESIGN YEAR 2040 NO-BUILD CONDITION				DESIGN YEAR 2040 BUILD ALTERNATIVE				DESIGN YEAR 2040 BUILD ALTERNATIVE WITH TOLL			
			AM PEAK		PM PEAK		AM PEAK		PM PEAK		AM PEAK		PM PEAK		AM PEAK		PM PEAK	
			LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY
HIGH DESERT CORRIDOR																		
1	SR 14 southbound off-ramp and West Avenue N	Existing–stop NB/SB; future–signal	A	7.2	B	12.6	A	5.4	E	69.7	A	5.6	A	6.0	A	5.6	A	5.3
2	SR 14 northbound off-ramp and West Avenue N	Existing–stop NB/SB; future–signal	A	7.9	C	18.1	B	10.4	C	23.8	B	10.9	B	16.4	B	10.9	B	13.4
3	10th Street West and West Avenue O-8	Signal	C	23.5	C	24.9	C	27.0	D	41.2	C	26.3	C	22.2	C	30.7	C	22.1
4	10th Street West and Sam's Club access	Signal	B	16.5	B	14.1	B	17.4	B	17.6	B	16.0	B	12.5	B	19.5	B	14.1
5	10th Street West and SR 14 northbound on-ramp	Signal	Does not exist				Does not exist				B	12.8	A	9.4	B	14.0	B	10.2
6	10th Street West and SR 14 southbound off-ramp	Signal	B	13.2	B	11.4	C	21.3	D	54.8	C	21.9	C	20.2	C	23.9	B	18.0
7	10th Street West and Mall Ring Road	Signal	B	10.9	C	22.6	C	22.1	D	42.3	C	23.3	C	20.1	C	31.2	C	23.1
8	10th Street West and West Avenue P	Signal	C	31.3	C	30.3	C	32.7	E	74.8	C	29.0	C	28.7	C	28.1	C	33.1
9	Lowe's Driveway and West Avenue P	Signal	B	10.2	C	29.1	B	18.2	E	65.7	B	19.3	B	15.5	B	19.8	B	18.9
10	SR 14 southbound on-ramp and West Avenue P	Existing–stop NB/SB ; future–signal	A	1.4	A	1.0	A	1.7	E	43.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11	SR 14 northbound off-ramp and West Avenue P	Signal	B	14.3	C	20.6	A	8.5	E	55.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12*	10th Street West and West Palmdale Boulevard	Signal	C	29.9	C	34.6	C	33.1	D	37.7	D	43.9	D	53.5	C	33.4	D	37.8
13	SR 14 southbound off-/on-ramps and West Palmdale Boulevard	Signal	B	11.3	B	11.1	C	27.6	C	30.1	A	8.0	B	16.2	A	7.3	B	11.6
14	SR 14 northbound off-/on-ramps and East Palmdale Boulevard	Signal	A	7.4	B	10.1	A	7.6	B	17.3	C	29.6	C	26.5	A	8.6	B	14.4
15*	Division Street and East Palmdale Boulevard	Signal	C	27.9	C	28.0	E	64.1	E	71.4	C	29.4	C	31.1	C	27.9	C	31.1
