Section 4.16

Transportation and Traffic

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4.16.1 Introduction

This section of the Supplemental Recirculated Environmental Impact Report (SREIR) addresses potential impacts of the proposed Grapevine Project (project) on transportation and traffic that could occur from potentially lower trip internal capture rates (ICRs) than evaluated in the Draft Environmental Impact Report (DEIR) and Final Environmental Impact Report (FEIR) (collectively, the "2016 EIR") for the project.

The DEIR and FEIR were circulated and publicly reviewed in 2016, and the FEIR was certified by Kern County on December 6, 2016. As discussed in Chapter 2, *Introduction*, the FEIR certification was subsequently rescinded by the Board of Supervisors at a hearing on March 12, 2019, and the County received an application to re-adopt the approvals for the proposed project on March 14, 2019. On April 12, 2019, the County published a Notice of Preparation (NOP) for an SREIR to evaluate potential traffic, air pollution, greenhouse gas, noise, public health and growth inducing impacts that could occur from lower CRs than were considered in the 2016 EIR.

The ICR represents the percentage of trips staying within a community compared to total trips generated by the uses in a community. Residential and mixed-use development, such as the proposed project, generate vehicle trips that begin and end within a project study area. These are called "internal" trips. Trips that end or begin outside the project study area are called "external" trips. If a project area uses generate an average daily total of 1,000 trips, for example, and 500 trips begin and end within the community, the average daily ICR would be 50 percent. Traffic trip volumes are highest during "peak" morning (AM) and evening (PM) periods. If a project generates 300 trips during the AM peak period, and 100 of these trips begin and end within the project, the AM peak hour ICR would be 33.3 percent. External trips are generally longer and result in higher vehicle miles travelled (VMT) than internal trips. A project's ICRs change as land uses and transportation patterns, which are affected by transit options and technologies, change over time. An ICR analysis generally reflects and considers ICRs and transportation patterns that exist at a specific a point in time of the project buildout process.

The original DEIR (2016) used projections for the ICRs as peak period traffic impacts generated from the Kern County Council of Governments (Kern COG) 2014 Regional Transportation Plan (RTP)/Sustainable Communities Strategy (SCS) Travel Demand Model (Kern COG model). The analysis considered the ICR rates for home to work trips ("Home-Based Work" trips) and home to school, shopping, recreational and other non-work related trips ("Home-Based Other/Non-Home-Based" trips). The Kern COG model projected that, for all trips combined, at buildout the project would have an AM peak period ICR of 72.2 percent and a PM peak period ICR of 71.4 percent.

During the DEIR (2016) comment period, the California Department of Transportation (Caltrans) requested that Fehr & Peers, the project's traffic consultants, conduct a review of Home-Based Work ICRs in certain other California locations. The review found that the average Home-Based Work ICR for the California communities was 57.4 percent and, based on this information, Caltrans requested that the project analysis utilize a Home-Based Work ICR of 28.7 percent, 50 percent lower than the results of the review.

As a result, the DEIR (2016) traffic analysis was revised in the FEIR (2016) to incorporate the 28.7 percent Home-Based Work trip ICR with updated trips (Updated 28.7& HBW ICR) requested by Caltrans. When combined with the Kern COG model ICRs for non-work Home-Based Other/Non-Home-Based trips, the ICRs for all project trips considered in the FEIR (2016) were 59.8 percent in the AM peak period and 64.2 percent in the PM period. These results are lower than the 72.2 percent AM peak period and 71.4 percent PM peak period ICRs analyzed in the DEIR (2016). The FEIR (2016) revised the project's mitigation measures and considered the significance of all significant impacts that were determined to potentially occur using the lower AM and PM peak period ICRs.

The purpose of the SREIR is to evaluate the potential impacts that could occur from lower ICRs than evaluated in the FEIR (2016). To perform this evaluation, it was determined that a variety of scenarios needed to be developed for modeling that could show what would happen if the projected mix of residential, commercial and industrial development did not build out as proposed. The material in this section of the SREIR includes:

- Environmental and regulatory settings for Transportation and Traffic. All chapters of the FEIR (2016) and related studies are included as Volumes 5 to 15 of this SREIR.
- The traffic evaluation "*Supplemental Recirculated Transportation Impact Study Technical Report for the Grapevine Specific And Community Plan Project* dated August, 2019, prepared by Fehr & Peers (2019 Traffic Study) (Fehr & Peers, 2019) is included as Appendix E.2 in Volume 4 of this SREIR.
- Presentation of 22 scenarios that show a variety of development buildouts (Screening Scenarios) resulting in lower ICRs and higher and lower VMT.
- Analysis of the 22 Screening Scenarios with criteria to identify a subset of five alternative scenarios that would result in lower ICRs and higher VMT than considered in the FEIR (2016) (the "Reduced ICR Scenarios").
- Presentation of the original FEIR (2016) analysis for the 28.7% ICR for Home Based Work trips.
- Presentation of the original FEIR (2016) analysis for the 28.7% ICR for Home Based Work trips with updated trip generation rates (Updated 28.7% HBW ICR).
- A discussion of updated trip generation rates for each project land use category which uses the current version of the vehicle trip generation model (published by the Institute of Transportation Engineers, [ITE] 2017). This analysis maintains consistency with the analysis of each of the scenarios and the corresponding vehicular emission calculation models used in the Air Quality Section 4.3 and Greenhouse Gas Emissions Section 4.7 sections of this SREIR.
- Comparison of the five Reduced ICR Scenarios to the updated 28.7% HBW ICR analysis and the 2016 EIR analysis.
    - Scenario A (Screening Scenario 1): Proposed project development of 12,000 dwelling units and 5.1 million square feet of commercial/light industrial land uses with a 10-percentage-point reduction in the project's ICRs from the levels used in the FEIR and Updated 28.7% HBW ICR analysis.

- Scenario B (Screening Scenario 2): Proposed project development of 12,000 dwelling units and 5.1 million square feet of commercial/light industrial land uses with a 20-percentage-point reduction in the project's ICRs from the levels used in the FEIR and Updated 28.7% HBW ICR analysis.
- Scenario C (Screening Scenario 4): Proposed project development of 75 percent of 12,000 dwelling units and 5.1 million square feet of commercial/light industrial land uses (9,000 dwelling units and 3.825 million square feet of commercial/light industrial land uses) with a 20-percentage-point reduction in the project's ICRs from the levels used in the FEIR and Updated 28.7% HBW ICR analysis.
- Scenario D (Screening Scenario 9): Development of 14,000 dwelling units and schools and parks as required by applicable land use laws and regulations, with no complementary commercial/light industrial amenities or onsite employment-generating land uses.
- Scenario E (Screening Scenario 10): Development of 12,000 dwelling units and schools and parks as required by applicable land use laws and regulations, with no complementary commercial/light industrial amenities or onsite employment-generating land uses.

- Analysis and identification of potential significant traffic impacts, including potential impacts relating to traffic-related safety hazards, that could occur under one or more of the Reduced ICR Scenarios and a comparison of these impacts with the updated 28.7% HBW ICR analysis.
- Identification of traffic impact mitigation measures, generally consisting of amendments of the measures identified in the 2016 EIR, for the project to reduce potentially significant impacts.

4.16.2 Environmental Setting

Regional and Local Roadway Facilities

The regional circulation system serving the project site consists of Interstate 5 (I-5), State Route (SR) 99, SR-138, SR-166, and SR-223.

I-5 runs north-south and travels the length of California connecting the metropolitan regions of Southern and Northern California. Near the project site, I-5 is an eight-lane freeway with an interchange at Laval Road and Grapevine Road. North of the project site, I-5 travels northwest along the west side of the San Joaquin Valley as it heads towards Northern California. South of the project site, I-5 begins immediately climbing into the Tehachapi Mountains towards the Tejon Pass as it heads towards Southern California.

The six-mile segment of I-5 heading south from the I-5/Grapevine Road interchange includes a dedicated truck lane in each direction to accommodate heavy vehicles as they navigate the steep grade from Grapevine to Fort Tejon (the "Grapevine Grade"). This includes a 35 miles per hour (mph) maximum speed for northbound heavy vehicles and a 55 mph maximum speed for southbound heavy vehicles.

SR-99 is a north-south highway that begins north of the project site and connects many of the major cities on the east side of the San Joaquin Valley as it heads towards Northern California. SR-99 begins approximately three miles north of the project site at the I-5/SR-99 interchange as a six-lane freeway traveling north towards Bakersfield.

SR-138 is an east-west highway that begins south of Tejon Pass and is located south of the project site. SR-138 is generally a two-lane highway that provides regional access between I-5 and the cities of Lancaster and Palmdale.

SR-223 is an east-west state highway that travels between I-5 and SR-58 through the City of Arvin approximately 15 miles north of the project site. It is a two lane rural highway outside of the City of Arvin and a four lane divided roadway within the City of Arvin.

Existing regional access roadways are shown in Figure 4.16-1, *Regional Roadways*.

The local circulation system near the project site consists of Wheeler Ridge Road, Laval Road, and Edmonston Pumping Plant Road. Existing local access roadways are shown in Figure 4.16-2, *Roadways in the Project Vicinity*. The following sections describe the primary local access roadways.

Wheeler Ridge Road is a County arterial street connecting I-5 to SR-223 and SR-184. Near I-5, it is a 4- to 6-lane divided roadway providing access to highway commercial and industrial warehousing uses. North of the project site, it is a rural two-lane roadway traveling through agricultural areas towards the communities of Arvin, Weedpatch, and Lamont.

Laval Road is a discontinuous County collector street that provides access to I-5 via Wheeler Ridge Road. West of I-5, Laval Road is a 4- to 6-lane divided roadway that is the primary route to and from highway commercial and industrial warehousing uses in the existing Tejon Ranch Commerce Center (TRCC) off Dennis McCarthy Drive and Tejon Industrial Drive. East of I-5, Laval Road is a four-lane divided roadway that provides access to the Outlets at Tejon before becoming a rural, two-lane roadway east of the Outlets at Tejon. The TRCC is located to the north of the proposed project.

Edmonston Pumping Plant Road is a private two-lane roadway traveling east-west through the project site. It connects to Grapevine Road near the I-5/Grapevine Road interchange, and travels approximately six miles east to the Edmonston Pumping Plant operated by the State Department of Water Resources.

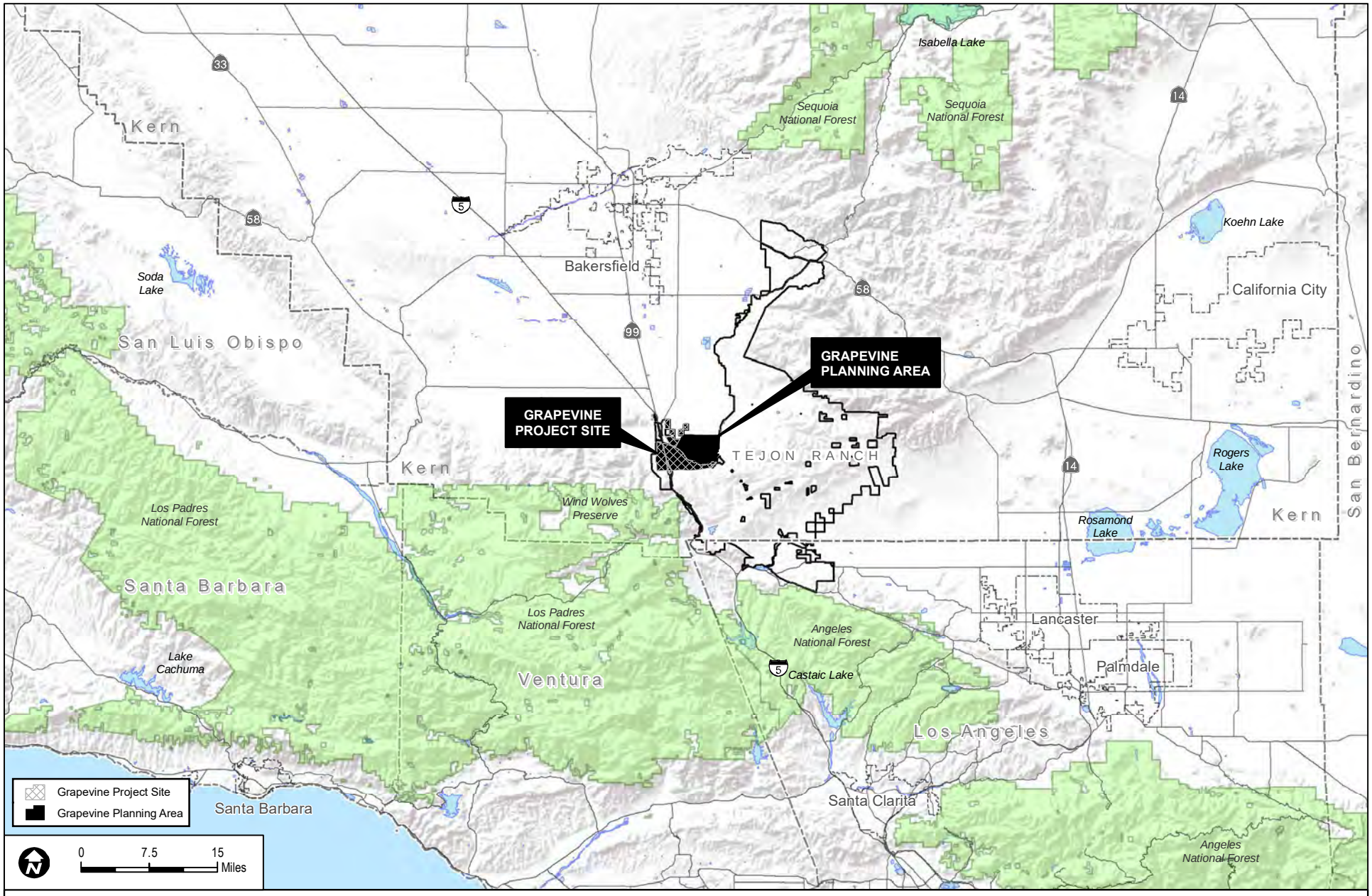
Grapevine Road is a two-lane roadway that provides access from I-5 to commercial areas at the Grapevine commercial area, Edmonston Pumping Plan Road, and to a small residential area and existing vineyard to the south.

No new regional roadways were constructed within the regional roadway and freeway network serving the project site beyond these, which were described and evaluated in the 2016 EIR.

Project Site Access

Existing Site Access

The project site is bisected by I-5 from north to south and by Edmonston Pumping Plant Road from east to west. The northern boundaries of the project are adjacent to Wheeler Ridge Road and Laval Road. Access to the project site is currently available from I-5 at the existing Grapevine Road and Wheeler Ridge Road/Laval Road interchanges. Internal access is not currently available.



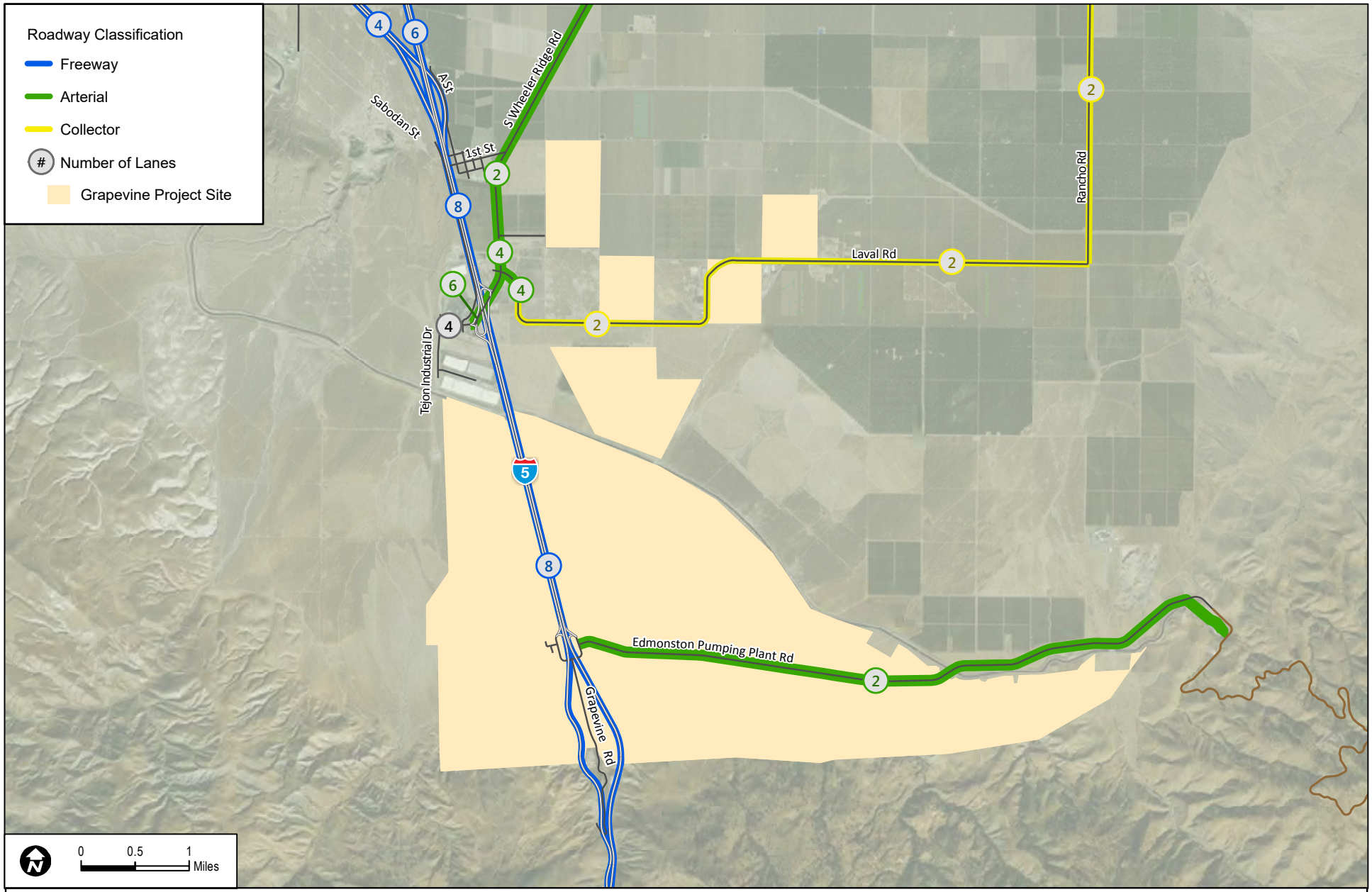
SOURCES: Fehr & Peers, 2016

GRAPEVINE PROJECT • SREIR

SPA No. 157, Map No. 500; GPA No. 9, Map No. 202; GPA No. 10, Map No 202; GPA No. 4, Map No. 218R; GPA No. 5, Map No. 218R; GPA No. 11, Map No. 219; GPA No. 12, Map No. 219; Special Plan No. 2, Map No. 202; Special Plan No. 3, Map No. 218R; Special Plan No. 3, Map No. 219; ZCC No. 18, Map No. 202; ZCC No. 3, Map No. 218R; ZCC No. 14, Map No. 219; Ag. Preserve No. 19 – Exclusion, Map No. 202

Regional Roadways

Figure 4.16-1



SOURCES: Fehr & Peers, 2016

GRAPEVINE PROJECT • SREIR

SPA No. 157, Map No. 500; GPA No. 9, Map No. 202; GPA No. 10, Map No 202; GPA No. 4, Map No. 218R; GPA No. 5, Map No. 218R; GPA No. 11, Map No. 219; GPA No. 12, Map No. 219; Special Plan No. 2, Map No. 202; Special Plan No. 3, Map No. 218R; Special Plan No. 3, Map No. 219; ZCC No. 18, Map No. 202; ZCC No. 3, Map No. 218R; ZCC No. 14, Map No. 219; Ag. Preserve No. 19 – Exclusion, Map No. 202

Roadways in the Project Vicinity

Figure 4.16-2

Proposed Site Access

The I-5/Wheeler Ridge Road/Laval Road interchange can provide access from I-5 to the project site for Phase 1 of project development. Phase 1 is described in Chapter 3, *Project Description*. Subject to improvements that would require approval by Caltrans, Phase 1 access from I-5 could also be obtained through the existing Grapevine Road interchange. The existing I-5/Wheeler Ridge Road/Laval Road interchange, and, if utilized with Caltrans approval, the existing I-5/Grapevine Road interchange, do not have sufficient capacity to serve post-Phase 1 project traffic demand, and an expanded and relocated I-5/Grapevine Road interchange would be constructed in phases to serve the project. The relocated and expanded interchange would be constructed approximately one mile north of the existing I-5/Grapevine Road interchange. An existing California Commercial Vehicle Enforcement Facility (CVEF) along southbound I-5 just north of the new interchange would be moved north to the west side of the junction of I-5 and SR-99 on land owned by Tejon Ranchcorp. If necessary, the expanded and relocated I-5/Grapevine Road interchange could also be constructed approximately 0.5 mile south of the preferred location, and the CVEF would remain in its existing location. The current location of the CVEF, and the two potential locations for constructing the expanded and relocated I-5/Grapevine Road interchange, are shown in Figure 3-7, *Proposed Site Plan*, and Figure 3-11, *Proposed Circulation Plan*, in Chapter 3, *Project Description*.