16	SR 14 southbound off-ramp and West Avenue S	Signal	C	28.7	C	30.3	D	38.1	B	19.1	D	48.5	C	27.8	E	65.1	C	28.5
17	SR 14 northbound off-ramp and East Avenue S	Signal	B	16.9	B	18.9	B	11.8	D	41.3	B	14.9	C	25.4	B	19.2	C	26.1
18*	Sierra Highway and East Avenue P	Signal	C	33.4	C	34.6	D	45.1	E	58.5	D	36.5	D	51.9	C	34.5	D	42.1
19*	Sierra Highway and Technology Drive	Signal	B	14.3	B	16.8	D	50.9	F	115.4	B	14.1	B	18.0	B	13.9	B	17.7
20*	Sierra Highway and East Avenue Q	Signal	B	16.0	B	15.4	B	15.0	B	15.3	B	17.1	B	16.0	B	16.9	B	15.8
21*	5th Street East and East Palmdale Boulevard	Signal	C	22.1	C	23.8	C	21.4	C	31.4	C	25.4	C	28.7	C	25.0	C	27.3
22*	6th Street East and East Palmdale Boulevard	Signal	C	20.7	C	25.3	E	55.7	E	78.0	C	29.4	C	32.3	C	28.7	C	30.5
23*	Sierra Highway and East Palmdale Boulevard	Signal	C	25.5	C	27.3	F	82.1	F	94.6	C	29.7	C	32.2	C	30.9	D	35.1
24	10th Street East and East Avenue P	Existing–stop NB/SB ; future–signal	E*	39.0	F*	>300	B*	16.3	C*	20.8	C	27.1	C	30.2	C	21.1	C	22.2
25	10th or 30th Street East and westbound High Desert Corridor	Signal	Does not exist				Does not exist				B	19.4	C	30.1	C	22.6	C	28.8
26	10th or 30th Street East and eastbound High Desert Corridor	Signal	Does not exist				Does not exist				B	18.4	B	18.8	B	13.6	C	23.6
27	10th Street East and East Avenue Q	Existing–4-way stop; future–signal	B*	10.3	B*	12.6	C*	22.7	C*	29.3	C	28.1	C	24.8	C	26.3	C	26.5
28*	10th Street East and East Palmdale Boulevard	Signal	B	17.2	C	20.0	C	31.3	D	50.6	C	32.3	E	60.8	C	29.1	D	49.5
29*	15th Street East and East Avenue Q	4-way stop	B	10.5	B	10.8	B	10.4	B	12.4	A	9.9	B	11.0	A	9.6	B	10.4
30*	15th Street East and East Palmdale Boulevard	Stop NB/SB	D	25.2	E	36.1	F	>300	F	>300	F	>300	F	>300	F	>300	F	>300
31	20th Street East and East Avenue P	Signal	Does not exist				C*	22.9	C*	27.2	C	21.3	C	26.9	C	22.0	C	26.6
32	20th Street East and westbound High Desert Corridor	Signal	Does not exist				Does not exist				D	39.2	C	24.6	D	40.1	C	29.9