The project would construct a circulation network primarily composed of two- and four-lane arterials, collector streets, local streets, and two aqueduct crossings organized in a pattern within the project site. An existing agricultural road east of the Grapevine Specific and Community Plan area, which extends north from the existing Edmonston Pumping Plant Road to Laval Road, would be improved to route utility and quarry truck traffic from activities around the project (refer to Chapter3, *Project Description*).

Performance Criteria

Roadway level of service (LOS) performance criteria adopted by Caltrans and Kern County are utilized to determine if the project could cause a significant impact to state and local transportation facilities. In general, LOS criteria range from LOS A (free-flow conditions) to LOS F (severely congested conditions). Kern County's operational goal for intersection operation and roadway capacity is LOS D or better, on County maintained roadways. Caltrans has an operational goal for freeway mainline, on-ramp merge, off-ramp diverge and weaving section of LOS D or better.

Table 4.16-1, *Level of Service Characteristics for Intersections* summarizes the relationship between the control delay and LOS for signalized and unsignalized intersections. Intersection LOS is determined by the control delay experienced by motorists traveling through the intersection.

Table 4.16-1. Level of Service Characteristics for Intersections

Level of Service	Description	Average Control Delay (seconds/vehicles)	
		Signalized	Unsignalized
A	Uncongested conditions with very low control delay. Signalized intersections operate with exceptionally favorable traffic signal progression and/or very short cycle lengths.	≤10.0	≤10.0
B	Low control delay and light congestion. Signalized intersections operate with highly favorable progression and/or short cycle lengths.	10.0 – 20.0	10.1- 15.0

Table 4.16-1. Level of Service Characteristics for Intersections			
Level of Service	Description	Average Control Delay (seconds/vehicles)	
		Signalized	Unsignalized
C	Light congestion with moderate delays. Signalized intersections operate with favorable progression and moderate cycle lengths; individual cycle failure begin to appear.	20.1 – 35.0	15.1 – 25.0
D	Increased delays due to higher demand volumes, ineffective signal progression, and/or longer cycle length. At signalized intersections, many vehicles stop and individual cycle failures are noticeable.	35.1 – 55.0	25.1-35.0
E	Significant delay due to a combination of high traffic demand volume, adverse signal progression, and/or long cycle lengths. At signalized intersections, individual cycle failures are frequent.	55.1 – 80.0	35.1 – 50.0
F	Congested conditions with very high traffic demand volumes and extensive queuing. Signalized intersections operate with poor signal progression, long cycle lengths, and most cycles fail to clear the queue.	> 80	> 50
Source: 2016 EIR, Fehr & Peers, 2016.			

The 2016 EIR (Volumes 5 through 15) and the 2019 Traffic Study, attached as Volume 4, Appendix E.2 of this SREIR, analyzed roadway capacity utilization for study roadway segments during the PM peak hour. For each study roadway segment, the two-way traffic volume during the PM peak hour was used to determine the volume-to-capacity ratio and an estimated segment LOS based on the hourly volume thresholds presented in Table 4.16-2, *Roadway Segment Hourly Traffic Volumes Thresholds*. The hourly traffic volume thresholds are based on the 2010 Highway Capacity Manual (HCM).

Table 4.16-2. Roadway Segment Hourly Traffic Volume Thresholds				
Roadway Classification	LOS Hourly Traffic Volume Thresholds[1]			
	LOS B	LOS C	LOS D	LOS E[2]
Rural Roadway[3]				
2-lane Class I Highway	440	790	1,340	2,710
2-lane Class II Highway	370	790	1,440	2,710
Urban Roadways[4]				
2-lane "Collector" Street	NA	530	1,380	1,790
4-lane "Collector" Street	NA	1,010	2,820	3,410
6-lane "Collector" Street	NA	1,470	4,180	4,890
2-lane "Arterial" Street	NA	930	1,680	1,790
4-lane "Arterial" Street	NA	1,930	3,350	3,410
6-lane "Arterial" Street	NA	2,870	4,860	4,890

Source: 2016 EIR, Fehr & Peers, 2016.

1. Thresholds indicate the maximum amount of traffic volume before exceeding the identified level of service (LOS).
2. LOS E threshold represents the "capacity" for the roadway classification.
3. LOS traffic volume threshold is two-way traffic volume total for rural roadways. Based on Exhibit 15-30 in 2010 HCM for Class I – Level and Class II – Rolling roadways.
4. LOS traffic volume threshold is two-way traffic volume total for urban roadways. Based on Exhibit 16-14 in 2010 HCM. "Collector" street uses traffic volumes for urban street with speed of 30 mph and corresponding inputs. "Arterial" Street uses traffic volumes for urban street with speed of 45 mph and corresponding inputs.

NA = not applicable; LOS cannot be achieved with the assumptions identified in Exhibit 16-14 of the 2010 HCM.

Freeway LOS is determined using vehicle density measured in passenger cars per mile per lane. The 2010 HCM identifies one set of density thresholds for basic (i.e., mainline) freeway segments and a different set of thresholds for ramp junctions, or merge (i.e., on-ramp) and diverge (i.e., off-ramp) segments. Table 4.16-3, *Level of Service Characteristics for Freeways* presents the LOS density thresholds for study freeway segments and ramp junctions.

Table 4.16-3. Level of Service Characteristics for Freeways

Level of Service	Description	Density (pcpmpl)	
		Basic Segment	Ramp Junction
A	Freeway operates at free-flow speed; vehicles are almost completely unimpeded in their ability to maneuver within the traffic stream. Incidents or point breakdowns are easily absorbed.	≤11	≤10
B	Reasonably free-flow operations, with ability to maneuver within the traffic stream is only slightly restricted. Effects of minor incidents and point breakdowns are easily absorbed	11 – 18	10 – 20
C	Freeway operated at near free-flow speed; freedom to maneuver within the traffic stream is noticeably restricted, and lane changes require more care and vigilance on the part of the driver. Minor incidents may still be absorbed, but local deterioration in service quality will be significant.	18 – 26	20 – 28
D	Speeds begin in decline with increasing flows; freedom to maneuver within the traffic stream is seriously limited. Minor incidents can be expected to create queuing.	26 – 35	28 – 35
E	Freeways operate at capacity. Operation can be highly volatile because there are virtually no usable gaps within the traffic stream, leaving little room to maneuver within the traffic stream. Any incident can produce a serious breakdown and substantial queuing.	35 – 45	> 35
F	Breakdown conditions with freeway operating at unstable flow. Queues form behind bottlenecks. Breakdowns can occur due to traffic incidents, points of recurring congestion, and traffic demand exceeding capacity	> 45	Demand exceeds capacity

Source: 2016 EIR, Fehr & Peers, 2016.
Notes: pcpmpl = passenger cars per mile per lane

Existing Traffic Conditions

The section summarizes the information provided in the 2016 EIR regarding the existing traffic operations for six existing intersections, two roadway sections, 26 freeway segments, and six freeway off-ramps in the project vicinity. All study intersections and freeway segments and ramps currently operate at LOS B or better, as shown in Table 4.16-4, *Peak Hour Intersection Operations – Existing Conditions* and Table 4.16-6, *Peak Hour Freeway Operations – Existing Conditions*. One of the roadway segments (Dennis McCarthy Drive: North of Laval Road) operates at LOS D during the PM peak hour, as shown in Table 4.16-5, *PM Peak Hour Roadway Capacity Evaluation – Existing Conditions.* As discussed in Current Traffic Conditions below, updated roadway counts were completed in 2018 to verify the absence of any significant change to traffic volumes not identified in the 2016 EIR. (Fehr & Peers, 2019)

Table 4.16-4. Peak Hour Intersection Operations – Existing Conditions

Intersection	Traffic Control	Peak Hour	Existing Conditions	
			Delay[2]	LOS[3]
1. Tejon Industrial Drive/ Laval Road	Traffic Signal	AM	9	A
		PM	10	A
2. Dennis McCarthy Drive/ Laval Road	Traffic Signal	AM	13	B
		PM	17	B
3. I-5 Southbound Ramps/ S. Wheeler Ridge Road/ Laval Road	Traffic Signal	AM	9	A
		PM	12	B
4. S. Wheeler Ridge Road/ I-5 Northbound Ramps[1]	Traffic Signal	AM	3	A
		PM	3	A
5. S. Wheeler Ridge Road/ Laval Road	Traffic Signal	AM	13	B
		PM	10	B
6. S. Wheeler Ridge Road/ Santa Elena Drive	Traffic Signal	AM	10	B
		PM	10	A

Source: 2016 EIR, Fehr & Peers, 2016.
1. Intersection configuration is not compatible with 2010 HCM methodology in Synchro 8. 2000 HCM methodology is use.
2. The overall average intersection control delay is reported in seconds per vehicle.
3. Level of Service based on *Highway Capacity Manual*.

Table 4.16-5. PM Peak Hour Roadway Capacity Evaluation – Existing Conditions

Roadway Segment	Classification	Existing Conditions		
		PM Peak Hour Volume	V/C[1]	LOS[2]
1. Wheeler Ridge Road: North of Santa Elena Drive	2-lane Class I Highway	221	0.08	B
2. Dennis McCarthy Drive: North of Laval Road	2-lane Collector Street	592	0.33	D

Source: 2016 EIR, Fehr & Peers, 2016.
1. V/C = volume-to-capacity ratio.
2. Level of Service based on the volume thresholds from the 2010 HCM.

Table 4.16-6. Peak Hour Freeway Operations – Existing Conditions

Segment	Segment Type	Peak Hour	Existing Conditions	
			Density[1]	LOS[2]
I-5 Northbound				
1. Fort Tejon to Grapevine (Grapevine Grade)	Basic	AM	9	A
		PM	13	B
2. Grapevine Road Off-Ramp	Diverge	AM	10	B
		PM	13	B
3. Grapevine Road On-Ramp	Merge	AM	9	A
		PM	11	B
4. Grapevine Road to Laval Road	Basic	AM	7	A
		PM	9	A
5. Laval Road East Off-Ramp	Diverge	AM	11	B
		PM	14	B

Table 4.16-6. Peak Hour Freeway Operations – Existing Conditions

Segment	Segment Type	Peak Hour	Existing Conditions	
			Density[1]	LOS[2]
6. Laval Road West Off-Ramp	Diverge	AM	9	A
		PM	12	B
7. Laval Road On-Ramp	Merge	AM	9	A
		PM	13	B
8. Laval Road to SR-99	Basic	AM	7	A
		PM	9	A
9. I-5 Northbound Off-Ramp	Basic (Major Diverge)	AM	7	A
		PM	9	A
10. North of SR-99 Junction	Basic	AM	5	A
		PM	8	A
SR-99 Northbound				
11. North of I-5 Junction	Basic	AM	6	A
		PM	7	A
SR-99 Southbound				
1. North of I-5 Junction	Basic	AM	6	A
		PM	7	A
I-5 Southbound				
2. North of SR-99 Junction	Basic	AM	5	A
		PM	9	A
3. I-5 Southbound Automobile On-Ramp at SR-99 Junction	Basic (Major Merge)	AM	6	A
		PM	9	A
4. SR-99/ I-5 Southbound Truck Bypass On-Ramp at SR-99 Junction	Basic (Major Merge)	AM	6	A
		PM	8	A
5. SR-99 to Laval Road	Basic	AM	7	A
		PM	9	A
6. Laval Road West Off-Ramp	Diverge	AM	12	B
		PM	14	B
7. Laval Road East Off-Ramp	Diverge	AM	10	A
		PM	10	B
8. Laval Road On-Ramp	Merge	AM	9	A
		PM	10	B
9. Laval Road to CVEF	Basic	AM	7	A
		PM	8	A
10. CVEF Off-Ramp	Diverge	AM	11	B
		PM	11	B
11. CVEF On-Ramp	Merge	AM	5	A
		PM	6	A
12. CVEF to Grapevine Road	Basic	AM	7	A
		PM	8	A
13. Grapevine Road Off-Ramp	Diverge	AM	10	A
		PM	11	B

Table 4.16-6. Peak Hour Freeway Operations – Existing Conditions

Segment	Segment Type	Peak Hour	Existing Conditions	
			Density[1]	LOS[2]
14. Grapevine Road On-Ramp	Merge	AM	9	A
		PM	7	A
15. Grapevine Road to Fort Tejon (Grapevine Grade)	Basic	AM	12	B
		PM	14	B

Source: 2016 EIR, Fehr & Peers, 2016.
CVEF = Commercial Vehicle Enforcement Facility
1 Intersection configuration is not compatible with 2010 HCM methodology in Synchro 8. 2000 HCM methodology is use.
2 The overall average intersection control delay is reported in seconds per vehicle.
3 Level of Service based on *Highway Capacity Manual*.

As shown in Table 4.16-6, *Peak Hour Freeway Operations – Existing Conditions,* the merge and diverge segments (the on- and off-ramps) at the existing I-5/Grapevine Road interchange operate at an acceptable LOS B or better. The northern limits of the dedicated truck lanes on I-5, at the Grapevine Grade, begin and end at this interchange. These dedicated truck lanes have a recommended speed of 35 mph in the northbound direction and 55 mph in the southbound direction. The Grapevine Grade truck lanes result in short weaving lengths for passenger cars, requiring them to cross through slower moving truck traffic when using the existing Grapevine Road interchange northbound off-ramp and southbound on-ramp. On northbound I-5, there is a larger speed differential between passenger cars and heavy vehicles utilizing the dedicated truck lane.

The existing hook ramps require vehicles to decelerate quickly on off-ramps and accelerate quickly on on-ramps. Passenger cars traveling on I-5 northbound desiring to exit at the Grapevine Road off-ramp are often traveling at high speeds descending the Grapevine Grade, then need to weave across a steady flow of low-speed trucks operating in low gear in the dedicated truck lane, and rapidly decelerate onto the off-ramp.

Freeway Off-Ramp Queuing

Table 4.16-7, *Freeway Off-Ramps – Existing Conditions,* provides a summary of the existing freeway off-ramps in the project vicinity and existing traffic controls at each ramp terminal intersections. As shown in Table 4.16-7, most of the existing off-ramps in the project vicinity operate as free-flowing movements at the ramp terminal. At these free-flowing off-ramps, queuing occurs only if caused by congestion and queues building back from other locations. Table 4.16-7 also identifies the nearest downstream controlled intersection from the free-flowing off-ramps and the total queuing space available until a backup could occur on the freeway.

As shown in Table 4.16-7, traffic using the off-ramps at the I-5/Grapevine Road interchange never reach a controlled intersection and traffic is able to flow freely on the off-ramp and onto the local roadway without being controlled by a traffic signal, stop sign, or roundabout. Queues would only occur on these off-ramps due to volume demand exceeding capacity, vehicles delayed turning from Grapevine Road into driveways, vehicles delayed turning onto Rose Station Drive or Edmonston Pumping Plant Road, or traffic incidents on or near the off-ramps.

Table 4.16-7. Freeway Off-Ramps – Existing Conditions					
Freeway Off-Ramp	Off-Ramp Length[1]	Traffic Control at Ramp Terminal	Nearest Downstream Controlled Intersection[2]		Total Queuing Space[4]
			Intersection	Distance[3]	
I-5 Northbound					
Grapevine Road off-ramp	1,000 ft.	Free	None	N/A	N/A
Laval Road east off-ramp	1,500 ft.	Free	5. South Wheeler Ridge Road/ Laval Road	1,300 ft.	2,800 ft.
Laval Road west off-ramp	1,600 ft.	Free	2. Dennis McCarthy Drive/ Laval Road	500 ft.	2,100 ft.
I-5 Southbound					
Laval Road west off-ramp	1,300 ft.	Free	2. Dennis McCarthy Drive/ Laval Road	2,100 ft.	3,400 ft.
Laval Road east off-ramp	1,700 ft.	Traffic Signal	N/A	N/A	1,700 ft.
Grapevine Road off-ramp	900 ft.	Free	None	N/A	N/A

Source: Fehr & Peers, 2016.
ft. = feet; N/A = not applicable
[1] Approximate off-ramp lengths measured from the stop bar at the ramp terminal intersection or end of ramp to gore point at mainline diverge. Measured in feet.
[2] For off-ramps that operate freely at the ramp terminal, the nearest downstream intersection controlled by a traffic signal, stop sign, or yield sign that could potentially generate queues building back to the off-ramp. If none exists, listed as "None."
[3] Approximate distance from the off-ramp terminal to the downstream intersection measured in feet. N/A if not applicable.
[4] Total queuing space = Off-ramp length + Distance to Nearest Downstream Controlled Intersection (if applicable). N/A if not applicable.

Table 4.16-8, *Peak Hour Off-Ramp Queuing – Existing Conditions*, presents the results of the AM and PM peak hour queuing analysis and shows that existing queues do not extend back into the freeway and create a safety issue. The following summarizes the key characteristics of existing freeway off-ramp queues in the project area:

- The 95th percentile queue on the southbound loop off-ramp to Laval Road east is approximately 25 feet during both the AM and PM peak hours, and would not extend into the curved portion of the off-ramp. Therefore, it would not cause safety issues into the curved portions of the off-ramp.
- As shown in Table 4.16-4, the S. Wheeler Ridge Road/ Laval Road and Dennis McCarthy Drive/ Laval Road intersections operate at LOS B during both the AM and PM peak hours. Therefore, these intersections generate minimal queues that do not reach the Laval Road off-ramps, as shown in Table 4.16-8.
- Queues do not occur at the I-5/ Grapevine Road interchange off-ramps due to low demand volume and the absence of traffic controlled intersections affecting off-ramp traffic.

Table 4.16-8. Peak Hour Off-Ramp Queuing – Existing Conditions				
Freeway Ramp	Traffic Control at Ramp Terminal	Available Storage[1]	Peak Hour	95th Percentile Queue[2]
I-5 Northbound				
Grapevine Road off-ramp	Free	1,000 ft.	AM	N/A
			PM	N/A
Laval Road east off-ramp	Free	2,800 ft.	AM	50 ft.
			PM	50 ft.

Table 4.16-8. Peak Hour Off-Ramp Queuing – Existing Conditions				
Freeway Ramp	Traffic Control at Ramp Terminal	Available Storage[1]	Peak Hour	95th Percentile Queue[2]
Laval Road west off-ramp	Free	2,100 ft.	AM	50 ft.
			PM	75 ft.
I-5 Southbound				
Laval Road west off-ramp	Free	3,400 ft.	AM	50 ft.
			PM	75 ft.
Laval Road east off-ramp	Traffic Signal	1,700 ft.	AM	25 ft.
			PM	25 ft.
Grapevine Road off-ramp	Free	900 ft.	AM	N/A
			PM	N/A

Source: 2016 EIR, Fehr & Peers, 2016.
ft. = feet; N/A = not applicable
1 Available storage based on total available queue space shown in Table 4.16-7. Based on a combination of off-ramp length and distance to nearest downstream controlled intersection for fee-flow off-ramps.
2 95th percentile vehicle queue results are based on output from the Synchro traffic operations model; taken from controlling intersection (i.e., damp terminal intersection with signal; or nearest downstream controlled intersection when ramp terminal operates free).

Other Transportation Facilities

Bicycle Facilities

Bicycle facilities are grouped into the following four classifications:

Multi-use paths (Class I) provide a completely separated right-of-way designated for the exclusive use of bicycles and pedestrians with crossflows by motorists minimized.

On-street lanes (Class II) provide a restricted right-of-way designated for the exclusive or semi-exclusive use of bicycles. Class II bicycle facilities are designated for use by bicycles through striping, pavement legends, and signs.

On-street bike routes (Class III) are designated by signage for shared bicycle use with vehicles but do not necessarily include any additional pavement width.

Protected bikeways (Class IV) are bicycle facilities which provided a right-of-way designated exclusively for bicycle travel within a roadway and are protected from other vehicle traffic with devices including, but not limited to, grade separation, flexible posts, inflexible physical barriers, or parked cars. These are also known as “cycle tracks” or “protected bike lanes.”

There are no existing bicycle facilities on any of the local roadways within the project vicinity, including at the TRCC located north and east of the project site. Bicycles are prohibited from using I-5 and SR-99.

Pedestrian Facilities

Sidewalks are present along most of the existing local roadways at TRCC, including the following:

- Dennis McCarthy Drive
- Tejon Industrial Drive
- Laval Road: west of Dennis McCarthy Drive

- Laval Road: Wheeler Ridge Road to Outlets of Tejon Parkway
- Wheeler Ridge Road: Outlets at Tejon Driveway to north of Santa Elena Drive.

Sidewalks are absent on Laval Road and Wheeler Ridge Road at the I-5 interchange, and along County roadways in the more rural surroundings outside of the TRCC. Figure 4.16-3, *Existing Pedestrian Facilities*, presents the existing pedestrian facilities in the project vicinity.

Transit Services

Transit services are provided to TRCC, and are located immediately north of the project site. The three transit services to TRCC are Kern Transit, Golden Empire Transit (GET) District, and Arvin Transit. Kern Transit's Santa Clarita – Bakersfield via Frazier Park (Route 130) runs from Bakersfield's Downtown Transit Center to the Santa Clarita area, and includes stops in Grapevine, including the Tejon Outlets on Laval Road and the Shell Gas Station on Grapevine Road. According to the GET System Map, the Tejon Ranch Commerce Center Express provides service from Bakersfield's Downtown Transit Center to TRCC. Arvin Transit's Arvin-Tejon Service connects Arvin to TRCC. These existing transit routes are illustrated in Figure 4.16-4, *Existing Transit Facilities*.

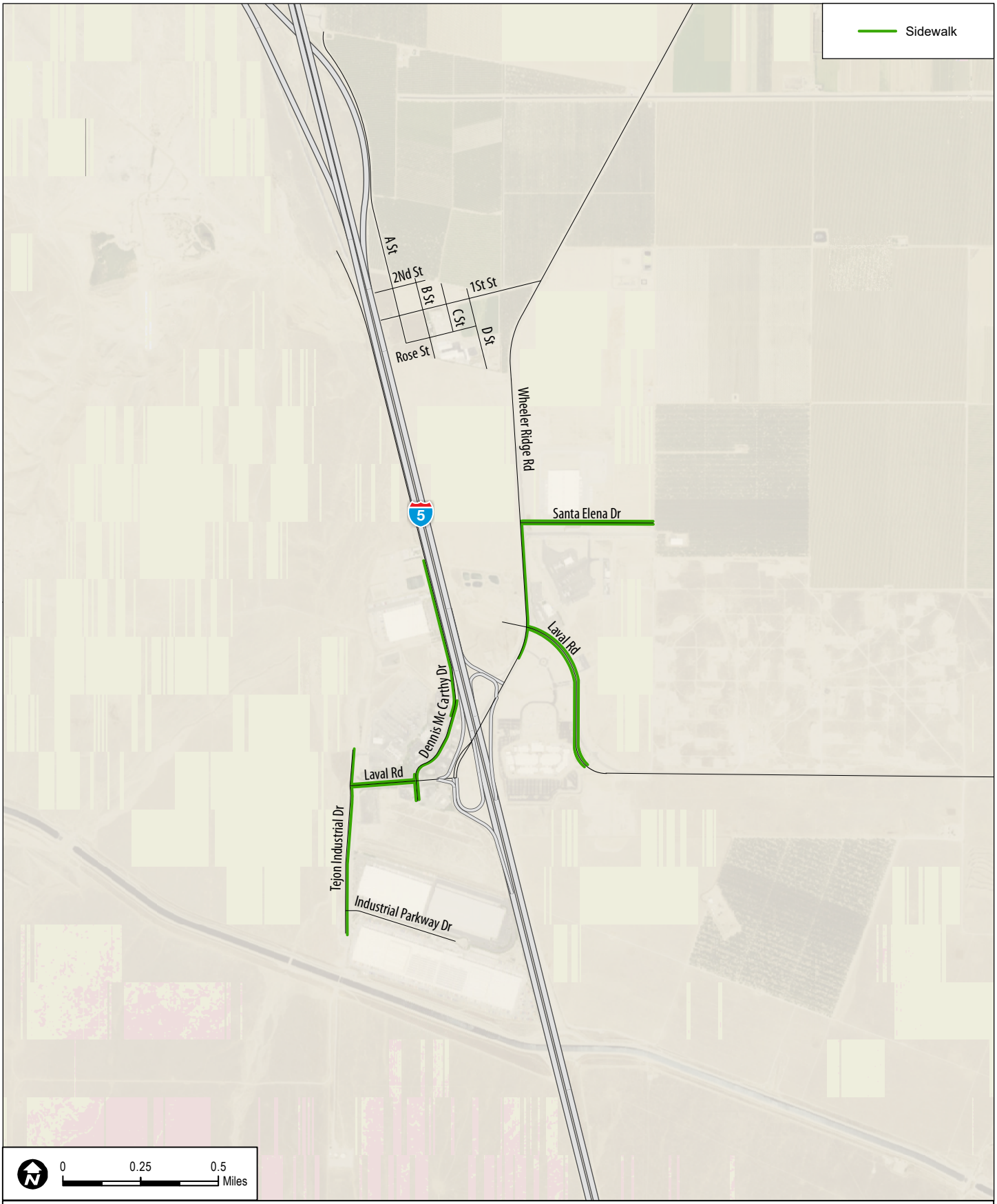
The County of Kern operates Kern Transit, which provides regional transit service between communities in the County with connections to north Los Angeles County. The Santa Clarita-Bakersfield line is a fixed-route service that includes optional stops at commercial establishments at the I-5/Grapevine Road and I-5/Laval Road interchanges and fixed stops in Frazier Park on its route between Bakersfield and Santa Clarita. The Santa Clarita-Bakersfield has both express and regular routes, and generally picks up or drops off passengers at the Grapevine, if requested by a phone call or by a passenger notifying the driver when boarding the bus, and has fixed stops at TRCC stops. The Frazier Park Express provides several daily round trips between the Bakersfield's Downtown Transit Center or a Park and Ride and Santa Clarita's Metrolink Station and Transit Center, Monday through Saturday, and generally operates on three to five hour headways between 4 AM and 9 PM.

The GET District provides transit service in the greater Bakersfield metropolitan area, including fixed-route service between Bakersfield's Downtown Transit Center, a Park & Ride facility on the southern edge of Bakersfield, and TRCC off of Laval Road. The GET Tejon Ranch Commerce Center Express route provides nine daily round trips between Bakersfield's Downtown Transit Center and the Tejon Ranch Commerce Center, Monday through Friday, and generally operates on two-hour headways between 4 AM and midnight.

The City of Arvin offers commuter transit service between Arvin and TRCC and Arvin and Lamont. The fixed-route service between Arvin and TRCC operates Monday through Friday and provides two round trips per a day, departing Arvin at 4:10 AM and 1:05 PM.

Railway

The San Joaquin Valley Railroad (SJVR) operates 417 miles of track in Southern California. The SJVR connects with the Union Pacific Railroad at Fresno, Goshen Junction and Bakersfield, and connects with the Burlington Northern Santa Fe railroad at Fresno and Bakersfield (Genesee & Wyoming Inc. 2015). The nearest SJVR line is located approximately 16 miles northwest of the project site.



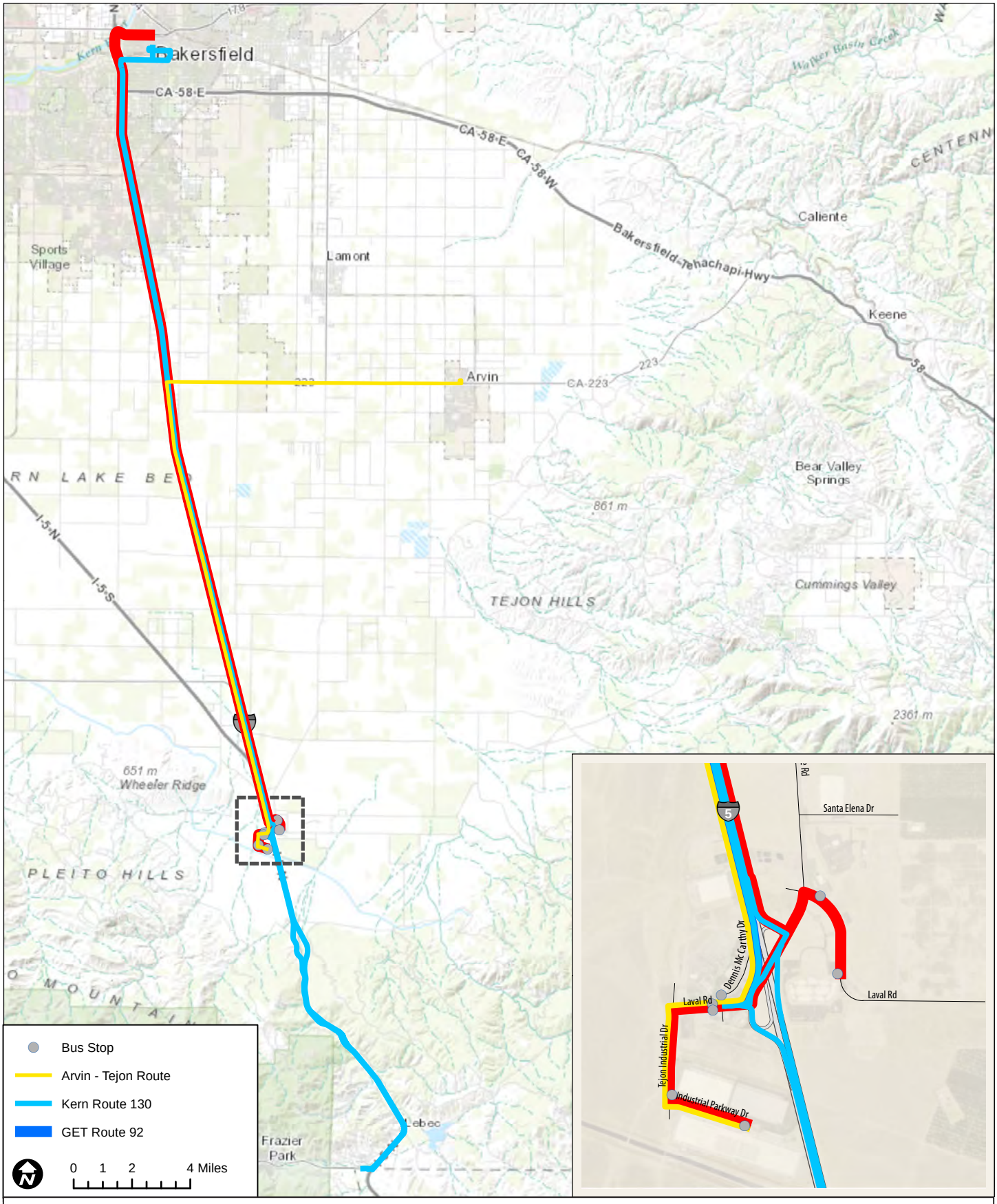
SOURCES: Fehr & Peers, 2016

GRAPEVINE PROJECT • SREIR

SPA No. 157, Map No. 500; GPA No. 9, Map No. 202; GPA No. 10, Map No 202; GPA No. 4, Map No. 218R; GPA No. 5, Map No. 218R; GPA No. 11, Map No. 219; GPA No. 12, Map No. 219; Special Plan No. 2, Map No. 202; Special Plan No. 3, Map No. 218R; Special Plan No. 3, Map No. 219; ZCC No. 18, Map No. 202; ZCC No. 3, Map No. 218R; ZCC No. 14, Map No. 219; Ag. Preserve No. 19 – Exclusion, Map No. 202

Existing Pedestrian Facilities

Figure 4.16-3



SOURCES: Fehr & Peers, 2016

GRAPEVINE PROJECT • SREIR

SPA No. 157, Map No. 500; GPA No. 9, Map No. 202; GPA No. 10, Map No 202; GPA No. 4, Map No. 218R; GPA No. 5, Map No. 218R; GPA No. 11, Map No. 219; GPA No. 12, Map No. 219; Special Plan No. 2, Map No. 202; Special Plan No. 3, Map No. 218R; Special Plan No. 3, Map No. 219; ZCC No. 18, Map No. 202; ZCC No. 3, Map No. 218R; ZCC No. 14, Map No. 219; Ag. Preserve No. 19 – Exclusion, Map No. 202

Existing Transit Routes

Figure 4.16-4

Aircraft Traffic

The Tejon Agricultural Airport is the nearest private airstrip, located approximately 1.7 miles east of the project site. The Tejon Agricultural airport is unattended, and has two dirt/treated runways (AirNav 2015a). The Paradise Lakes Airport is a private airstrip located approximately 13 miles north of the project site. The Paradise Lakes Airport is unattended with two single-engine and one multi-engine airplanes based on the field and two asphalt runways (AirNav 2015b). Additionally, the Di Giorgio Ranch Landing Strip is a private airstrip located approximately 19 miles northeast of the project site. The Di Giorgio Ranch Landing Strip is unattended with two dirt runways (AirNav 2015c).

The nearest public airport facility is the Bakersfield Municipal Airport, located 24 miles north of the project site. The Bakersfield Municipal Airport is continuously attended. The Airport operates two paved runways and averaged 68 operations per day for the 12-month period ending May 4, 2015, of which 60 percent was transient general aviation, and 40 percent was local general aviation. The Bakersfield Municipal Airport has 86 aircraft based on the field, including 76 single-engine airplanes, and 10 multi-engine airplanes (AirNav 2015d).

The next nearest public airport facility is the Meadows Field Airport, located approximately 32 miles north of the project site. The Meadows Field Airport is continuously attended. The Airport operates three paved runways and averaged 262 operations per day for the 12-month period ending December 31, 2013, of which 53 percent was transient general aviation, 37 percent was local general aviation, eight percent was air taxi, one percent was commercial, and less than one percent was military. The Meadows Field Airport has 206 single-engine airplanes, nine multi-engine airplanes, and four helicopters (AirNav 2015e).

The U.S. Department of the Navy military training route (MTR), MTR VR-1262, originates from Lemoore Naval Air Station and passes over the project site. The designated route is five nautical miles on either side of the centerline for a total width of ten nautical miles. The military occasionally operates within VR-1262 for low altitude (below 10,000 feet) high speed training.

Current Traffic Conditions

Based on August 2018 AM and PM Peak hour traffic counts completed at the I-5 / Grapevine and I-5 / Laval Road / Wheeler Ridge Road interchanges, there has been no significant change in off-site and existing conditions since the FEIR (2016) was certified in December 2016.

Weekday morning and evening peak hour traffic volumes at the I-5 / Grapevine interchange has remained relatively unchanged for traffic entering and exiting I-5 to and from the mix of land uses (two gas stations, three eateries, and one travel hotel). No additional development has occurred at the I-5 / Grapevine interchange.

Weekday morning and evening peak hour traffic volumes at the I-5 / Laval Road / Wheeler Ridge Road have increased approximately 5 to 10 percent with the completion of additional land uses at Tejon Ranch Commerce Center. It should be noted that for the 2019 Traffic Study, the traffic volumes were increased to account for traffic generated by the Outlets at Tejon and other developments on Laval Road and Dennis McCarthy Drive.

The August 2018 traffic counts are included in the appendices of the *Supplemental Recirculated Transportation Impact Study Technical Report for the Grapevine Specific And Community Plan Project* (Volume 4, Appendix E.2).

4.16.3 Regulatory Setting

Federal

Federal Aviation Administration (FAA)

The FAA regulates aviation at regional, public, private, and military airports, such as Lemoore Naval Air Station Tejon Ag Airport. The FAA regulates objects affecting navigable airspace and structures taller than 200 feet according to Federal Aviation Regulation 14 Code of Federal Regulations Part 77 (14 Code of Federal Regulations [CFR] 77). The U.S. and California Departments of Transportation also require the proponent to submit FAA Form 7460-1, Notice of Proposed Construction or Alteration.

As described in 14 CFR 77.9 (Construction or alteration requiring notice), each sponsor who proposes any of the following construction or alteration scenarios shall notify the FAA in the form and manner as follows:

> If requested by the FAA, or if you propose any of the following types of construction or alteration, you must file notice with the FAA of:
>
> (a) Any construction or alteration that is more than 200 feet above ground level at its site.
>
> (b) Any construction or alteration that exceeds an imaginary surface extending outward and upward at any of the following slopes:
>
> > (1) 100 to 1 for a horizontal distance of 20,000 feet from the nearest point of the nearest runway of each airport described in paragraph (d) of this section with its longest runway more than 3,200 feet in actual length, excluding heliports.
> >
> > (2) 50 to 1 for a horizontal distance of 10,000 feet from the nearest point of the nearest runway of each airport described in paragraph (d) of this section with its longest runway no more than 3,200 feet in actual length, excluding heliports.
> >
> > (3) 25 to 1 for a horizontal distance of 5,000 feet from the nearest point of the nearest landing and takeoff area of each heliport described in paragraph (d) of this section.
>
> (c) Any highway, railroad, or other traverse way for mobile objects, of a height which, if adjusted upward 17 feet for an Interstate Highway that is part of the National System of Military and Interstate Highways where overcrossings are designed for a minimum of 17 feet vertical distance, 15 feet for any other public roadway, 10 feet or the height of the highest mobile object that would normally traverse the road, whichever is greater, for a private road, 23 feet for a railroad, and for a waterway or any other traverse way not previously mentioned, an amount equal to the height of the highest mobile object that would normally traverse it, would exceed a standard of paragraph (a) or (b) of this section.

(d) Any construction or alteration on any of the following airports and heliports:

(1) A public use airport listed in the Airport/Facility Directory, Alaska Supplement, or Pacific Chart Supplement of the U.S. Government Flight Information Publications;

(2) A military airport under construction, or an airport under construction that will be available for public use;

(3) An airport operated by a Federal agency or the Department of Defense.

(4) An airport or heliport with at least one FAA-approved instrument approach procedure.

(e) You do not need to file notice for construction or alteration of:

(1) Any object that will be shielded by existing structures of a permanent and substantial nature or by natural terrain or topographic features of equal or greater height, and will be located in the congested area of a city, town, or settlement where the shielded structure will not adversely affect safety in air navigation;

(2) Any air navigation facility, airport visual approach or landing aid, aircraft arresting device, or meteorological device meeting FAA-approved siting criteria or an appropriate military service siting criteria on military airports, the location and height of which are fixed by its functional purpose;

(3) Any construction or alteration for which notice is required by any other FAA regulation.

(4) Any antenna structure of 20 feet or less in height, except one that would increase the height of another antenna structure.

Per 14 CFR 77.7, notification requirements include sending one executed form set of FAA Form 7460-1, Notice of Proposed Construction or Alteration, to the Manager, Air Traffic Division, FAA Regional Office having jurisdiction over the area within which the construction or alteration will be located. The notice required must be submitted at least 45 days before the earlier of the following dates: (1) the date the proposed construction or alteration is to begin, or (2) the date an application for a construction permit is to be filed.

State

California Department of Transportation

Caltrans is responsible for operating and maintaining the State highway system. In the project vicinity, I-5, SR-99, SR-138, SR-166, and SR-184, SR-223, along with all the freeway ramps and ramp terminal intersections fall under Caltrans jurisdiction. Caltrans provides administrative support for transportation programming decisions made by the California Transportation Commission for state funding programs. The State Transportation Improvement Program is a multi-year capital improvement program that sets priorities and funds transportation projects envisioned in long-range transportation plans. The Caltrans *Guide for the Preparation of Traffic Impact Studies* provides general guidance regarding the preparation of traffic impact studies for projects that may have an impact on the State Highway System. The Caltrans *Highway Design Manual* establishes uniform policies and procedures for State highway designs. Caltrans also sets maximum load limits for trucks and safety requirements and administers the following regulations for oversized vehicles that operate on State highways:

California Vehicle Code, Division 15, Chapters 1 through 5 (Size, Weight, and Load)

Includes regulations pertaining to licensing, size, weight, and load of vehicles operated on highways.

California Street and Highway Code Sections 660-711, 670-695

Requires permits from Caltrans for any roadway encroachment during truck transportation and delivery, includes regulations for the care and protection of State and county highways and provisions for the issuance of written permits, and requires permits for any load that exceeds Caltrans weight, length, or width standards for public roadways.