Source: Parsons

Notes:

- Proposed additional geometry improvements.
- Two-way stop control level of service reported for worst approach
- 4-way stop reported for overall level of service.
- Intersection level of service calculations are based on HCM 2000, excepted where noted with *

*Intersection level of service was calculated using TRAFFIX software

Level of service E

Level of service F

Table 4-54. Year 2040 Intersection Level of Service near Palmdale and Victorville High Speed Train Stations

ID NO.	INTERSECTION	TYPE OF CONTROL	EXISTING CONDITION				DESIGN YEAR 2040 NO-BUILD CONDITION				DESIGN YEAR 2040 REVISED PALMDALE ACCESS ALTERNATIVE				DESIGN YEAR 2040 REVISED PALMDALE ACCESS ALTERNATIVE WITH TOLL				DESIGN YEAR 2040 REVISED PALMDALE ACCESS ALTERNATIVE WITH RAIL				DESIGN YEAR 2040 REVISED PALMDALE ACCESS ALTERNATIVE WITH TOLL AND RAIL			
			AM PEAK		PM PEAK		AM PEAK		PM PEAK		AM PEAK		PM PEAK		AM PEAK		PM PEAK		AM PEAK		PM PEAK		AM PEAK		PM PEAK	
			LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY
13	SR 14 SB off-/on-ramps and West Palmdale Blvd	Signal	B	11.3	B	11.1	C	27.6	C	30.1	A	8.0	B	16.2	A	7.3	B	11.6	A	8.6	B	16.0	A	8.0	B	14.8
14	SR 14 NB off-/on-ramps and East Palmdale Blvd	Signal	A	7.4	B	10.1	A	7.6	B	17.3	C	29.6	C	26.5	A	8.6	B	14.4	C	29.7	C	29.4	C	29.1	C	26.2
15*	Division St and East Palmdale Blvd	Signal	C	27.9	C	28.0	E	64.1	E	71.4	C	29.4	C	31.1	C	27.9	C	31.1	C	31.3	C	32.2	C	29.3	C	29.9
19*	Sierra Hwy and Technology Dr	Signal	B	14.3	B	16.8	D	50.9	F	115.4	B	14.1	B	18.0	B	13.9	B	17.7	B	14.7	B	17.7	B	14.6	B	16.8
20*	Sierra Hwy and East Ave Q	Signal	B	16.0	B	15.4	B	15.0	B	15.3	B	17.1	B	16.0	B	16.9	B	15.8	B	17.7	B	15.8	B	17.5	B	15.3
21*	5th St East and East Palmdale Blvd	Signal	C	22.1	C	23.8	C	21.4	C	31.4	C	25.4	C	28.7	C	25.0	C	27.3	C	25.5	C	28.7	C	24.9	C	26.0
22*	6th St East and East Palmdale Blvd	Signal	C	20.7	C	25.3	E	55.7	E	78.0	C	29.4	C	32.3	C	28.7	C	30.5	C	29.4	C	32.3	C	28.8	C	28.3
23*	Sierra Hwy and East Palmdale Blvd	Signal	C	25.5	C	27.3	F	82.1	F	94.6	C	29.7	C	32.2	C	30.9	D	35.1	C	29.7	C	32.2	C	27.5	C	29.6
27*	10th St East and East Ave Q	Existing—4-way stop Future—signal	B*	10.3	B*	12.6	C*	22.7	C*	29.3	C	28.1	C	24.8	C	26.3	C	26.5	C	25.3	C	27.5	C	24.5	C	26.1
28*	10th St East and East Palmdale Blvd	Signal	B	17.2	C	20.0	C	31.3	D	50.6	C	32.3	E	60.8	C	29.1	D	49.5	C	32.3	D	52.2	C	30.3	D	40.3
32	20th St East and WB High Desert Corridor ramps	Signal	Does not exist				Does not exist				D	39.2	C	24.6	D	40.1	C	29.9	D	38.3	C	24.9	D	37.3	C	28.8
33	20th St East and EB High Desert Corridor ramps	Signal	Does not exist				Does not exist				C	25.6	C	26.6	C	26.5	C	24.7	C	26.2	C	27.0	C	28.3	C	28.1
138	I-15 SB off-/on-ramps and Dale Evans Pkwy	Existing—stop NB/SB Future—signal	A	4.7	A	3.1	C	28.2	C	24.8	C	23.7	C	26.7	C	23.9	C	25.4	C	29.4	C	30.9	C	29.2	C	30.9
139	I-15 NB off-/on-ramps and Dale Evans Pkwy	Existing—stop NB/SB Future—signal	A	4.3	A	3.1	B	13.1	B	12.8	C	22.5	B	17.7	C	21.7	B	18.3	B	14.7	A	8.5	B	18.7	A	9.1

Source: Parsons

Notes:

- Two-way stop control level of service reported for worst approach
- 4-way stop reported for overall level of service
- Intersection level of service calculations are based on HCM 2000, except where noted with *

*Intersection level of service was calculated using TRAFFIX software

Level of service E
 Level of service F

Table 6-14. Year 2040 Revised Palmdale Access Freeway Mainline Level of Service Analysis Results Summary
(segments operating at LOS E or worse)

	SEGMENT (LOS)		
	NO-BUILD	BUILD	BUILD TOLL
AM PEAK			
SR 14 NB	None	None	None
SR 14 SB	SR 14 from north end of the network to West Avenue N off-ramp (F) West Avenue N off-ramp to West Avenue N loop on-ramp (F) West Avenue N loop on-ramp to West Avenue N direct on-ramp (F) West Avenue N direct on-ramp to 10th Street West off-ramp (F) East Avenue S on-ramp to SR 14 SB south end of the network (E overall; F mixed flow)	East Avenue S off-ramp to East Avenue S on-ramp (F) East Avenue S on-ramp to Angeles Forest Highway off-ramp (F overall and mixed flow; E HOV)	East Avenue S on-ramp to Angeles Forest Highway off-ramp (F overall and mixed flow; E HOV)
HDC EB	N/A	West end of the network to SR 14 NB on-ramp (E)	West end of the network to SR 14 NB on-ramp (E)
HDC WB	N/A	None	None
I-15 NB	None	None	None
I-15 SB	None	None	None
PM PEAK			
SR 14 NB	Pearblossom Hwy direct on-ramp to East Avenue S off-ramp (F) East Avenue S off-ramp to East Avenue S on-ramp (F) East Avenue S on-ramp to West Palmdale Blvd off-ramp (F)	Pearblossom Highway direct on-ramp to East Avenue S off-ramp (F overall and mixed flow; E HOV)	Pearblossom Highway direct on-ramp to East Avenue S off-ramp (F overall and mixed flow; E HOV)
SR 14 SB	West Avenue N direct on-ramp to 10th Street West off-ramp (E) HDC off-ramp to 10th Street West on-ramp (F)	None	None
HDC EB	N/A	West end of the network to SR 14 NB on-ramp (E)	West end of the network to SR 14 NB on-ramp (E)
HDC WB	N/A	SB off-ramp to SR 138 west end of network (E)	SB off-ramp to SR 138 west end of network (E)
I-15 NB	South end of network to Palmdale Road off-ramp (E)	South end of network to Palmdale Road off-ramp (E)	South end of network to Palmdale Road off-ramp (F)
I-15 SB	None	None	None

Table 6-15. Year 2040 Revised Palmdale Access Weaving and Ramp Merging/Diverging Level of Service Analysis Results Summary
(segments operating at LOS E or worse)

	SEGMENT (LOS-TYPE)		
	NO-BUILD	BUILD	BUILD TOLL
AM PEAK			
SR 14 NB	None	None	None
SR 14 SB	West Avenue N loop (E-merging) West Avenue N direct (E-merging) East Avenue S (E-merging)	West Avenue N (E-diverging) 10th Street West (E-diverging)	East Avenue S (E-merging)
HDC EB	N/A	None	None
HDC WB	N/A	None	None
I-15 NB	None	None	None
I-15 SB	None	None	None
PM PEAK			
SR 14 NB	East Avenue S (E-merging) East Avenue S (E-diverging)	West Palmdale Boulevard (E-diverging)	East Avenue S (E-diverging)
SR 14 SB	West Avenue N direct (E-merging) West Rancho Vista Boulevard (E-merging)	10th Street West (E-diverging) West Palmdale Boulevard (E-diverging)	None
HDC EB	N/A	None	None
HDC WB	N/A	None	Route 395 (E-diverging) SR 14 SB (E-diverging)
I-15 NB	Mojave Drive (E-merging) Stoddard Wells Road S (E-merging) Palmdale Road (E-diverging)	Palmdale Road loop (E-merging) Mojave Drive (E-merging) Palmdale Road (E-diverging)	Palmdale Road loop (E-merging) Mojave Drive (E-merging) Palmdale Road (E-diverging)
I-15 SB	None	None	None