In 2017, Caltrans approved two traffic mitigation agreements with the Grapevine project proponent to mitigate project-related impacts to state highway facilities located in Kern County (Caltrans District 6) and Los Angeles county (Caltrans District 7) identified by analysis based on the ICRs evaluated, as requested by Caltrans, in the FEIR (2016). The Caltrans Agreements are included as Appendix A of the 2019 Traffic Study (Volume 4, Appendix E.2). In June 2017, Caltrans issued a Project Study Report-Project Development Support (PSR/PDS) for the proposed new project interchange to be located on I-5 that would be required to serve the project and other regional transportation demands as part of project buildout. The PSR/PDS is included as Appendix B of the of the 2019 Traffic Study (Volume 4, Appendix E.2).

California Environmental Quality Act (CEQA) Guidelines 2018 Amendments

In December 2018 the state CEQA Guidelines were amended to include provisions concerning the assessment of VMT, thresholds of significance, and mitigation measures. As discussed in the NOP for this SREIR, the County reviewed the 2018 changes to the CEQA guidelines and determined that the thresholds used in the 2016 EIR do not require revision. Each of the revised impact questions included in the 2018 revisions to the CEQA guidelines Appendix G, *Environmental Checklist Form* were found to be addressed in the 2016 EIR, except for the new VMT-related provision that are not required until July 2020.

Local, Kern County General Plan (KCGP)

The project site is located within the Kern County General Plan (KCGP). The policies, goals, and implementation measures in the KCGP for transportation and traffic applicable to the project are provided below.

Chapter 1: Land Use, Open Space, and Conservation Element

Section 1.10.8 Smart Growth

Policies

- **Policy 49.** Discretionary development projects should be encouraged to incorporate innovative or "smart growth" land use planning techniques as design features, as follows:
    a. Higher Density development, where compatible, to maximize the efficient use of land.
    b. Mixed use developments that promote reduced vehicle trips by having residential, commercial, and public uses proximate to each other.

c. Variety of housing types, including those using energy efficient design, and densities to address Kern County's housing needs.

d. Master planned communities that feature interconnected roads, transit stops, sidewalks, landscaping, and trails to encourage multi-modal movement.

e. Compact development that conserves open space, agricultural land, flood prone areas, creeks, hillsides, ridge tops, wetlands, and other natural features.

f. Adequate infrastructure (i.e. roads, sewer, water, parks, etc.) is provided as a condition of development approval by the project proponent.

g. Aesthetically pleasing and unifying design features that promote a visually pleasing environment.

Implementation Measures

- **Implementation Measure CC**. Promote the creation of innovative development through the use of smart growth principles and various implementing tools including, but not limited to: Community Plans, Specific Plans, Combining Zone districts CL (Cluster), SP (Special Planning), OS (Open Space), Density Bonuses, Transit facilities, etc. Allow the flexibility to assess traffic and safety impacts through means other than Level of Service (LOS) when development utilizes smart growth policies that encourage multi-modal movements, and is proposed as part of a community plan or specific plan.

Chapter 2. Circulation Element

Section 2.1 Introduction

Goals

- **Goal 4.** Kern County will plan for a reduction of environmental effects without accepting a lower quality of life in the process.
- **Goal 5.** Maintain a minimum Level of Service (LOS) D for all roads throughout the County unless the roads are part of an adopted community plan or specific plan which utilizes smart growth policies that encourage multi-modal movement (see Section 1.10.8).

Section 2.3.3 Highway Plan

Goals

- **Goal 1.** To carry out this plan in a manner consistent with needs and standards of the County.
- **Goal 2.** This plan proposes to improve access to Kern County using all available methods of transportation.
- **Goal 3**. This plan sets up a simple way for protecting road right-of-way. Protecting corridors for future transportation facilities is the most important transportation planning activity in any high growth area.
- **Goal 4.** To reserve right-of-way to meet future road needs that result from development allowed by land use plans.
- **Goal 5**. Maintain a minimum LOS D.

Policies

- **Policy 1.** Development of roads within the County shall be in accordance with the Circulation Diagram Map. The charted roads are usually on section and midsection lines. This is because the road centerline can be determined by an existing survey.
- **Policy 2.** This plan requires, as a minimum, construction of local road widths in areas where the traffic model estimates little growth through and beyond year 2010. Where Planning and Natural Resources Department's growth estimates indicate more than a local road is required, expanded facilities shall be provided. The timing and scope of required facilities should be set up and implemented through the Kern County Land Division Ordinance. However, the County shall routinely protect all surveyed section lines in the Valley and Desert Regions for arterial right-of-way. The County shall routinely protect all mid-section lines for collector highways in the same regions. The only possible exceptions shall be where the County adopts special studies and where Map Code 4.1 (Accepted County Plan) areas occur. In the Mountain Region where terrain does not allow construction on surveyed section and mid-section lines, right-of-way width shall be the size shown on the diagram map. No surveyed section and mid-section "grid" will comprehensively apply to the Mountain Region.
- **Policy 3**. This plan's road width standards are listed below. These standards do not include State highway widths that would require additional right-of-way for rail transit, bike lanes and other modes of transportation. Kern County shall consider these modifications on a case-by-case basis.
    - Expressway [Four Travel Lanes] Minimum 110-foot right-of-way
    - Arterial [Major Highway] Minimum 110-foot right-of-way (County Standard 110-feet);
    - Collector [Secondary Highway] Minimum 90-foot right-of-way (County Standard 90-feet);
    - Commercial-Industrial Street Minimum 60-foot right-of-way (County Standard 60-feet);
    - Local Street [Select Local Road] Minimum 60-foot right-of-way; (County Standard 60-feet).

Implementation Measures

- **Implementation Measure A.** The Planning and Natural Resources Department shall carry out the road network Policies by using the Kern County Land Division Ordinance and Zoning Ordinance, which implements the Kern County Development Standards that includes road standards related to urban and rural planning requirements. These ordinances also regulate access points. Planning Department can help developers and property owners in identifying where planned circulation is to occur.
- **Implementation Measure B.** Continuity and integrity of the arterial and collector system at the mountain/valley region and the mountain/desert region boundary must be reviewed and approved in conjunction with project adoption on an individual basis.
- **Implementation Measure C.** Conformance to alignment minimum design standards, where roadways that deviate from section and mid-section lines intersect those lines, must be reviewed and approved in conjunction with project adoption on an individual basis.

Section 2.3.4 Future Growth

Goals

- **Goal 1.** To provide ample flexibility in this plan to allow for growth beyond the 20 year planning horizon.
- **Goal 3.** To provide a total framework for guiding the development of access roads to City, County and State road systems to diminish jobs-housing imbalance influences.

Policies

- **Policy 1.** Monitor traffic volumes and patterns on County arterials. Undertake special studies when monitoring shows traffic is such that additional traffic would exceed LOS D unless the roads are part of an adopted Community Plan or specific plan which utilities smart growth policies that encourage multi-modal movement (see Section 1.10.8). The purpose of the special studies is eventually to upgrade key major highways to expressway standards. Expressway standards would limit access to one-half (1/2) mile spacing.
- **Policy 2.** The County should monitor development applications as they relate to traffic estimates developed for this plan. Mitigation is required if development causes affected roadways to fall below LOS D. However, development proposed as part of a community plan or specific plan which utilizes smart growth policies that encourage multi-modal movement (see Section 1.10.8) is allowed the flexibility to assess traffic and safety impacts through other means than Level of Service (LOS). Utilization of the California Environmental Quality Act (CEQA) process would help identify alternatives to or mitigation for such developments. Mitigation could involve amending the Land Use, Open Space, and Conservation Element to establish jobs/housing balance if projected trips in any traffic zone exceed trips identified for this Circulation Element. Mitigation could involve exactions to build off-site transportation facilities. These enhancements would reduce traffic congestion to an acceptable level.
- **Policy 4.** As a condition of private development approval, developers shall build roads needed to access the existing road network. Developers shall build these roads to County standards unless improvements along State routes are necessary then roads shall be built to Caltrans standards. Developers shall locate these roads (width to be determined by the Circulation Plan) along centerlines shown on the circulation diagram map unless otherwise authorized by an approved Specific Plan Line. Developers may build local roads along lines other than those on the circulation diagram map. Developers would negotiate necessary easements to allow this.
- **Policy 5.** When there is a legal lot of record, improvement of access to county, city or State roads will require funding by sources other than the County. Funding could be by starting a local benefit assessment district or, depending on the size of a project, direct development impact fees.
- **Policy 6.** The County may accept a developer's road into the County's maintained road system. This is at Kern County's discretion. Acceptance would occur after the developer follows the above requirements.

Implementation Measures

- **Implementation Measure A.** The County should relate traffic levels to road capacity and development levels. To accomplish this the Public Works Department and Planning and

Natural Resources Department should set up a monitoring program. The program would identify traffic volume to capacity ratios and resulting level of service. The geographic base of the program would be traffic zones set up by Kern Council of Governments.

- **Implementation Measure C.** Project development shall comply with the requirements of the Kern County Zoning Ordinance, Land Division Ordinance, and Development Standards.

Section 2.3.5 Expressway, Arterial and Collector Specific Plan Lines

Goals

- **Goal 1.** To set up specific plan lines that protects right-of-way for both County and State highways and expressways. Specific plan lines are needed where the rights-of-way for arterial and collector alignments do not follow surveyed section and mid-section lines.

Policies

- **Policy 1.** Kern County will require adoption of specific plan lines for public roads meeting any of the following criteria.
    - State or County-adopted expressways (includes State freeways), arterials, and collectors that deviate from surveyed section or mid-section lines or any routes depicted on the circulation maps.
    - Where public road continuity is desirable, but the County has to consider offset surveyed section and mid-section lines.
- **Policy 2.** Any new, adopted specific plan line and non-standard design cross-section(s) shall be protected from land use development the same as right-of-way along surveyed section and mid-section lines.

Implementation Measures

- **Implementation Measure A.** Any private or public entity may apply for adoption of new, or revision of existing, specific plan line. With private applications, the County may require a fee to defray the cost of processing a specific plan line application.
- **Implementation Measure B.** In large development plans that, Kern County customarily considers specific plans, all arterial and collector roads may be adopted as specific plan lines if centerline and cross-section surveys are complete at time of Specific Plan public hearing.

Section 2.3.6 Vacation of Existing or Recorded Future Streets, Highways, or Public Easements

Policies

- **Policy 2.** A study, prepared at the applicant's expense, shall accompany the road vacation application. The study should provide information that will aid in finding the importance of the entire length of the right-of-way. The study would include a review of existing and proposed land uses and localized traffic modeling. This will help Kern County decide what corresponding changes are needed to the Land Use, Open Space and Conservation Element, or affected specific plan. This also will help Kern County decide if additional public road services or other traffic management are required elsewhere.

- **Policy 4.** The vacation of the road shall not take away legal access to adjacent properties or "land-lock" any legal lot of parcel of record. Legal access shall be determined through a report submitted with the application of road vacation.
- **Policy 5.** If Kern County determines that the right-of-way is not needed for circulation in the general area, a road vacation may be authorized. An acceptable project shall be determined through a report submitted with the road vacation application and in keeping with traffic modeling parameters of this Plan.
- **Policy 9.** A road vacation may be authorized to remove excess right-of-way caused by relocation, or at the beginning of a general plan amendment proceeding. Excess right-of-way shall be determined through a report submitted with the road vacation application.

Implementation Measures

- **Implementation Measure B**. In resolving a vacation request, the Board of Supervisors will follow the Policies and laws applicable to such vacation request. Before taking final action, the Board of Supervisors may require the applicant to submit additional study(s). Staff shall oversee the applicant's information gathering process and suggest alternatives if necessary.

Section 2.3.10 Congestion Management Programs

Issues

State law requires that urbanized counties prepare an annual Congestion Management Program (CMP). City and county eligibility for new gas tax subventions is contingent upon their participation in the CMP. To qualify for funding provided through the State Transportation Improvement Program (STIP) or the FTIP, the regional transportation agency must keep current an RTP that contains the CMP. Also, the CMP offers local jurisdictions the opportunity to find cooperative solutions to the multi-jurisdictional problems of air pollution and traffic congestion.

The CMP has links with air quality requirements. The California Clean Air Act requires that cities and counties implement transportation control measures (TCMs) to attain, and maintain, the State air quality standard.

Goals

- **Goal 1.** To satisfy the trip reduction and travel demand requirements of the Kern Council of Government's Congestion Management Program.
- **Goal 2.** To coordinate congestion management and air quality requirements and avoid multiple and conflicting requirements.

Policies

- **Policy 1.** Pursuant to California Government Code § 65089(a), Kern County has designated Kern Council of Governments as the County's Congestion Management Agency (CMA).
- **Policy 2.** The Congestion Management Agency is responsible for developing, adopting, and annually updating a Congestion Management Plan. The Plan is to be developed in consultation with, and with the cooperation of, the regional transportation agency (also Kern Council of Governments), regional transportation providers, local governments, Caltrans, and the air pollution control district.

Implementation Measures

- **Implementation Measure.** Kern County Council of Governments should request the proper consultation from County of Kern to develop and update the proper congestion management program.
- **Implementation Measure.** The elements within the Kern Congestion Management Program are to be implemented by each incorporated city and the County of Kern. Specifically, the land use analysis program, including the preparation and adoption of deficiency plans is required. Additionally, the adoption of trip reduction and travel demand strategies are required in the Congestion Management Program.

Chapter 4. Safety Element

Section 4.6 Wildland and Urban Fire

Policies

- **Policy 4**. Ensure that new development of properties have sufficient access for emergency vehicles and for the evacuation of residents.

Section 4.7 Kern County Emergency Plan

Implementation Measures

- **Implementation Measure C.** Require emergency plans to include procedures for traffic control and security of damaged areas.

Vehicles and Traffic Code (Title 10 of the Ordinance Code of Kern County)

The purpose of this ordinance is to identify and define vehicle and traffic related issues within Kern County. These issues include: speed limits (Chapter 10.04); weight limits (Chapter 10.08); interstate trucks (Chapter 10.12); parking and safety zones (Chapters 10.16 and 10.20); handicapped parking (Chapter 10.24); abandoned, wrecked, dismantled or inoperative vehicles (Chapter 10.28); golf carts (Chapter 10.32); transportation of hay (Chapter 10.36); off-road driving (Chapter 10.40); no cruising zones (chapter 10.44); and parking penalties (Chapter 10.50).

The ordinance mainly provides guidance for existing roads; however, it also provides guidance on criteria for roadways based on existing land uses, when and how speed limits, weight limits and parking should be signed and noticed, and a description of the types of roadways (i.e., arterials, highways, combined use roadways) where different rules and regulations should apply.

Roads, Highways and Bridges Code (Title 12 of the Ordinance Code of Kern County)

Chapter 12.16 Highway Encroachment

Section 12.16.100 Encroachment Permits in New Subdivisions

No permit is required in roads in new subdivisions for the purpose of making the improvements designated by the board of supervisors under the subdivision of land ordinance of the county, Title 18 of Ordinance Code of Kern County, and which improvements are a part of the improvement contract between the county and the subdivider; but for any improvement of or encroachment on any road for purposes not designated in such improvement contract, a permit must first be secured from the director of roads under this chapter. Failure to secure an encroachment permit prior to

beginning the work for which one is required, or construction in violation of the terms of such permit, constitutes a violation of this chapter.

Section 12.24.020 Boulevards

Pursuant to the provisions of Section 21354 of the Vehicle Code, all of the streets or highways of the County which are designated as primary or secondary roads or highways on the Master Highway Plan of the County are designated and declared to be the boulevards of the County. The Kern County Board of Supervisors may declare and designate other streets or highways of the County as boulevards. This ordinance thus sets forth the appropriate signing for boulevards as well as appropriate locations for stop signs and signals at intersections.

Chapter 12.63 Street Addresses and Street Names

In order to promote the convenience, safety and general welfare of the public, this ordinance establishes an official plan for unincorporated area coordinated area-wide street addressing and street naming systems within Kern County. All official street addresses shall be issued through the Kern County Planning and Natural Resources Department. The installation of various area-wide and metropolitan area street addresses and street naming systems established by this ordinance shall be accomplished progressively and in consultation with the Kern County Planning and Natural Resources Department.

Kern Council of Governments Congestion Management Program

All urbanized areas with populations of more than 200,000 are required to have a congestion management system, program, or process. Kern COG refers to its congestion management activities as the CMP. Kern COG has been designated as a congestion management agency.

The CMP provides a systematic process for managing congestion and information regarding (1) transportation system performance and (2) alternative strategies for alleviating congestion and enhancing the mobility of persons and goods to levels that meet State and local needs. The purpose of the CMP is to ensure that a balanced transportation system is developed that relates population growth, traffic growth, and land use decisions to transportation system LOS performance standards and air quality improvement. The program attempts to link land use, air quality, transportation, and advanced transportation technologies as integral and complementary parts of the region's plans and programs.

The purpose of defining the CMP network is to establish a system of roadways that will be monitored in relation to established LOS standards. At a minimum, all State highways and principal arterials must be designated as part of the Congestion Management System of Highways and Roadways. Kern County has 18 designated State highways.

Regional Transportation Plan and Sustainable Communities Strategy

The RTP is a long-term general plan for the region's transportation network and encompasses projects for all types of travel, including aviation and freight movement. The RTP is prepared by the Kern COG through a continuing, comprehensive, and cooperative planning process and provides for effective coordination between local, regional, State and federal agencies and assesses environmental impacts of projects and establishes air quality conformity as required by Federal regulations (Kern COG, 2014a).

The California Sustainable Communities and Climate Protection Act (Senate Bill [SB] 375) requires that the Kern RTP include an SCS that reduces greenhouse gas emissions from passenger vehicles and light-duty trucks by five percent per capita by 2020 and ten percent per capita by 2035 compared to 2005. In addition, SB 375 provides for closer integration of the RTP/SCS with the state Regional Housing Needs Allocation (RHNA) to ensure consistency between low income housing needs and transportation planning.

The 2014 RTP/SCS exceeds SB 375 reduction targets for the region, is consistent with the RHNA and provides a 26-year blueprint that establishes a set of regional transportation goals, objectives, policies, and actions to guide development of planned multimodal transportation systems in Kern County. The RTP/SCS designates the Grapevine Project and adjacent locations, including TRCC, as a "Planned Transit Priority Area" and a "Strategic Employment Center." These designations identify the project area as an activity node around which future transit, vanpooling services, and mixed-use development patterns would be planned to support forecasted development patterns within the Kern COG planning region. The RTP/SCS supports a land use pattern and corresponding transportation network that encourages the location of housing near jobs and transportation facilities designed to reduce regional passenger vehicle travel and the resulting reduction in air emissions.

In August 2018, the Kern COG adopted an updated 2018 RTP/SCS. The 2018 RTP/SCS also designates the Grapevine project and adjacent locations, including TRCC as a "Planned Transit Priority Area," a "Strategic Employment Center," and as an activity node around which future transit, vanpooling services, and mixed-use development patterns would be planned to support forecasted development patterns within the Kern COG planning region. The 2018 RTP/SCS more fully incorporates the proposed project and continues to recognize that the project incorporates a land use pattern and corresponding transportation network that encourages the location of housing near jobs and transportation facilities designed to reduce regional passenger vehicle travel and reduced vehicular air emissions. Adopted SCS updates are subject to review and approval by the California Air Resources Board (CARB). As of July 2019 the CARB website indicates that the status of the Kern COG 2018 SCS was "pending Carb approval."

Kern County Airport Land Use Compatibility Plan

The Kern County Airport Land Use Compatibility Plan establishes procedures and criteria to assist Kern County and affected incorporated cities in addressing compatibility issues between airports and surrounding land uses.

Chapter 4

4.17 Military Aviation

- **Section 4.17.2.3 – Military Aviation Encroachment.** Towers – Obstructions such as cellular towers, radio towers, television towers and wind turbines that penetrate into airspace become a hazard to flight safety. Concentrated numbers of such structures can result in the loss of a route as useable for testing and training operations.

4.16.4 Supplemental Recirculated EIR (SREIR) New and Updated Analysis

Methodology

This subsection discusses the preparation and analysis of the new material developed for the SREIR to provide a common basis for analyzing potential project development scenarios with lower ICRs and higher VMT than were considered in the FEIR (2016). The primary purpose of the Updated 28.7% HBW ICR is to update the FEIR (2016) analysis with more current information published after the FEIR (2016) was certified in 2016, including the tenth edition of the Institute of Transportation Engineers (ITE) Manual in 2017. The ITE Manual provides widely utilized trip generation rates for specific land uses, such as housing or commercial development. As shown in Table 4.16-9, *ITE Trip Generation Estimate – Updated 28.7% HBW ICR Analysis*, total project trips using the more current, tenth edition of the ITE Manual are slightly lower than generated by the ninth edition of the ITE Manual used in the FEIR (2016) analysis. The lower number of total trips generated by using the tenth edition of the ITE Manual also results in a slight decrease in weekday VMT compared with the FEIR (2016). Potential project impacts under the SREIR were compared with the FEIR (2016), and no new significant impacts were identified.

The Updated 28.7% HBW ICR, which incorporates the 2017 ITE Manual, was then used as the baseline for screening the 22 potential project development scenarios and identifying the Reduced ICR Scenarios for more detailed analysis. The potential project development scenarios, the screening process for the scenarios, and the potential impacts associated with development scenarios with lower ICRs and higher VMT than those considered in the FEIR (2016) are discussed in the Reduced ICR Scenarios subsection following the Updated 28.7% HBW ICR Analysis subsection, below.

Kern COG Model Comparison

Following completion of the FEIR (2016), the Kern COG adopted a 2018 RTP/SCS traffic model (Kern COG, 2018), a new version of the ITE Trip Generation Manual (10th Edition, September 2017) was published, and the California Air Pollution Officers Association released an update to the California Emissions Estimator Model (CalEEMod). To ensure that the 2019 Traffic Study provides a consistent analysis of potential significant adverse effects to traffic, air pollution, greenhouse gases, and other resources as set forth in the NOP, the corresponding Kern COG model, ITE model, and CalEEMod models, used in the FEIR (2016) analysis were evaluated for use in the 2019 Traffic Study.

The project ICRs generated by the 2014 Kern COG model used in the 2016 FEIR analysis were compared with the ICRs generated by the 2018 Kern COG model. The 2018 Kern COG model more fully incorporates the proposed project development than the 2014 Kern COG model. The 2018 Kern COG model was found to generate similar or higher ICRs, which result in a larger proportion of internal trips, than the ICRs generated by the 2014 Kern COG model used in the DEIR (2016). The 2014 Kern COG Model also included trip distribution components that did not assume project approval, whereas the 2018 Kern COG model trip distribution methodology includes the project. Project ICRs ranged from 10 to 15 percent higher in the 2018 Kern COG model than the ICRs evaluated in the DEIR (2016). Since the 2014 Kern COG model results in

lower Project ICRs, it provides a more conservative assessment of potential ICR-related transportation and traffic impacts. The 2014 Kern COG model accordingly remains appropriate for modelling the distribution of project trips on existing highways and roadways.

ITE Trip Generation Rates

The evaluation also considered the use of the current 2016 ITE Trip Generation Manual. Compared with the 2012 ITE Manual used in the FEIR analysis, the 2016 ITE Manual generates slightly lower trip rates for the proposed project land uses based on data collected throughout the country for land use development projects. The average daily trips (ADT) for all project land uses at buildout using the 2012 ITE Manual, for example, was about 201,542 trips per day compared with an ADT of 197,685 trips using the 2016 ITE Manual, which represents a 1.9 percent reduction in ADT. The average weekday VMT evaluated in the 2016 FEIR analysis was 3,175,626 miles, and the use of the 2016 ITE Manual results in an average weekday VMT of 3,114,939 miles, which represents a 1.9 percent reduction in VMT. The 2016 ITE Manual also provides more current school and park trip generation rates for the land uses included in the proposed project. The 2016 ITE Manual is considered the best available technical data and has been used in the SREIR analysis.

CalEEMod

Similarly, the current version of CalEEMod provides the most up to date and refined model used to estimate criteria air and greenhouse gas emissions from specific land uses for CEQA purposes. CalEEMod uses the 2016 ITE Manual.

Updated 28.7% HBW ICR Methodology

The Updated 28.7% HBW ICR analysis uses the same ICRs as the FEIR (2016), including an AM peak period ICR of 59.8 percent and PM peak period ICR of 64.2 percent. These ICRs incorporate the assumed Home-Based Work trip ICR of 28.7 percent requested by Caltrans during the DEIR (2016) review process. The number of total daily and peak AM and PM period trips in the Updated 28.7% HBW ICR was calculated using the tenth edition of the ITE Manual, which was published after the FEIR (2016) was certified. As discussed in the FEIR Analysis subsection (2019 Traffic Study, Section 2.3), the FEIR (2016) cumulative plus project scenario identified all of the potentially significant traffic and transportation impacts identified in the FEIR (2016) existing plus project evaluation, as well as additional impacts to local and regional facilities that would occur under cumulative plus project conditions. Consequently, the cumulative plus project analysis results in the largest number and represents the most conservative impact scenario for the project. To provide a conservative analysis, both project-level and cumulative potential impacts that could occur under the Updated 28.7% HBW ICR were evaluated under cumulative plus project conditions. As discussed above, the project ICRs generated by the 2014 Kern COG TD model and the 2018 Kern COG TDF model were compared for use in the Updated 28.7% HBW ICR. The 2014 Kern COG model was found to generate lower and more conservative project ICRs than the 2018 Kern COG model and was retained for the Updated 28.7% HBW ICR and Reduced ICR Scenario analysis.

Updated 28.7% HBW ICR Analysis

Potential SREIR traffic and transportation impacts from project buildout using the Updated HBW 28.7% Scenario are discussed in detail in Section 2.4 of the 2019 Traffic Study. Table 4.16-9 *ITE Trip Generation Estimate – Updated 28.7% HBW ICR Analysis*, shows that at buildout the proposed project would result in a total of 197,685 ADT based on the tenth edition of the ITE Manual compared with 201,542 trips per day in the FEIR (2016) using the ninth edition of the ITE Manual (see Table 4.16-12, *Summary of ITE Trip Generation Estimates, VMT and ICRs – All Scenarios*). The average weekday VMT for the Updated 28.7% HBW ICR is 3,114,939 miles compared with 3,175,626 miles in the FEIR (2016). The ADT and weekday VMT for the SREIR is approximately 1.9 percent lower than considered in the FEIR (2016).

Table 4.16-9. ITE Trip Generation Estimate – Updated 28.7% HBW ICR Analysis

Land Use	Quantity	ITE Code	A.M. Peak Hour			P.M. Peak Hour			Daily Total
			Total	In	Out	Total	In	Out	
Residential									
Residential	8,400 DUs	210	6,216	1,554	4,662	8,316	5,239	3,077	79,296
Village Center Residential	3,600 DUs	220	1,656	381	1,275	2,016	1,270	746	26,352
Non-Residential									
Village Center Commercial - Retail[1]	450 ksf	820[1]	423	262	161	1,715	823	892	16,988
Village Center Commercial - Office[1]	350 ksf	710[1]	406	349	57	403	64	338	3,410
Freeway Commercial	750 ksf	820	705	437	268	2,858	1,372	1,486	28,314
Office/Research & Development	2,100 ksf	710	2,436	2,095	341	2,415	386	2,029	20,454
Light Industrial/Warehouse[2]	1,450 ksf	130/ 150[2]	413	326	87	428	103	325	3,706
Schools & Parks									
Elementary Schools[4]	4,970 students	520	3,330	1,798	1,532	845	406	439	9,394
Middle Schools[4]	1,680 students	522	974	526	448	286	140	146	3,578
High Schools[4]	3,000 students	530	1,560	1,045	515	420	202	218	6,090
Parks[3]	132 acres	411							104
Total			18,119	8,774	9,345	19,699	10,004	9,695	197,685

Source: Fehr & Peers, 2019.
Notes: DUs = dwelling units; ksf = thousand square feet
Trip generation estimates calculated using the trip rates in ITE's *Trip Generation Manual, 10th Edition*
1 Village Center Commercial consists of 450,000 sq. ft. of retail (ITE Code 820) and 350,000 sq. ft. of office (ITE Code 710)
2 Light Industrial/Warehouse assumes 50% industrial park (ITE Code 130) and 50% warehousing (ITE Code 150)
3 City Park land use (ITE Code 411) in ITE's *Trip Generation Manual* only includes daily trip information.
4 Student enrollment based on number of students anticipated per residential dwelling unit based on discussions with school district

The Updated 28.7% HBW ICR analysis used the same peak period ICRs as the FEIR (2016) shown in Table 4.16-12, *Summary of ITE Trip Generation Estimates, VMT and ICRs – All Scenarios*. The Updated 28.7% HBW ICR and FEIR (2016) also used the same internal and external north and south peak period distribution of trips under cumulative conditions summarized in Table 4.16-10, *FEIR (2016) and Updated 28.7% ICR Trip Distribution Estimates.* Consistent with the FEIR (2016), the Updated 28.7% HBW ICR analysis evaluated potential project AM and PM peak period impacts to: (1) local intersections; (2) local roadways; (3) local freeway segments; (4) state highway and freeway facilities located to the north and south of the project site; and (5) interim conditions. The following sections summarize the results of the Updated 28.7% HBW ICR analysis.

Table 4.16-10. FEIR (2016) and Updated 28.7% ICR Trip Distribution Estimates

Origin/Destination	Trip Distribution Estimate	
	AM Peak Hour	PM Peak Hour
Grapevine Project Area (internal)	*70%*	*69%*
North of Grapevine Total	*21%*	*22%*
West Bakersfield via I-5	2%	2%
North of Bakersfield via I-5	1%	1%
Bakersfield Metropolitan Area via SR-99	12%	13%
North of Bakersfield via SR-99	1%	1%
Arvin-Lamont Area	4%	4%
Eastern Kern County via SR-58	1%	1%
South of Grapevine Total	*9%*	*10%*
Southern Kern County (Frazier Park/Tejon Mountain Village)	1%	1%
Antelope Valley Area (Lancaster/Palmdale/Centennial)	1%	1%
Santa Clarita Valley Area	1%	1%
Los Angeles Basin/Orange County/Inland Empire	6%	7%

Source: Fehr & Peers 2019.

The Updated 28.7% HBW ICR analysis determined that the project would cause impacts to three of the five intersections that would be affected under the FEIR (2016) analysis under cumulative plus project conditions:

- Street D/Street A – AM and PM peak hours
- Street C / Street G – PM peak hour; and
- Street I / Street A – PM peak hour.

Two locations that would be impacted under the FEIR (2016) analysis would continue to operate acceptably in the Updated 28.7% HBW ICR analysis:

- Street C / Street A – PM peak hour; and

- Street C/ Street H – PM peak hour.

The Updated 28.7% HBW ICR would generate no new potentially significant impacts and two fewer impacts to project area intersections than were identified in the FEIR (2016) (2019 Traffic Study, Section 2.4.3.1).

The Updated 28.7% HBW ICR would not result in any new or more significant local roadway impacts than were identified in the FEIR (2016). The Updated 28.7% HBW ICR and FEIR (2016) analyses both found that a potentially significant impact could occur to Street A between Street D and Street I (2019 Traffic Study, Section 2.4.3.2).

The Updated 28.7% HBW ICR analysis found that 31 of 33 freeway mainline, on-ramp merge, and off-ramp diverge segments would operate at acceptable LOS conditions or better during the AM and PM peak hours under cumulative plus project conditions. Two local freeway segments, the Fort Tejon to Base of Grapevine Grade (6 percent Downgrade) I-5 segment during the PM peak hour, and the Base of Grapevine Grade to Fort Tejon (6 percent Upgrade) I-5 segment during the AM and PM peak hours, would operate below applicable LOS levels. The impacted local freeway segments identified in the Updated 28.7% HBW ICR analysis would occur at the same locations and would be slightly reduced, but substantially the same in magnitude as determined in the FEIR (2016) analysis (2019 Traffic Study, Section 2.4.3.3). No new or more significant impacts would occur.

Under cumulative plus project conditions, the Updated 28.7% HBW ICR analysis would not significantly impact freeway segments to the north of the project. This result is the same as in the FEIR (2016), and no new or more significant impacts would occur (2019 Traffic Study, Section 2.4.3.4).

The Updated 28.7% HBW ICR was found to impact the following state highway and freeway segments to the south of the project:

I-5 Northbound:

- S. Jct SR-138 to Smokey Bear Road – PM peak hour
- Smokey Bear Road to Vista Del Lago Road – PM peak hour
- Vista Del Lago Road to Templin Highway – PM peak hour
- Templin Highway to Lake Hughes Road – PM peak hour
- Lake Hughes Road to Parker Road – AM & PM peak hours

SR-138 Eastbound:

- Jct I-5 to Gorman Post Road – PM peak hour
- Gorman Post Road to Old Ridge Route Road – AM & PM peak hours
- Old Ridge Route Road to 300th Street West – AM & PM peak hours
- 300th Street West to 245th Street West – AM & PM peak hours
- 245th Street West to 190th Street West – AM & PM peak hours
- 190th Street West to 110th Street West – AM & PM peak hours
- 110th Street West to 60th Street West – AM peak hour
- 60th Street West to Jct Rte 14 North – AM & PM peak hours

SR-138 Westbound:

- Jct I-5 to Gorman Post Road – AM peak hour
- Gorman Post Road to Old Ridge Route Road – AM & PM peak hours
- Old Ridge Route Road to 300th Street West – AM & PM peak hours
- 300th Street West to 245th Street – AM & PM peak hours
- 245th Street West to 190th Street West – AM & PM peak hours
- 190th Street West to 110th Street West – AM & PM peak hours
- 110th Street West to 60th Street West – AM & PM peak hours
- 60th Street West to Jct Rte 14 North – AM & PM peak hours

The Updated 28.7% HBW ICR impacts to state freeway and highway segments south of the project are the same as in the FEIR (2016) analysis (2019 Traffic Study, Section 2.4.3.4). No new significant impacts to state freeway and highway segments south of the project would occur.

As shown in Table 4.16-12 and Table 4.16-9, the Updated 28.7% HBW ICR analysis results in ADT and VMT levels that are approximately 1.9 percent lower than evaluated in the FEIR (2016). The distribution of daily and peak period trips, and impacts to local and state transportation facilities, is substantially the same as in the FEIR (2016) analysis. Consequently, approximately the same amount of development could be constructed under the Updated 28.7% HBW ICR analysis until the applicable LOS standards for the Interim B access facilities would be exceeded. Additional project development above these levels would require the construction of a new and relocated interchange along I-5 (2019 Traffic Study, Section 2.4.3.5).

Based on these results, the 2019 Traffic Study determined that the applicable mitigation measures and the significance determinations for the Updated 28.7% HBW ICR would be the same as identified in the FEIR (2016).

Impact 4.16-1 considers potential conflicts with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, including, but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit. The Updated 28.7% HBW ICR impacts to local roadways, freeways near the project site, including the Grapevine Grade, and under interim access conditions would be the same as considered under Impact 4.16-1 in the FEIR (2016) analysis. Impacts to local intersections would be lower than considered in the FEIR (2016). No new or more significant impacts to the circulation system, including intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit, would occur. As a result, the implementation of FEIR (2016) Mitigation Measures MM 4.16-1 to MM 4.16-9 and MM 4.16-11 would reduce potential Updated 28.7% HBW ICR impacts to less than significant levels.

Impact 4.16-2 considers potential conflicts with an applicable congestion management program. The Updated 28.7% HBW ICR local and regional traffic facility impacts would be substantially the same as considered in the FEIR (2016). Two fewer intersections would be impacted under cumulative plus project conditions. With the implementation of FEIR (2016) Mitigation Measures MM 4.16-2, MM 4.16-3, and MM 4.16-6 through MM 4.16-9, potential Updated 28.7% HBW ICR impacts would be less than significant.

Impact 4.16-3 addresses impacts to air traffic patterns. The Updated 28.7% HBW ICR would not result in any new or more significant impacts related to changed airport traffic patterns than

considered in the FEIR (2016). With the implementation of FEIR (2016) Mitigation Measure MM 4.16-10, these impacts would be less than significant.

Impact 4.16-4 concerns potential impacts from design feature or incompatible use hazards. The Updated 28.7% HBW ICR would not result in any new or more significant impacts than evaluated in the FEIR (2016). With the implementation of FEIR (2016) Mitigation Measures MM 4.16-1 through MM 4.16-7 and MM 4.16-9, potential Updated 28.7% HBW ICR impacts would be less than significant.

Impact 4.16-5 considers potential impacts related to emergency access. The Updated 28.7% HBW ICR would not result in any new or more significant emergency access impacts than evaluated in the FEIR (2016). With the implementation of FEIR (2016) Mitigation Measures MM 4.16-1 and MM 4.16-11, these impacts would be less than significant.

Impact 4.16-6 addresses impacts related to conflicts with adopted policies, plans, or programs supporting alternative transportation. The Updated 28.7% HBW ICR would not result in any new or more significant alternative transportation impacts than evaluated in the FEIR (2016). With the implementation of FEIR (2016) Mitigation Measures MM 4.16-2, MM 4.16-6, and MM 4.16-9, these impacts would be less than significant.

Impact 4.16-7 considers potential cumulative impacts. Potential cumulative plus project impacts in the Updated 28.7% HBW ICR are substantially the same as identified for the FEIR (2016), and no new or more significant cumulative impacts would occur. The implementation of FEIR (2016) Mitigation Measures MM 4.16-1 to MM 4.16-11 and MM 4.16-12 would avoid potential project contributions to cumulative traffic and transportation hazards, inadequate emergency access, programs supporting alternative transportation, and impacts to local roadways and intersections (subject to the KCGP smart growth and multi-modal transportation development goals, policies, and implementation measures). The implementation of these mitigation measures would also reduce but not avoid significant impacts to the Grapevine Grade, along I-5 and in Los Angeles County. Although FEIR (2016) Mitigation Measure 4.16-12 requires fair-share funding to mitigate for potential cumulative impacts to state highway facilities, and Caltrans has approved traffic mitigation agreements with the Grapevine project proponent to mitigate project-related impacts to state highway facilities in Kern County and Los Angeles County, Kern County lacks jurisdiction to require the implementation of the required improvements by Caltrans. As a result, potential Updated 28.7% HBW ICR cumulative impacts to state highway facilities would remain significant and unavoidable. As in the FEIR (2016), all other Updated 28.7% HBW ICR scenario cumulative impacts would be less than significant.

The analysis of potential Updated 28.7% HBW ICR scenario impacts compared with the FEIR (2016) is discussed in more detail in the 2019 Traffic Study attached as Volume 4, Appendix E.2 (2019 Traffic Study, Section 2.4.4 and Section 2.4.5).

Reduced ICR Scenarios

Screening Scenarios and Reduced ICR Scenarios Analysis Methodology

The purpose of this SREIR is to evaluate potential impacts, including those to traffic and transportation, that could occur from lower ICRs than evaluated in the FEIR (2016). This subsection discusses the development and screening of 22 potential project development Screening

Scenarios that could result in lower ICRs and potentially more significant traffic and transportation impacts than considered in the Updated 28.7% HBW ICR and the FEIR (2016). The analysis of traffic and transportation impacts is discussed in more detail in Section 3 through Section 9 of the 2019 Traffic Study and was conducted by implementing the following methodology.

1. Identify a representative suite of reduced ICR development scenarios

The analysis identified 22 reduced ICR project development Screening Scenarios, including proposed project buildout, and 25, 50, and 75 percent of proposed project buildout with peak period ICRs that are 10 percentage points and 20 percentage points lower than evaluated in the Updated 28.7% HBW ICR and FEIR (2016). The Screening Scenarios also included potential project development of onsite housing without complementary employment-generating and commercial amenity land uses, and onsite commercial and industrial development without onsite housing. Housing development without onsite employment generating and amenity land uses, or commercial development without onsite housing would not be consistent with the project purpose. These screening scenarios were evaluated to ensure that the analysis considers potentially significant traffic and transportation impacts from project development that could substantially vary from the proposed Grapevine Specific Plan.

2. Scenario screening.

The ADT and weekday VMT for each of the 22 Screening Scenarios were calculated using the same methodology as the Updated 28.7% HBW ICR, including the use of the tenth edition of the ITE Manual and the 2014 Kern COG Model. The ADT and VMT for each of the 22 Screening Scenarios were compared with the Updated 28.7% HBW ICR ADT and VMT to identify scenarios in which ADT and/or VMT could be higher than evaluated in the Updated 28.7% HBW ICR. ADT was used as a screening criterion because scenarios with a higher number of daily trips than the Updated 28.7% HBW ICR could cause new significant impacts to traffic and transportation. VMT was used as a screening criterion because scenarios that result in a greater amount of vehicle miles traveled could potentially cause new significant local and regional traffic and transportation impacts. The screening analysis determined that none of the 22 Screening Scenarios would result in ADT levels higher than evaluated in the Updated 28.7% HBW ICR. Five of the scenarios were found to result in weekday VMT levels higher than evaluated in the Updated 28.7% HBW ICR.