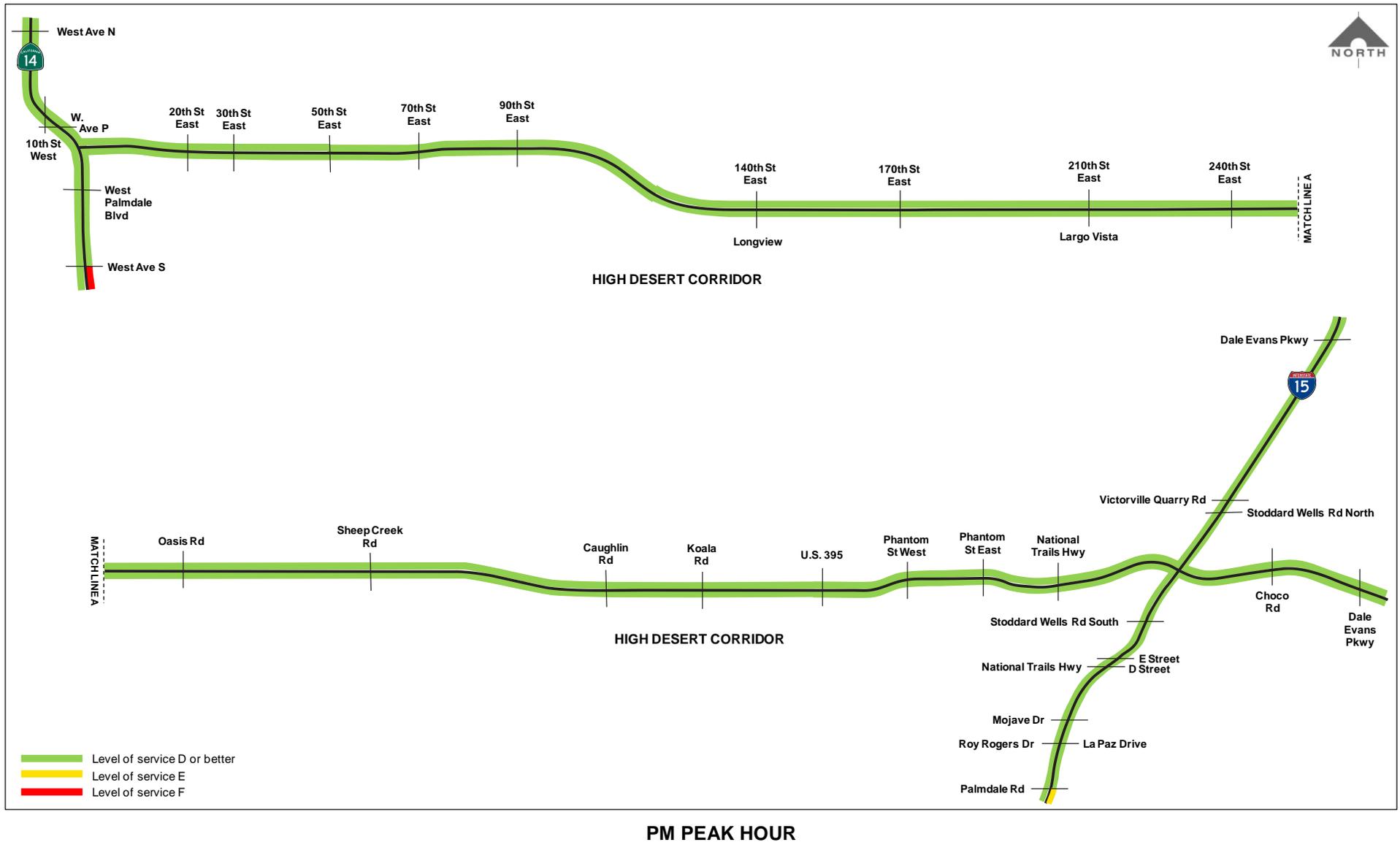


Figure 6-32: Year 2040 Build Alternative with Revised Palmdale Access Freeway Mainline Level of Service (2 of 2)

Table 6-18. Year 2040 Initial Results¹ Intersection Level of Service Summary (intersections operating at LOS E or worse) (1 of 3)