3. Reduced ICR Scenario Impact Evaluation.

Potential project impacts from the five Reduced ICR Scenarios with higher VMT than considered in the Updated 28.7% HBW ICR were analyzed by using the same methodology as the Updated 28.7% HBW ICR impact evaluation. To provide a conservative analysis, project-level and cumulative impacts for each of the Reduced ICR Scenarios were considered under cumulative plus project conditions. The results were compared with the impacts identified in the Updated 28.7% HBW ICR and FEIR (2016) analyses, and new potentially significant impacts were found to occur in one or more of the Reduced ICR Scenarios. Feasible mitigation that could be implemented within the project site were identified and incorporated as amended mitigation measures for the project to reduce impacts to less than significant levels.

Reduced ICR Screening Scenarios

A total of 22 reduced ICR project development Screening Scenarios were identified for preliminary screening analysis by Kern County.

Eight of the scenarios include proposed project development of 12,000 dwelling units and 5.1 million square feet of commercial/light industrial land used with peak period ICRs that are 10 and 20 percentage points lower than the 59.8 percent AM peak period ICR and 64.2 percent PM peak period ICR evaluated in the Updated 28.7% HBW ICR and the FEIR (2016). Scenarios with a 10-percentage-point reduction utilize an AM peak period ICR of 49.8 percent and a PM peak period ICR of 54.2 percent. Scenarios with a 20 percentage point reduction utilize an AM peak period ICR of 39.8 percent and a PM peak period ICR of 44.2 percent. The 10 and 20 percentage point ICR reduction scenarios include full project buildout and 25, 50 and 75 percent of project buildout.

Nine of the scenarios include residential development ranging from 3,000 to 14,000 dwelling units and schools and parks as required by applicable land use laws and regulations, with no complementary commercial/light industrial amenities or onsite employment-generating land uses. These scenarios would vary substantially from the proposed project development and would be inconsistent with the Grapevine Specific Plan. The scenarios consider potential impacts from residential development without onsite complementary employment and other amenity land uses.

Four of the scenarios include commercial/light industrial development ranging from 1.275 to 5.1 million square feet with no onsite dwelling units and complementary residential school or park amenities. These scenarios would vary substantially from the proposed project development and would be inconsistent with the Grapevine Specific Plan. The scenarios consider potential impacts from commercial/light industrial development without onsite residential and other complementary land uses.

One of the scenarios includes the potential development of 14,000 dwelling units with a reduction in onsite commercial/light industrial as permitted under the proposed Grapevine Specific Plan.

The 22 Screening Scenarios are described in more detail below:

Scenario 1 Proposed project development of 12,000 dwelling units and 5.1 million square feet of commercial/light industrial land uses with a 10-percentage-point reduction in the project's ICRs from the levels used in the FEIR (2016) and Updated 28.7% HBW ICR analysis.

Scenario 2 Proposed project development of 12,000 dwelling units and 5.1 million square feet of commercial/light industrial land uses with a 20-percentage-point reduction in the project's ICRs from the levels used in the FEIR (2016) and Updated 28.7% HBW ICR analysis.

Scenario 3 Proposed project development of 75 percent of 12,000 dwelling units and 5.1 million square feet of commercial/light industrial land uses (9,000 dwelling units and 3.825 million square feet of commercial/light industrial land uses) with a 10 percentage point reduction in the project's ICRs from the levels used in the FEIR (2016) and Updated 28.7% HBW ICR analysis.

Scenario 4 Proposed project development of 75 percent of 12,000 dwelling units and 5.1 million square feet of commercial/light industrial land uses (9,000 dwelling units and 3.825 million square feet of commercial/light industrial land uses) with a 20 percentage point reduction in the project's ICRs from the levels used in the FEIR (2016) and Updated 28.7% HBW ICR analysis.

Scenario 5 Proposed project development of 50 percent of 12,000 dwelling units and 5.1 million square feet of commercial/light industrial land uses (6,000 dwelling units and 2.550 million square feet of commercial/light industrial land uses) with a 10 percentage point reduction in the project's ICRs from the levels used in the FEIR (2016) and Updated 28.7% HBW ICR analysis.

Scenario 6 Proposed project development of 50 percent of 12,000 dwelling units and 5.1 million square feet of commercial/light industrial land uses (6,000 dwelling units and 2.550 million square feet of commercial/light industrial land uses) with a 20 percentage point reduction in the project's ICRs from the levels used in the FEIR (2016) and Updated 28.7% HBW ICR analysis.

Scenario 7 Proposed project development of 25 percent of 12,000 dwelling units and 5.1 million square feet of commercial/light industrial land uses (3,000 dwelling units and 1.275 million square feet of commercial/light industrial land uses) with a 10 percentage point reduction in the project's ICRs from the levels used in the FEIR (2016) and Updated 28.7% HBW ICR analysis.

Scenario 8 Proposed project development of 25 percent of 12,000 dwelling units and 5.1 million square feet of commercial/light industrial land uses (3,000 dwelling units and 1.27 million square feet of commercial/light industrial land uses) with a 20 percentage point reduction in the project's ICRs from the levels used in the FEIR (2016) and Updated 28.7% HBW ICR analysis.

Scenario 9 Development of 14,000 dwelling units and schools and parks as required by applicable land use laws and regulations, with no complementary commercial/light industrial amenities or onsite employment-generating land uses.

Scenario 10 Development of 12,000 dwelling units and schools and parks as required by applicable land use laws and regulations, with no complementary commercial/light industrial amenities or onsite employment-generating land uses.

Scenario 11 Development of 10,500 dwelling units and schools and parks as required by applicable land use laws and regulations, with no complementary commercial/light industrial amenities or onsite employment-generating land uses.

Scenario 12 Development of 9,000 dwelling units and schools and parks as required by applicable land use laws and regulations, with no complementary commercial/light industrial amenities or onsite employment-generating land uses.

Scenario 13 Development of 7,000 dwelling units and schools and parks as required by applicable land use laws and regulations, with no complementary commercial/light industrial amenities or onsite employment-generating land uses.

Scenario 14 Development of 6,000 dwelling units and schools and parks as required by applicable land use laws and regulations, with no complementary commercial/light industrial amenities or onsite employment-generating land uses.

Scenario 15 Development of 5,000 dwelling units and schools and parks as required by applicable land use laws and regulations, with no complementary commercial/light industrial amenities or onsite employment-generating land uses.

Scenario 16 Development of 3,500 dwelling units and schools and parks as required by applicable land use laws and regulations, with no complementary commercial/light industrial amenities or onsite employment-generating land uses.

Scenario 17 Development of 3,000 dwelling units and schools and parks as required by applicable land use laws and regulations, with no complementary commercial/light industrial amenities or onsite employment-generating land uses.

Scenario 18 Development of 5.1 million square feet of commercial/light industrial uses with no onsite dwelling units and complementary residential school or park amenities.

Scenario 19 Development of 3.825 million square feet of commercial/light industrial uses with no onsite dwelling units and complementary residential school or park amenities.

Scenario 20 Development of 2.55 million square feet of commercial/light industrial uses with no onsite dwelling units and complementary residential school or park amenities.

Scenario 21 Development of 1.275 million square feet of commercial/light industrial uses with no onsite dwelling units and complementary residential school or park amenities.

Scenario 22 Development of 14,000 dwelling units, subject to the reduction of onsite commercial/light industrial uses to about 3.1 million square feet, as permitted under the proposed Project Specific Plan.

Reduced ICR Scenario Screening

Daily and peak AM and PM hour trips and average weekday VMT were calculated for each of the 22 scenarios and compared with the Updated 28.7% HBW ICR daily and peak AM and PM hour trips and VMT. The number of daily and peak hour trips was used as a screening criterion because trip counts directly affect potential transportation system impacts, including the maintenance of acceptable roadway or intersection level of service standards. Average weekday VMT was used as a screening criterion because the amount of VMT is proportional to the number and length of trips that are external to the project. Scenarios with higher levels of trips and/or VMT could result in greater transportation and traffic impacts than identified in the Updated 28.7% HBW ICR and FEIR (2016).

Table 4.16-11, *Updated 28.7% HBW ICR Daily and AM and PM Peak Hour Trips*, summarizes the AM and PM peak hour trips and ADT for the Updated 28.7% HBW ICR. These trip counts were compared with and used to screen each of the 22 reduced ICR Screening Scenarios.

Table 4.16-11. Updated 28.7% HBW ICR Daily and AM and PM Peak Hour Trips

Land Use Scenario	A.M. Peak Hour Total	P.M. Peak Hour Total	Daily Total
12,000 Dwelling Units (DUs) and 5.1 Million Square Feet (MSF) of Non-residential Land Uses	18,119	19,699	197,685

Source: Fehr & Peers 2019.

Table 4.16-12, *Summary of ITE Trip Generation Estimates, VMT and ICRs – All Scenarios* summarizes the daily and peak AM and PM hour trip volumes, Weekday Daily VMT, and ICRs for AM and PM peak hours for the Updated 28.7% HBW ICR analysis and each of the 22 reduced ICR analysis Screening Scenarios. The reported results were the same used for the screening process and the table supports and shows comparison of the results with the Updated 28.7% HBW ICR trip volumes. Daily and peak period trip generation rates are directly related to the total amount of each land use included in the ITE Manual. Table 4.16-12 shows that none of the 22 scenarios include a mix of land uses that would result in a larger volume of daily or peak AM and PM hour trips than shown in Table 4.16-11 for the Updated 28.7% HBW ICR.

The 22 Screening Scenarios were next screened by comparing each scenario's average weekday VMT with Updated 28.7% HBW ICR average weekday VMT of 3,114,939 miles. Table 4.16-12 summarizes the average weekday VMT for each of the 22 scenarios and the percentage decrease or increase in VMT relative to the Updated 28.7% HBW ICR level.

Table 4.16-12. Summary of ITE Trip Generation Estimates, VMT and ICRs – All Scenarios

Land Use Scenario	A.M. Peak Hour Total	P.M. Peak Hour Total	Daily Total	Weekday Daily VMT Total	ICRs	
					AM Peak Hour	PM Peak Hour
FEIR (2016) – 28.7% HBW ICR Analysis - 12,000 Dwelling Units (DUs) and 5.1 Million Square Feet (MSF) of Non-residential Land Uses	17,512	20,713	201,542	3,175,626	59.8%	64.2%
Updated 28.7% HBW ICR - 12,000 Dwelling Units (DUs) and 5.1 Million Square Feet (MSF) of Non-residential Land Uses	18,119	19,699	197,685	3,114,939	59.8%	64.2%
Scenario 1 – Proposed Project Development of 12,000 Dwelling Units (DUs) and 5.1 Million Square Feet (MSF) of Commercial/light Industrial land uses with a 10% Reduction in Internal Capture Rate	18,119	19,699	197,685	2,911,177	49.8%	54.2%
Percentage (Increase or Decrease) from Updated 28.7% HBW ICR analysis for Trip Generation and VMT. Delta (Decrease) for ICR.	No Change	No Change	No Change	-6.5%	10%	10%
Scenario 2 - Proposed Project Development of 12,000 DUs and 5.1 MSF of Commercial/light Industrial land uses with a 20% Reduction in Internal Capture Rate	18,119	19,699	197,685	3,440,599	39.8%	44.2%

Table 4.16-12. Summary of ITE Trip Generation Estimates, VMT and ICRs – All Scenarios

Land Use Scenario	A.M. Peak Hour Total	P.M. Peak Hour Total	Daily Total	Weekday Daily VMT Total	ICRs AM Peak Hour	ICRs PM Peak Hour
Percentage Increase or Decrease from Updated 28.7% HBW ICR analysis	No Change	No Change	No Change	+10.5%	20%	20%
Scenario 3 –75% of Proposed Project Development of 12,000 DUs and 5.1 MSF of Commercial/light Industrial land uses (9,000 DUs and 3.825 MSF of Non-residential Land Uses) With a 10% Reduction in Internal Capture Rate	13,590	14,775	148,266	1,940,395	39.8%	44.2%
Percentage (Increase or Decrease) from Updated 28.7% HBW ICR analysis for Trip Generation and VMT. Delta (Decrease) for ICR.	-25%	-25%	-25%	-37.7%	20%	20%
Scenario 4 – 75% of Proposed Project Development of 12,000 DUs and 5.1 MSF of Commercial/light Industrial land uses (9,000 DUs and 3.825 MSF of Non-residential Land Uses) with a 20% Reduction in Internal Capture Rate	13,590	14,775	148,266	2,293,779	39.8%	44.2%
Percentage (Increase or Decrease) from Updated 28.7% HBW ICR analysis for Trip Generation and VMT. Delta (Decrease) for ICR.	-25%	-25%	-25%	-26.4%	20%	20%
Scenario 5 –50% of Proposed Project Development of 12,000 DUs and 5.1 MSF of Commercial/light Industrial land uses (6,000 DUs and 2.550 MSF of Non-residential Land Uses) with a 10% Reduction in Internal Capture Rate	9,060	9,850	98,846	970,432	49.8%	54.2%
Percentage (Increase or Decrease) from Updated 28.7% HBW ICR analysis for Trip Generation and VMT. Delta (Decrease) for ICR.	-50%	-50%	-50%	-68.8%	10%	10%
Scenario 6– 50% of Proposed Project Development of 12,000 DUs and 5.1 MSF of Commercial/light Industrial land uses (6,000 DUs and 2.550 MSF of Non-residential Land Uses) With a 20% Reduction in Internal Capture Rate	9,060	9,850	98,846	1,146,913	39.8%	44.2%

Table 4.16-12. Summary of ITE Trip Generation Estimates, VMT and ICRs – All Scenarios

Land Use Scenario	A.M. Peak Hour Total	P.M. Peak Hour Total	Daily Total	Weekday Daily VMT Total	ICRs AM Peak Hour	ICRs PM Peak Hour
Percentage (Increase or Decrease) from Updated 28.7% HBW ICR analysis for Trip Generation and VMT. Delta (Decrease) for ICR.	-50%	-50%	-50%	-63.2%	20%	20%
Scenario 7 – 25% of Proposed Project Development of 12,000 DUs and 5.1 MSF of Commercial/light Industrial land uses (3,000 DUs and 1.270 MSF of Non-residential Land Uses) With a 10% Reduction in Internal Capture Rate	4,530	4,925	49,424	4,336,327	49.8%	54.2%
Percentage (Increase or Decrease) from Updated 28.7% HBW ICR analysis for Trip Generation and VMT. Delta (Decrease) for ICR.	-75%	-75%	-75%	+39.2%	10%	10%
Scenario 8 – 225% of Proposed Project Development of 12,000 DUs and 5.1 MSF of Commercial/light Industrial land uses (3,000 DUs and 1.270 MSF of Non-residential Land Uses) With a 20% Reduction in Internal Capture Rate	4,530	4,925	49,424	3,716,852	39.8%	44.2%
Percentage (Increase or Decrease) from Updated 28.7% HBW ICR analysis for Trip Generation and VMT. Delta (Decrease) for ICR.	-75%	-75%	-75%	+19.3%	20%	20%
Scenario 9 – 14,000 DUs with Legally-required Schools and Parks Schools and Parks and No complementary commercial/light industrial amenities or onsite employment-generating land uses	16,025	13,863	145,616	3,052,247	21.3%	6.5%
Percentage (Increase or Decrease) from Updated 28.7% HBW ICR analysis for Trip Generation and VMT. Delta (Decrease) for ICR.	-11.6%	-29.6%	-26.3%	-2.0%	38.5%	57.7%

Table 4.16-12. Summary of ITE Trip Generation Estimates, VMT and ICRs – All Scenarios

Land Use Scenario	A.M. Peak Hour Total	P.M. Peak Hour Total	Daily Total	Weekday Daily VMT Total	ICRs AM Peak Hour	ICRs PM Peak Hour
Scenario 10 – 12,000 DUs with Legally-required Schools and Parks Schools and Parks and No complementary commercial/light industrial amenities or onsite employment-generating land uses	13,736	11,882	124,814	2,787,641	21.3%	6.5%
Percentage (Increase or Decrease) from Updated 28.7% HBW ICR analysis for Trip Generation and VMT. Delta (Decrease) for ICR.	-24.2%	-39.7%	-36.9%	-10.5%	38.5%	57.7%
Scenario 11 – 10,500 DUs with Legally-required Schools and Parks Schools and Parks and No complementary commercial/light industrial amenities or onsite employment-generating land uses	12,019	10,397	109,214	2,168,165	21.3%	6.5%
Percentage (Increase or Decrease) from Updated 28.7% HBW ICR analysis for Trip Generation and VMT. Delta (Decrease) for ICR.	-33.7%	-47.2%	-44.8%	-30.4%	38.5%	57.7%
Scenario 12 – 9,000 DUs with Legally-required Schools and Parks Schools and Parks and No complementary commercial/light industrial amenities or onsite employment-generating land uses	10,303	8,912	93,612	1,858,429	21.3%	6.5%
Percentage (Increase or Decrease) from Updated 28.7% HBW ICR analysis for Trip Generation and VMT. Delta (Decrease) for ICR.	-43.1%	-54.8%	-52.6%	-40.3%	38.5%	57.7%
Scenario 13 – 7,000 DUs with Legally-required Schools and Parks Schools and Parks and No complementary commercial/light industrial amenities or onsite employment-generating land uses	8,013	6,932	72,810	1,084,083	21.3%	6.5%
Percentage (Increase or Decrease) from Updated 28.7% HBW ICR analysis for Trip Generation and VMT. Delta (Decrease) for ICR.	-55.8%	-64.8%	-62.2%	-65.2%	38.5%	57.7%

Table 4.16-12. Summary of ITE Trip Generation Estimates, VMT and ICRs – All Scenarios

Land Use Scenario	A.M. Peak Hour Total	P.M. Peak Hour Total	Daily Total	Weekday Daily VMT Total	ICRs AM Peak Hour	ICRs PM Peak Hour
Scenario 14 – 6,000 DUs with Legally-required Schools and Parks Schools and Parks and No complementary commercial/light industrial amenities or onsite employment-generating land uses	6,868	5,941	62,410	929,217	21.3%	6.5%
Percentage (Increase or Decrease) from Updated 28.7% HBW ICR analysis for Trip Generation and VMT. Delta (Decrease) for ICR.	-62.1%	-69.8%	-68.4%	-70.2%	38.5%	57.7%
Scenario 15– 3,500 DUs with Legally-required Schools and Parks Schools and Parks and No complementary commercial/light industrial amenities or onsite employment-generating land uses	4,007	3,466	36,406	2,667,578	21.3%	6.5%
Percentage (Increase or Decrease) from Updated 28.7% HBW ICR analysis for Trip Generation and VMT. Delta (Decrease) for ICR.	-77.9%	-82.4%	-81.6%	-14.4%	38.5%	57.7%
Scenario 16 – 3,000 DUs with Legally-required Schools and Parks Schools and Parks and No complementary commercial/light industrial amenities or onsite employment-generating land uses	3,434	2,971	31,208	2,000,757	21.3%	6.5%
Percentage (Increase or Decrease) from Updated 28.7% HBW ICR analysis for Trip Generation and VMT. Delta (Decrease) for ICR.	-81.0%	-84.9%	-84.2%	-35.8%	38.5%	57.7%
Scenario 17 – 5.1 MSF of commercial/light industrial uses with no onsite dwelling units and complementary residential school or park amenities	4,383	7,817	72,872	-57.1%	0.0 %	0.0 %
Percentage (Increase or Decrease) from Updated 28.7% HBW ICR analysis for Trip Generation and VMT. Delta (Decrease) for ICR.	-75.8%	-60.3%	-63.1%		59.8%	64.2%

Table 4.16-12. Summary of ITE Trip Generation Estimates, VMT and ICRs – All Scenarios

Land Use Scenario	A.M. Peak Hour Total	P.M. Peak Hour Total	Daily Total	Weekday Daily VMT Total	ICRs AM Peak Hour	ICRs PM Peak Hour
Scenario 18 – 3.825 MSF of commercial/light industrial uses with no onsite dwelling units and complementary residential school or park amenities	3,287	5,863	54,656	-78.6%	0.0 %	0.0 %
Percentage Increase or Decrease from Updated 28.7% HBW ICR analysis	-81.9%	-70.2%	-72.3%		59.8%	64.2%
Scenario 19 – 2.550 MSF of commercial/light industrial uses with no onsite dwelling units and complementary residential school or park amenities	2,192	3,909	36,436	-5.7%	0.0 %	0.0 %
Percentage (Increase or Decrease) from Updated 28.7% HBW ICR analysis for Trip Generation and VMT. Delta (Decrease) for ICR.	-87.9%	-80.1%	-81.6%		59.8%	64.2%
Scenario 21 – 1.275 MSF of commercial/light industrial uses with no onsite dwelling units and complementary residential school or park amenities	1,095	1,954	18,218		0.0 %	0.0 %
Percentage (Increase or Decrease) from Updated 28.7% HBW ICR analysis for Trip Generation and VMT. Delta (Decrease) for ICR.	-93.9%	-90.1%	-90.8%		59.8%	64.2%
Scenario 22 – 14,000 DUs, subject to reduction of onsite commercial/light industrial uses to about 3.1 MSF as permitted under the proposed Project Specific Plan	17,934	18,797	196,797		59.8%	64.2%
Percentage (Increase or Decrease) from Updated 28.7% HBW ICR analysis for Trip Generation and VMT. Delta (Decrease) for ICR.	-1.0%	-4.5%	-0.4%		0%	0%

Source: Fehr & Peers 2019.
Notes: DUs = dwelling units; ksf = thousand square feet

The ADT and weekday VMT for the 22 Screening Scenarios were compared with the ADT and VMT for the Updated 28.7% HBW ICR. None of the scenarios were found to generate a higher number of daily trips than the Updated 28.7% HBW ICR.