ID NO.	INTERSECTION	TYPE OF CONTROL	EXISTING CONDITION				DESIGN YEAR 2040 NO-BUILD CONDITION				DESIGN YEAR 2040 BUILD ALTERNATIVE				DESIGN YEAR 2040 BUILD ALTERNATIVE (MODIFIED ALIGNMENT)*				DESIGN YEAR 2040 BUILD ALTERNATIVE WITH TOLL			
			AM PEAK		PM PEAK		AM PEAK		PM PEAK		AM PEAK		PM PEAK		AM PEAK		PM PEAK		AM PEAK		PM PEAK	
			LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY
HIGH DESERT CORRIDOR																						
1	SR 14 southbound off-ramp and West Avenue N	Existing–stop NB/SB; future–signal	A	7.2	B	12.6	A	5.4	E	69.7	A	5.6	A	6.0	B	12.9	B	16.9	A	5.6	A	5.3
6	10th Street West and SR 14 southbound off-ramp	Signal	B	13.2	B	11.4	C	21.3	D	54.8	C	25.5	C	21.8	F	80.6	D	48.4	C	23.9	B	18.0
8	10th Street West and West Avenue P	Signal	C	31.3	C	30.3	C	32.7	E	74.8	C	27.5	C	27.8	E	62.1	E	76.0	C	28.1	C	33.1
9	Lowe's Driveway and West Avenue P	Signal	B	10.2	C	29.1	B	18.2	E	65.7	B	18.9	B	19.6	C	22.2	C	34.1	B	19.8	B	18.9
10	SR 14 southbound on-ramp and West Avenue P	Existing–stop NB/SB ; future–signal	A	1.4	A	1.0	A	1.7	E	43.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11	SR 14 northbound off-ramp and West Avenue P	Signal	B	14.3	C	20.6	A	8.5	E	55.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
15*	Division Street and East Palmdale Boulevard	Signal	C	27.9	C	28.0	E	64.1	E	71.4	D	35.3	F	83.7	C	33.2	E	63.0	C	27.9	C	31.1
18*	Sierra Highway and East Avenue P	Signal	C	33.4	C	34.6	D	45.1	E	58.5	D	36.5	D	51.9	C	34.7	D	41.2	C	34.5	D	42.1
19*	Sierra Highway and Technology Drive	Signal	B	14.3	B	16.8	D	50.9	F	115.4	B	14.1	B	18.0	B	13.9	B	17.4	B	13.9	B	17.7
22*	6th Street East and East Palmdale Boulevard	Signal	C	20.7	C	25.3	E	55.7	E	78.0	C	30.2	C	33.1	C	29.1	C	30.6	C	28.7	C	30.5
23*	Sierra Highway and East Palmdale Boulevard	Signal	C	25.5	C	27.3	F	82.1	F	94.6	C	34.1	D	42.8	C	31.0	D	35.4	C	30.9	D	35.1
24	10th Street East and East Avenue P	Existing–stop NB/SB ; future–signal	E*	39.0	F*	>300	B*	16.3	C*	20.8	C	27.1	C	30.2	C	24.0	C	26.5	C	21.1	C	22.2
28*	10th Street East and East Palmdale Boulevard	Signal	B	17.2	C	20.0	C	31.3	D	50.6	C	34.3	E	69.1	C	30.1	D	47.4	C	29.1	D	49.5
30*	15th Street East and East Palmdale Boulevard	Stop NB/SB	D	25.2	E	36.1	F	>300	F	>300	F	>300	F	>300	F	>300	F	>300	F	>300	F	>300
35*	20th Street East and East Palmdale Boulevard	Signal	B	19.9	C	22.9	C	34.1	E	63.8	C	28.4	D	53.9	C	28.0	D	45.4	C	26.4	D	42.7
36*	25th Street East and East Palmdale Boulevard	Signal	C	26.2	C	30.9	D	42.2	E	64.5	C	33.6	D	38.9	C	33.1	D	36.5	C	33.2	D	36.2
38*	30th Street East and East Avenue Q	4-way stop	B	11.6	B	11.6	E	46.0	F	145.3	C	23.2	F	84.0	C	20.4	F	65.4	C	18.2	F	51.8
40*	40th Street East and East Avenue Q	Stop EB/WB	C	16.2	C	16.0	D	34.4	F	98.6	C	21.9	D	26.8	C	19.1	C	24.2	C	19.3	C	22.7
41*	40th Street East and East Palmdale Boulevard	Signal	C	21.9	C	23.7	D	39.1	E	71.6	C	29.4	D	38.3	C	27.8	C	33.2	C	28.4	D	35.4
45*	50th Street East and East Palmdale Avenue	Roundabout	B	14.0	A	8.9	F	>300	F	>300	F	270.2	F	134.6	F	93.6	F	77.4	F	119.5	F	56.7
49*	70th Street East and East Palmdale Boulevard	Stop NB/SB	F	>300	C	20.9	F	>300	F	>300	C	15.6	F	60.1	F	>300	F	>300	B	14.0	E	35.0

RAMP TERMINI AND STUDY AREA INTERSECTION ANALYSIS SUMMARY

All ramp termini intersections perform at LOS D or better for Year 2020, except for stop sign controlled intersections at the I-15 and Stoddard Wells Road south interchange. The level of service improves to LOS A or B with the installation of traffic signals at these locations (intersections 130-133). For the ramp termini intersections reported in Year 2040, all ramp intersections for the build alternative perform at LOS D or better, assuming that traffic signals are installed at the I-15 and Stoddard Wells south interchange (intersections 130–133). The same finding is the case with respect to the build alternative with tolls, except that intersection 16, the southbound SR 14 off-ramp termini at West Avenue S, performs at LOS E during the AM peak hour.

For the remaining study area intersections, the no-build alternative performs poorly when compared to the build alternative. For the no-build 2020 opening year scenario, 115 intersections are analyzed. During the AM peak hour, nine intersections (eight percent) are projected to operate at LOS E or LOS F. During the PM peak hour, this number increases to 20 intersections, equal to 17 percent of the intersections studied.

The build alternative performs much better. Only two of 164 intersections studied perform at LOS E or LOS F during the AM peak hour, while five intersections perform poorly during the PM peak hour. These poorly performing intersections are listed below.

- ▶ #30—15th Street East and East Palmdale Boulevard (AM, PM)
- ▶ #45—50th Street East and East Palmdale Boulevard (AM, PM)
- ▶ #56—140th Street East and East Palmdale Boulevard (PM–Toll Alternative)
- ▶ #140th Street East and East Avenue R (PM–Toll Alternative)
- ▶ #70—SR 138 and SR 18 (PM)

The partial build alternative performs much better than the no-build alternative, but worse than the build alternative, insofar as the intersection level of service.

Insofar as overall performance for the no-build and build alternatives, the number of study intersections projected to operate at LOS E or LOS F is summarized below.

Summary of Study Intersection Year 2040 Level of Service Performance *(Initial Results)*

	NO-BUILD		BUILD		BUILD WITH TOLLS	
	AM	PM	AM	PM	AM	PM
Number of intersections studied	115		159		159	
Intersections performing at LOS E or F	23	45	2	11	5	7
Percent performing at LOS E or F	20%	39%	1%	7%	3%	4%

Summary of Study Intersection Year 2040 Level of Service Performance
(Revised Palmdale Access Results)

	NO-BUILD		BUILD		BUILD WITH TOLLS	
	AM	PM	AM	PM	AM	PM
Number of intersections studied	116		159		159	
Intersections performing at LOS E or F	23	45	2	8	5	7
Percent performing at LOS E or F	20%	39%	1%	5%	3%	4%

The operational performance for most intersections under the rail feeder service alternatives will be the same as reported for the build alternative and the build alternative with tolls. Key study intersections located near the Palmdale and Victorville train stations will be affected, however.