As shown in Table 4.16-12, the weekday VMT in five of the Screening Scenarios was determined to be higher than considered in the Updated 28.7% HBW ICR and the FEIR (2016) because a larger proportion of project trips would be external and extend for longer distances due to the lower ICRs assumed in the scenarios. These five scenarios were selected for further analysis and are referred to as the Reduced ICR Scenarios. For ease of reference as previously introduced in Chapter 3, *Project Description*, the five Reduced ICR Scenarios have been renamed in order of presentation. The five Reduced ICR Screening Scenarios were re-labeled as Reduced ICR Scenarios A through E, respectively. All Reduced ICR Scenarios have been analyzed in detail, and compared to the Updated 28.7% HBW ICR project buildout scenario.

- **Scenario A** assumes proposed project development of 12,000 dwelling units and 5.1 million square feet of commercial/light Industrial land uses with a 10-percentage-point reduction in peak period ICRs from 59.8 percent to 49.8 percent in the AM peak period and from 64.2 percent to 54.2 percent in the PM peak period. Due to the increased number of external trips associated with lower ICRs, the average weekday VMT in Scenario A would be 3,881,511 miles, 24.6 percent higher than the Updated 28.7% HBW ICR level (Screening Scenario 1 and Scenario 1 in the 2019 Traffic Study, Volume 4, Appendix E.2).
- **Scenario B** assumes proposed project development of 12,000 dwelling units and 5.1 million square feet of commercial/light Industrial land uses with a 20-percentage-point reduction in peak period ICRs from 59.8 percent to 39.8 percent in the AM peak period and from 64.2 percent to 44.2 percent in the PM peak period. Due to the increased number of external trips associated with lower ICRs, the average weekday VMT in Scenario B would be 4,587,395 miles, 47.3 percent higher than the Updated 28.7% HBW ICR level (Screening Scenario 2 and Scenario 2 in the 2019 Traffic Study, Volume 4, Appendix E.2).
- **Scenario C** assumes proposed project development of 75 percent of 12,000 dwelling units and 5.1 million square feet of commercial/light industrial land uses (9,000 dwelling units and 3.825 million square feet of commercial/light industrial land uses) with a 20-percentage-point reduction in peak period ICRs from 59.8 percent to 39.8 percent in the AM peak period and from 64.2 percent to 44.2 percent in the PM peak period. Due to the increased number of external trips associated with lower ICRs, the average weekday VMT in Scenario C would be 3,440,598 miles, 10.5 percent higher than the Updated 28.7% HBW ICR level (Screening Scenario 4 and Scenario 4 in in the 2019 Traffic Study, Volume 4, Appendix E.2).
- **Scenario D** assumes development of 14,000 dwelling units and schools and parks as required by applicable land use laws and regulations, with no complementary commercial/light industrial amenities or onsite employment-generating land uses. As a result, project residents would be required to travel to external locations for work, shopping, medical, recreational, and other purposes. The average weekday VMT in Scenario D would be 4,336,327 miles, 39.2 percent higher than the Updated 28.7% HBW ICR level (Screening Scenario 9 and Scenario 9 in the 2019 Traffic Study, Volume 4, Appendix E.2).
- **Scenario E** assumes development of 12,000 dwelling units and schools and parks as required by applicable land use laws and regulations, with no complementary commercial/light industrial amenities or onsite employment-generating land uses. The average weekday VMT in Scenario E would be 3,716,852 miles, 19.3 percent higher than the Updated 28.7% HBW ICR level (Screening Scenario 10 and Scenario 10 in the 2019 Traffic Study, Volume 4, Appendix E.2).

None of the other 22 scenarios would result in daily or peak period trip volumes or weekday VMT above the Updated 28.7% HBW ICR levels. These scenarios would not be expected to generate new or more significant impacts relative to the Updated 28.7% HBW ICR and the FEIR (2016). The five Reduced ICR Scenarios with higher weekday VMT than the Updated 28.7% HBW ICR could potentially result in new significant traffic and transportation impacts and were analyzed in detail as summarized below.

Thresholds of Significance

As discussed in Chapter 2, *Introduction,* the County determined that that the thresholds of significance used in the 2016 EIR do not require modification to address the 2018 revisions to CEQA Appendix G. Accordingly, the Kern County CEQA Implementation Document and Kern County Environmental Checklist utilized in the 2016 EIR state that a project would have a significant impact on Traffic and Transportation if it would:

- Conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit.
- Conflict with an applicable congestion management program, including, but not limited to, level of service (LOS) standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways:
    i. Metropolitan Bakersfield General Plan LOS "C"
    ii. Kern County General Plan LOS "D."
- Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks.
- Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).
- Result in inadequate emergency access.
- Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

The lead agency determined in the DEIR (2016) Notice of Preparation (NOP)/Initial Study (IS; see DEIR [2016] Appendix A [Volume 6]) that the following environmental issue area resulted in no impact or a less than significant impact and was scoped out of requiring further review in the 2016 EIR. Please refer to Appendix A of the DEIR (2016) (Volume 6) for a copy of the NOP/IS and additional information regarding the following impact:

- Metropolitan Bakersfield General Plan LOS "C."

The project site is not located in or near the metropolitan Bakersfield area. Therefore, no impacts would occur to Bakersfield metropolitan area roadways. However, potential project impacts under cumulative conditions to freeway segments and ramps along SR-99 within the City of Bakersfield were analyzed in the 2016 EIR and are considered in this section for the new material in this SREIR.

As discussed in the 2016 EIR, the Kern County General Plan Land Use and Circulation Element provides that development proposed as part of a community plan or specific plan that utilizes smart

growth policies that encourage efficient multi-modal movements is allowed the flexibility to assess traffic and safety impacts through other means than LOS. While the project has been designed to encourage efficient multi-modal movement consistent with the General Plan, for purposes of the 2016 EIR and 2019 Traffic Study, consistent with the Kern County CEQA Implementation Document and Kern County Environmental Checklist, local and project roadway and intersections that exceed LOS D were identified as impacted.

As discussed in the 2016 EIR, LOS D is used as the threshold for passenger vehicles and density as the measure of effectiveness for heavy vehicles for the evaluation of the Grapevine Grade on I-5.

Project Impacts

Impact 4.16-1: Conflict with an Applicable Plan, Ordinance, or Policy Establishing Measures of Effectiveness for the Performance of the Circulation System

As discussed above, one or more of the Reduced ICR Scenarios could result in new significant impacts to local intersections, local roadways, local freeway segments, and state highway and freeway facilities to the south and north of the project area compared with the FEIR (2016) and Updated 28.7% HBW ICR analysis. Each of the Reduced ICR Scenarios would generate a greater volume of peak AM and PM hour external trips and higher levels of average weekday VMT than in the FEIR (2016) and Updated 28.7% HBW ICR analysis (2019 Traffic Study, Table 1.10). These increases would result in greater use of project interim access facilities and adjacent intersections, and a greater volume of trips and VMT on external highways and freeways. A new interchange would likely be required earlier in the development process than considered in the FEIR (2016) and Updated 28.7% HBW ICR analysis to avoid exceeding applicable LOS levels on interim access facilities. Consequently, potential traffic circulation impacts in one or more of the Reduced ICR Scenarios are greater than in the Updated 28.7% HBW ICR and FEIR (2016) analysis.

Reduced ICR Scenarios Evaluated in Detail

The analysis of potential impacts that could occur under each of the Reduced ICR Scenarios is discussed in detail in Section 4 to Section 9 of the 2019 Traffic Study. That section:

- Summarizes the results of the analysis;
- Identifies potential significant impacts that could occur under one or more of the scenarios;
- Provides amended project mitigation measures to address the potential significant impacts; and
- Summarizes the significance determinations for the Reduced ICR Scenarios.

Potential project impacts that could occur under one or more of these five Reduced ICR Scenarios were analyzed under cumulative plus project conditions using the same methodology as the Updated 28.7% HBW ICR analysis. The analysis found that new significant potential impacts could occur under one or more of the Reduced ICR Scenarios. The FEIR (2016) mitigation measures were amended to address these new potentially significant impacts. With the implementation of the amended mitigation measures, potential Reduced ICR Scenario impacts would be reduced to less than significant levels.

As shown in Table 4.16-13, *AM and PM Peak Period ICRs for the FEIR (2016), Updated 28.7% HBW ICR, and Reduced ICR Scenarios*, each of the Reduced ICR Scenarios would have peak AM and PM period ICRs significantly below the levels considered in the FEIR (2016) and Updated 28.7% HBW ICR. Scenario A assumes ICRs that are 10 percentage points lower than used in the FEIR (2016) and Updated 28.7% HBW ICR analysis. Scenarios B and C assume ICRs that are 20 percentage points lower than in the FEIR (2016) and Updated 28.7% HBW ICR. Scenarios D and E, which assume residential housing development without complementary onsite amenities or job-creating land uses, result in an AM peak period ICR of 21.3 percent and an AM peak period ICR of 6.5 percent. These two scenarios assume that close to 80 percent of all project trips in the AM peak period, and more than 93 percent of all project trips in the PM peak period for all purposes, including work, shopping, recreation, medical care, and other services, will be external to the project site.

Table 4.16-13. AM and PM Peak Period ICRs for the FEIR (2016), Updated 28.7% HBW ICR, and Reduced ICR Scenarios

Scenario	AM ICR	PM ICR
FEIR (2016)	59.8%	64.2%
Updated 28.7% HBW ICR	59.8%	64.2%
Scenario A: 12,000 DUs + 5.1 MSF + 10% ICR Reduction	49.8%	54.2%
Scenario B: 12,000 DUs + 5.1 MSF + 20% ICR Reduction	39.8%	44.2%
Scenario C: 75% of 12,000 DUs + 5.1 MSF + 20% ICR Reduction	39.8%	44.2%
Scenario D: 14,000 DUs, no onsite amenities or commercial/industrial	21.3%	6.5%
Scenario E: 12,000 DUs, no onsite amenities or commercial/industrial	21.3%	6.5%

Source: Fehr & Peers 2019.

The total AM and PM peak hour trips for the FEIR (2016), Updated 28.7% HBW ICR, and five reduced ICR scenarios, are summarized in Table 4.16-14, *AM and PM Peak Period Trips for the FEIR (2016), Updated 28.7% HBW ICR, and Reduced ICR Scenarios*. Peak hour trips for the Updated 28.7% HBW ICR, Scenario A and Scenario B are the same because each assume full project buildout and include the same amount of land uses subject to the trip generation rates in the ITE Manual. Weekday VMT is higher in Scenarios A and B because a greater proportion of project trips are assumed to be external than in the Updated 28.7% HBW ICR. Scenarios C, D, and E result in lower total peak period trips than the Updated 28.7% HBW ICR but result in higher VMT because each scenario assumes that a larger proportion of all peak period trips would consist of longer, external trips.

Table 4.16-14. AM and PM Peak Period Trips for the FEIR (2016), Updated 28.7% HBW ICR, and Reduced ICR Scenarios

Scenario	Total AM Peak Period Trips	Total PM Peak Period Trips
FEIR 2016	17,512	20,713
Updated 28.7% HBW ICR	18,119	19,699
Scenario A	18,119	19,699
Scenario B	18,119	19,699

Table 4.16-14. AM and PM Peak Period Trips for the FEIR (2016), Updated 28.7% HBW ICR, and Reduced ICR Scenarios

Scenario	Total AM Peak Period Trips	Total PM Peak Period Trips
Scenario C	13,590	14,775
Scenario D	16,025	13,863
Scenario E	13,736	11,882

Source: Fehr & Peers 2019.

To evaluate the Reduced ICR Scenarios, the total peak period trip volumes were allocated between internal and external trips as required to achieve the ICR reductions applicable to each scenario. The total number of AM peak period trips, for example, is 18,119 for the Updated 28.7% HBW ICR, Scenario A and Scenario B. The AM ICRs for the Updated 28.7% HBW ICR, Scenario A, and Scenario B are 59.8 percent, 49.8 percent, and 39.8 percent, respectively. As a result, the Updated 28.7% HBW ICR analyzed impacts assuming that 10,835 (59.8 percent) of the total AM peak period trips would be internal and 7,284 trips would be external. Scenario A assumes that 9,023 (49.8 percent) of the total AM peak period trips would be internal and 9,096 trips would be external. Scenario B assumes that 7,211 trips (39.8 percent) of the total AM peak period trips would be internal and 10,908 trips would be external. To provide a conservative analysis, the Reduced ICR Scenario evaluation first reduced internal Home-Based Work trips, which typically comprise the longest external trips, and then reduced the number of Home-Based Other and Non-Home Based trips. As discussed above, the FEIR (2016) and Updated 28.7% HBW ICR assumed that the AM and PM peak period Home-Based Work ICR would be 28.7 percent as requested by Caltrans. In comparison, the Reduced ICR Scenario Analysis assumes that no Home-Based Work trips will be internal to the project (a zero percent ICR) for all five Reduced ICR Scenarios in the PM peak period, and in all scenarios except Scenario A in the AM peak period. The AM peak period Home-Based Work trip ICR for Scenario A would be 7.7 percent. The allocation of AM and PM peak period trips in the Reduced ICR Scenario analysis is described in more detail in Section 1.10 of the 2019 Traffic Study.

The following tables compare the potential impacts that could potentially occur under one or more of the Reduced ICR Scenarios with the impacts identified in the FEIR (2016) and Updated 28.7% HBW ICR analysis.

Table 4.16-15, *Potentially Significant Local Intersection Impact Summary,* shows that one or more of the Reduced ICR Scenarios could result in potential significant impacts to two additional intersections as well as four of the five intersections subject to impacts in the FEIR (2016) analysis and the three intersections where impacts would occur in the Updated 28.7% HBW ICR analysis.

Table 4.16-16, *Feasible Onsite Mitigation for Potentially Significant Intersection Impacts,* identifies feasible improvements that could be implemented within the footprint of the project as evaluated in the 2016 EIR that would reduce potentially significant intersection impacts that could occur in the FEIR (2016), Updated 28.7% HBW ICR or in one or more of the Reduced ICR Scenarios to less than significant levels.

Table 4.16-15. Potentially Significant Local Intersection Impact Summary (FEIR (2016), Updated 28.7% HBW ICR and Reduced ICR Scenario, Cumulative Plus Project Conditions)

Intersection	FEIR (2016)	Updated 28.7% HBW ICR	One or More Reduced ICR Scenarios
S. Wheeler Ridge Road / Laval Road PM Peak Hour			✓ (B,C,D)
Street C / Street A PM Peak Hour	✓		
Street D / Street A AM and PM Peak Hours	✓	✓	✓ (All)
Street C / Street G PM Peak Hour	✓	✓	✓ (B,C,D)
Street C / Street H AM Peak Hour			✓(All)
Street C / Street H PM Peak Hour	✓		✓(All)
Street I / Street A	✓	✓	✓(All)

Source: Fehr & Peers 2019.

Table 4.16-16. Feasible Onsite Mitigation for Potentially Significant Intersection Impacts

Intersection & Improvement	FEIR (2016)	Updated 28.7% HBW ICR	One or More Reduced ICR Scenarios
Street C / Street H, AM and PM Peak Hours - A third northbound through lane	✓		✓ (All)
Street D / Street A, AM and PM Peak Hour - A shared westbound through / right-turn lane and shared eastbound through / right-turn lane	✓	✓	✓ (All)
Street C / Street G, PM – Signal timing coordination with Street C / Street A	✓	✓	✓ (B,C,D)
Street I / Street A, PM Peak Hour – New traffic signal	✓	✓	✓ (All)
S. Wheeler Ridge Road / Laval Road, PM Peak Hour - Stripe the second southbound left-turn lane			✓ (B,C,D)
Street A/Street C, PM Peak Hour- A second westbound right-turn lane from the I-5 southbound off-ramp to C Street	✓		

Source: Fehr & Peers 2019

Table 4.16-17, *Potentially Significant Local Roadway Impact Summary*, shows that one or more of the Reduced ICR Scenarios could result in potential significant impacts to two additional roadway segments, as well as the Street A segment between Street D and Street I that would be subject to impacts in the FEIR (2016) and the Updated 28.7% HBW ICR analysis.

Table 4.16-17. Potentially Significant Local Roadway Impact Summary (FEIR (2016), Updated 28.7% HBW ICR and Reduced ICR Scenarios, Cumulative Plus Project Conditions)

Roadway	FEIR (2016)	Updated 28.7% HBW ICR	One or More Reduced ICR Scenarios
Wheeler Ridge Rd: North of Santa Elena Dr.			✓(All)
Street C: Aqueduct Crossing to Street E			✓(B,C,D,E)
Street A: Street D to Street I	✓	✓	✓(A,B,D,E)

Source: Fehr & Peers 2019

Table 4.16-18, *Feasible Onsite Mitigation for Potentially Significant Roadway Impacts*, identifies feasible improvements that could be implemented within the footprint of the project as evaluated in the 2016 EIR that would reduce potentially significant roadway impacts that could occur in the FEIR (2016), Updated 28.7% HBW ICR or in one or more of the Reduced ICR Scenarios to less than significant levels.

Table 4.16-18. Feasible Onsite Mitigation for Potentially Significant Roadway Impacts

Roadway	FEIR (2016)	Updated 28.7% HBW ICR	One or More Reduced ICR Scenarios
Street A between Street D and Street I – Construct 6-lane arterial from Street D to Street I, and construct 4-lane arterial between Street I and Street N.	✓	✓	✓ (A,B,D,E)
Wheeler Ridge Road north of Santa Elena Drive – Extend two northbound travel lanes to 1,500 feet north of Santa Elena Drive			✓ (All)
Street C from Aqueduct crossing to Street E – Widen from a 2-lane to a 4-lane roadway			✓ (B,C,D,E)

Source: Fehr & Peers 2019

Table 4.16-19, Potentially Significant Project Area Freeway Impact Summary, shows that one or more of the Reduced ICR Scenarios could result in 20 new significant impacts in addition to the two significant impacts that could occur on the Grapevine Grade in the FEIR (2016) and Updated 28.7% HBW ICR analysis.

Table 4.16-19. Potentially Significant Project Area Freeway Impact Summary (FEIR (2016), Updated 28.7% HBW ICR and Reduced ICR Scenarios, Cumulative Plus Project Conditions)

Freeway Segment	FEIR (2016)	Updated 28.7% HBW ICR	One or More Reduced ICR Scenarios
I-5 Northbound, Base of Grapevine Grade to Relocated Grapevine Interchange PM Peak Hour			✓(B)
I-5 Northbound, Grapevine Slip On-Ramp AM and PM Peak Hours			✓(All)
I-5 Northbound, Grapevine Slip On-Ramp to Laval Road East Off-Ramp AM and PM Peak Hours			✓(All)
I-5 Northbound, I-5 Northbound Off-ramp AM and PM Peak Hours			✓(All)
I-5 Northbound, Laval Road East Off-Ramp AM and PM Peak Hours			✓(A,B,D,E)
I-5 Northbound, Laval Road On-Ramp PM Peak Hour			✓(B,D,E)
I-5 Northbound, Laval Road On-Ramp to SR 99 Off-Ramp AM and PM Peak Hours			✓(All)
I-5 Northbound, Laval Road West Off-Ramp PM Peak Hour			✓(All)
I-5 Southbound, North of SR 99 Junction PM Peak Hour			✓(D)
I-5 Southbound, Grapevine Off-Ramp PM Peak Hour			✓(B,D,E)
I-5 Southbound, I-5 Southbound Auto / Truck Bypass PM Peak Hour			✓(D,E)
I-5 Southbound, Laval Road East Off-Ramp PM Peak Hour			✓(All)
I-5 Southbound, Laval Road On-Ramp PM Peak Hour			✓(D,E)

Table 4.16-19. Potentially Significant Project Area Freeway Impact Summary (FEIR (2016), Updated 28.7% HBW ICR and Reduced ICR Scenarios, Cumulative Plus Project Conditions)

Freeway Segment	FEIR (2016)	Updated 28.7% HBW ICR	One or More Reduced ICR Scenarios
I-5 Southbound, Laval Road to Grapevine PM Peak Hour			✓(B,C,D,E)
I-5 Southbound, Laval Road West Off-Ramp PM Peak Hour			✓(D,E)
I-5 Southbound, SR 99 to Laval Road PM Peak Hour			✓(D,E)
SR 99 Southbound, CVEF Off-Ramp PM Peak Hour			✓(D,E)
SR 99 Southbound, North of I-5 Junction PM Peak Hour			✓(D,E)
SR 99 Southbound, SR 99 Auto Lanes to I-5 Southbound PM Peak Hour			✓(B,D,E)
SR 99 Southbound, Truck Bypass Off-Ramp PM Peak Hour			✓(D,E)
Fort Tejon to Base of Grapevine Grade (6% Downgrade) PM Peak Hour	✓	✓	✓
Base of Grapevine Grade to Fort Tejon (6% Upgrade) AM and PM Peak Hours	✓	✓	✓

Source: Fehr & Peers 2019

Table 4.16-20, *Feasible Onsite Mitigation for Potentially Significant Project Area Freeway Impacts,* identifies feasible improvements that could be implemented within the footprint of the project as evaluated in the 2016 EIR that would reduce all of the potentially significant local freeway impacts that could occur in the FEIR (2016), Updated 28.7% HBW ICR or in one or more of the Reduced ICR Scenarios, except to the two freeway segments on the Grapevine Grade, to less than significant levels. As in the FEIR (2016) and Updated 28.7% HBW ICR analysis, potentially significant impacts that could occur to the northbound and southbound segments of the Grapevine Grade under cumulative plus project conditions would be subject to fair-share mitigation agreement between the project proponent and Caltrans in accordance with project Mitigation Measure MM 4.16-12. In 2017, the project proponent executed traffic mitigation agreements with Caltrans District 6 and Caltrans District 7 to mitigate project-related impacts to state highway facilities located in Kern and Los Angeles counties. In June 2017 Caltrans issued a PSR/PDS for the proposed new interchange to be located along I-5 that would be required to serve the project and other regional transportation demands prior to project buildout. As discussed below, MM 4.16-9 will be amended to require that the project's ICR levels be evaluated and reported to Caltrans earlier in the development process and that the project proponent implement transportation demand management strategies, provide fair share funding for impacts not covered by the 2017 fair share funding agreements, or a combination of these strategies to address potential impacts to state highway facilities.

Table 4.16-20. Feasible Onsite Mitigation for Potentially Significant Project Area Freeway Impacts			
Freeway Segment	FEIR (2016)	Updated 28.7% HBW ICR	One or More Reduced ICR Scenarios
I-5 Northbound, Base of Grapevine Grade to Relocated Grapevine Interchange PM Peak Hour – Extend NB I-5 Grapevine Off-Ramp Deceleration Lane			✓ (B)
I-5 Northbound, Grapevine Slip On-Ramp AM and PM Peak Hours – Two-lane on-ramp with peak hour ramp metering			✓ (All)
I-5 Northbound, Grapevine Slip On-Ramp to Laval Road East Off-Ramp AM and PM Peak Hours – Auxiliary lane between Grapevine Slip On-Ramp to Laval Road East Off-Ramp			✓ (All)
I-5 Northbound, Laval Road East Off-Ramp AM and PM Peak Hours - Auxiliary lane from the Grapevine on-ramp to the Laval Road East off-ramp			✓ (A,B,D,E)
I-5 Northbound, Laval Road On-Ramp PM Peak Hour – Extend Laval Road On-Ramp acceleration lane			✓ (B,D,E)
I-5 Northbound, Laval Road On-Ramp to SR 99 Off-Ramp AM and PM Peak Hours – Extension of on-ramp acceleration lane			✓ (All)
I-5 Northbound, Laval Road West Off-Ramp PM Peak Hour – Extend Laval Road West Off-Ramp deceleration lane			✓ (All)
I-5 Northbound, I-5 Northbound Off-ramp AM and PM Peak Hours – Provide dedicated two-lane off-ramp (eliminate shared off-ramp / through lane)			✓ (All)
I-5 Southbound, North of SR 99 Junction PM Peak Hour – Extend third Southbound SR 99 through lane			✓ (D)
I-5 Southbound, Grapevine Off-Ramp PM Peak Hour – Extend Grapevine Off-Ramp deceleration lane			✓ (B,D,E)
I-5 Southbound, I-5 Southbound Auto / Truck Bypass PM Peak Hour – Extend third Southbound SR 99 through lane			✓ (D,E)
I-5 Southbound, Laval Road East Off-Ramp PM Peak Hour – Extend Laval Road East Off-Ramp deceleration lane			✓ (All)
I-5 Southbound, Laval Road On-Ramp PM Peak Hour – Two lane on-ramp with peak hour ramp metering			✓ (D,E)
I-5 Southbound, Laval Road to Grapevine PM Peak Hour – Two lane on-ramp with peak hour ramp metering			✓ (B,C,D,E)
I-5 Southbound, Laval Road West Off-Ramp PM Peak Hour – Extend Laval Road West Off-Ramp deceleration lane			✓ (D,E)
I-5 Southbound, SR 99 to Laval Road PM Peak Hour – Extend Laval Road West Off-Ramp deceleration lane			✓ (D,E)
SR 99 Southbound, CVEF Off-Ramp PM Peak Hour – Extend third Southbound SR 99 through lane			✓ (D,E)
SR 99 Southbound, North of I-5 Junction PM Peak Hour – Extend third Southbound SR 99 through lane			✓ (D,E)
SR 99 Southbound, SR 99 Auto Lanes to I-5 Southbound PM Peak Hour – Extend third Southbound SR 99 through lane			✓ (B,D,E)
SR 99 Southbound, Truck Bypass Off-Ramp PM Peak Hour – Extend third Southbound SR 99 through lane			✓ (D,E)
Source: Fehr & Peers 2019			

Table 4.16-21, *Potentially Significant State Highway and Freeway Impact Summary*, shows that one or more of the Reduced ICR Scenarios could result in six new significant impacts to the north or south of the project site in addition to the 21 significant impacts that could occur in the FEIR (2016) and Updated 28.7% HBW ICR analysis under cumulative plus project conditions.

Table 4.16-21. Potentially Significant State Highway and Freeway Impact Summary (FEIR (2016), Updated 28.7% HBW ICR and Reduced ICR Scenarios, Cumulative Plus Project Conditions)

State Highway or Freeway Segment North or South of Project	FEIR (2016)	Updated 28.7% HBW ICR	Reduced ICR Scenarios
South of Project, 21 Segments per FEIR (2016) and Updated 28.7% HBW ICR Analysis	✓	✓	✓
South of Project, Fort Tejon to Base of Grapevine Grade (6% Downgrade) PM Peak Hour	✓	✓	✓ (All)
South of Project, Base of Grapevine Grade to Fort Tejon (6% Upgrade) AM and PM Peak Hours	✓	✓	✓ (All)
South of Project, Lyons Avenue to Calgrove Boulevard PM Peak Hour			✓ (2)
South of Project, McBean Parkway to Lyons Avenue / Pico Canyon Road AM Peak Hour			✓ (B,D,E)
South of Project, SR 120 to Roxford Street AM Peak Hour			✓ (B,D,E)
South of Project, SR 14 to SR 120, AM Peak Hour			✓ (D)
North of Project, Old US 99 to Herring Road PM peak hour			✓ (D)
North of Project, Junction Route 166 West to Junction I-5, PM Peak Hour			✓ (D,E)

Source: Fehr & Peers 2019

The project's contribution to significant impacts to state highway and freeway segments that could occur in one or more of the Reduced ICR Scenarios, as well as the potentially significant impacts to 21 state highway and freeway segments that could also occur in the FEIR (2016) Updated 28.7% HBW ICR analysis, are covered by the terms of the fair share funding agreements between the project proponent and Caltrans. As discussed above, in 2017, the project proponent executed traffic mitigation agreements with Caltrans District 6 and Caltrans District 7 to mitigate project-related impacts to state highway facilities located in Kern and Los Angeles counties. In June 2017 Caltrans issued a PSR/PDS for the proposed new interchange to be located along I-5 that would be required to serve the project and other regional transportation demands prior to project buildout. As discussed below, MM 4.16-9 will be amended to require that the project's ICR levels be evaluated and reported to Caltrans earlier in the development process and that the project proponent implement transportation demand management strategies, provide fair share funding for impacts not covered by the 2017 fair share funding agreements, or a combination of these strategies to address potential impacts to state highway facilities.

With respect to potential interim conditions impacts, the 2019 Traffic Study concluded that the larger volume of external trips associated with the Reduced ICR Scenarios could cause applicable Interim B access LOS standards to be exceeded at a lower level of development than identified in the Updated 28.7% HBW ICR and FEIR (2016) analysis. As a result, if one or more of the Reduced ICR Scenarios should occur, construction of a new and relocated interchange along I-5 would likely be required earlier in the project development process than in the Updated 28.7% HBW ICR and FEIR (2016) analysis.

Potential traffic and transportation impacts associated with each of five Reduced ICR Scenarios are discussed in more detail in the 2019 Traffic Study. Section 4 of the 2019 Traffic Study provides a

detailed analysis of Scenario A. Section 5 provides a detailed analysis of Scenario B. Section 6 provides a detailed analysis of Scenario C. Section 7 provides a detailed analysis of Scenario D. Section 8 provides a detailed analysis of Scenario E. Section 9 summarizes and compares the impacts that could occur in one or more of the Reduced ICR Scenarios with the FEIR (2016) and Updated 28.7% HBW ICR analysis and also identifies feasible mitigation for potentially significant impacts under all scenarios that could be implemented within the project area evaluated in the 2016 EIR.

Conclusion

Feasible onsite improvements within the project footprint analyzed in the 2016 EIR have been identified that would reduce all of the significant impacts to local intersections, local roadways, and local freeway segments that could potentially occur in one or more of the Reduced ICR Scenarios, the Updated 28.7% HBW ICR, or the FEIR (2016). Potential project impacts to the Grapevine Grade and to state highway and freeway segments to the north and south of the Project Area in the FEIR (2016) and Updated 28.7% HBW ICR analysis, and that could occur under one or more of the reduced ICR scenarios, are subject to the fair share funding agreements between the Project and Caltrans that have been implemented in accordance with MM 4.16-12.

Mitigation Measures MM 4.16-2, MM 4.16-3, MM 4.16-6 and MM 4.16-9 have been amended from the earlier EIR (2016) to require earlier, more frequent, and more detailed ICR and related traffic system monitoring than required in the FEIR (2016). The amended Mitigation Measures also incorporate the potential implementation of the onsite improvements identified in Table 4.16-16, *Feasible Onsite Mitigation for Potentially Significant Intersection Impacts*, Table 4.16-18, *Feasible Onsite Mitigation for Potentially Significant Roadway Impacts*, and Table 4.16-20, *Feasible Onsite Mitigation for Potentially Significant Project Area Freeway Impacts* that would, if required, reduce potential significant impacts to local intersections, local roadways, and local freeway segments (except in the Grapevine Grade) identified in the FEIR (2016), the Updated 28.7% HBW ICR and in one or more of the reduced ICR scenarios to less than significant levels.

MM 4.16-9 requires assessments of project total trip ICR at specified milestones of future buildout. Because the majority of trips are related to residential units, requiring updated ICR evaluations based on residential unit buildout milestones provides the most accurate ongoing basis for calculating ICR. Recognizing that the ICR evolves as different uses are constructed and occupied, the MM provides for milestone checkpoints at residential buildout milestones to be evaluated in advance of the next increment of planned buildout, to identify and mitigate potential ICR-related impacts before these impacts occur. Additionally, the milestones include a percentage range estimating buildout ICR, and these percentage ranges gradually tighten as more development occurs and the projected buildout ICR becomes more certain. In combination with other MMs and future phase County review and approval requirements (e.g., the traffic studies and traffic-related infrastructure designs required for tentative tract maps), this ICR percentage range allows for the project to include the planned mix of residential, commercial, and institutional uses, which will each develop at different paces, while ensuring that the projected ICR is being analyzed before construction (MM 4.16-3), monitored over time (MM 4.16-8), and identified impacts are mitigated (MM 4.16-8 Action 1 or 2).

Amended Mitigation Measure MM 4.16-9 also requires fair share funding for impacts to state highway and freeway facilities not covered by the 2017 fair share funding agreements between the

project proponent and Caltrans, the implementation of traffic demand measures to achieve the ICRs analyzed in the FEIR (2016), or a combination of these measures.

Mitigation Measures

MM 4.16-1 All project circulation elements, including on-site public roadways and driveways, will be designed and constructed in compliance with the goals, policies and design criteria described in the Grapevine Specific and Community Plan and the Grapevine Special Plan.

MM 4.16-2 Prior to the recordation of any tentative tract map, parcel map (excluding financing map), or commercial site development plan, a Transportation Management Association (TMA) shall be formed and funded to implement transportation demand management measures that reduce vehicle trips and encourage multi-modal movement in a phased manner as development occurs within the project area. The Transportation Management Association shall fund a transportation coordinator for the project area and shall be responsible for implementing a commute trip evaluation and reduction program that includes the following strategies:

1) Coordinating transit schedules to align with employer work schedules;
2) Providing discounted transit passes;
3) Organizing ridesharing, bike-share or car-share programs;
4) Sponsored shuttle/vanpool services, in collaboration with employers, to serve major employment centers;
5) Preferential carpool and vanpool parking;
6) End of trip facilities for bicyclists;
7) Conducting marketing campaigns to encourage non-automotive modes for commuting and other movement requirements such as the encouragement of flexible work schedules and telecommuting, and the benefits of parking fees and parking cash-out programs.
8) Coordinating with project employers to establish a ride home service for employees needing to respond to an emergency condition (e.g., playground injury of a child) that have used project transit to commute to work, such as on-demand transportation provided by taxis and ride services such as Uber and Lyft;
9) Coordinating with local schools to establish and maintain a Safe Routes to School program to facilitate students walking and biking to schools; and
10) Maintaining a TMA website accessible to project residents, employers and employees that includes educational information about air quality and greenhouse gas benefits of implementing a compressed work week schedule and home-based telecommunication program.

11) Implementing other feasible trip reduction measures to avoid causing a significant adverse traffic impact within the project's roadway segments and intersections.

Upon commencement of project construction activities, the TMA or its designee shall prepare an annual report that outlines program reduction measures implemented during the past year. At the earlier of five year intervals after commencement of projection construction activities, and for each of the traffic reports submitted for an application for a tentative tract map as required by MM 4.16-3 below, the TMA or its designee shall prepare a report describing the effectiveness of program reduction measures (and any other relevant change in transportation legal mandates, or transportation services or technologies) to reduce single-occupancy automobile use in Home-Based Work trips, and may include reductions in other automobile trips. This TMA trip reduction data shall be used in subsequent project traffic reports to calibrate actual trips in relation to the estimated average daily, and AM/PM peak trips. A copy of all TMA reports shall be submitted to the Kern County Planning and Natural Resource Department and the Kern County Public Works Department by April 15th of each calendar year.

MM 4.16-3 Concurrent with the submittal of any application for tentative tract map, parcel map (excluding financing maps), or commercial/industrial site plan development, the project proponent shall conduct an appropriate traffic study, which shall include an analysis to determine if project traffic volumes are consistent with the trip distribution and internal capture (ICR) rate projections identified in the SREIR and whether the trip distribution and/or internal capture rate information in the traffic study identifies a potentially significant adverse impact to roadway segments or intersection operations. The study shall also specifically evaluate queuing level and traffic conditions at both the I-5/Wheeler Ridge Road/Laval Road Interchange and the I-5/Grapevine Road Interchange.

1) A 10% deviation in trip distribution or internal capture rates shall be considered a potentially significant adverse impact, and the traffic study shall identify the extent to which this or a greater deviation reflects a temporary snapshot of the partial buildout of the project or is likely to continue under then-reasonably foreseeable circumstances through future project buildout. For any reasonably foreseeable persistent significant deviations from the trip distribution and/or internal capture rates identified for the project in the most recent EIR, the traffic study shall further identify whether this change to the trip distribution and/or internal capture rate would result in a significant adverse traffic impact to roadway segments or intersection operations. If such a significant traffic impact is identified in the traffic study, the project proponent shall be required to consult with the County to review whether intersection and roadway performance is consistent with applicable County and Grapevine Specific and Community Plan criteria, or if any additional measures are required to avoid a significant adverse impact to roadway segments or intersection operations. If such measures are required, the project proponent shall:

(a) Identify and implement additional trip reduction measures through the Transportation Management Association pursuant to the TMA procedures set forth in MM 4.16-2 to avoid causing any significant new impact to a local intersection, peak hour road, or local freeway segment;

(b) Identify and implement roadway and signalization design modifications within the development area of the project site, identified in the 2019 Traffic Study or most recent Environmental Document for the project, that are sufficient to avoid a new significant impact or avoid substantially worsening a previously-identified significant impact.

Or

(c) Identify and implement a combination of (a) and (b) above.

2) In each tentative tract map submittal, the project proponent shall reserve the right of way required for potential implementation of such roadway improvements, identified in the 2019 Traffic Study or most recent Environmental Document for the project, that will avoid significant new impacts to local intersections, local roadways, and local freeway segments. The project proponent may apply to the County for the release of any such road right of way reservation in an amended tentative tract map, parcel map, or final map, or as part of a commercial site plan review, at such time as the project proponent can demonstrate that it is no longer reasonably foreseeable that such expanded roadway improvements are needed to avoid the significant impact identified. Any such application shall include a traffic report documenting the absence of a current or reasonably foreseeable significant adverse impact to such local intersection, local roadways, and local freeway segments. In the interim, the reserved right of way may be developed with uses that support multi-modal transportation, including but not limited to walking, biking, or NEV trails, until such a time as the right of way is needed to construct the required roadway improvements or such right of way is released per above procedure.

3) Any identified roadway or signalization improvements, or reservations of right of way to accommodate potential future improvements, required by the County and Caltrans to be implemented under MM 4-16-3(1) (b) and (2) above shall be included as conditions of approval of any final subdivision maps or commercial/industrial site plans.

MM 4.16-4 Prior to the issuance of the first building permit within each Plan Area as identified in the Grapevine Specific and Community Plan and the Grapevine Special Plan, the project proponent shall be required to provide a one-time road maintenance endowment to off-set ongoing costs of roadway maintenance. Payments(s) shall be provided in eight (8) installments as identified below.

- Plan Area 1: Total Due $280,000
- Plan Area 2: Total Due $481,800
- Plan Area 3: Total Due $363,400
- Plan Area 4: Total Due $391,600
- Plan Area 5a: Total Due $382,000

- Plan Area 5b: Total Due $76,400
- Plan Area 6a: Total Due $246,400
- Plan Area 6b-6e: Total Due $68,800

MM 4.16-5 The project proponent is responsible for ensuring construction activities associated with development of the Grapevine Project are not detrimental to any County maintained road(s) within the Grapevine Specific and Community Plan.

Prior to issuance of any grading or building permit, the project proponent shall adhere to the following provisions:

1) Obtain an Encroachment Permit from Kern County Public Works Department and enter into a secured agreement for unanticipated construction related road repairs. The purpose of this secured agreement is to ensure that any County maintained road within the Grapevine Specific and Community Plan boundary that is demonstrably damaged by the construction related activities are promptly repaired and, if necessary paved, slurry sealed or reconstructed as per requirements of the state and/or Kern County. The project proponent shall identify and provide the Kern County Public Works Department with a videotape of the pre- and post-construction condition of all County maintained public roadways within the Grapevine Specific and Community Plan boundary that will be utilized by the project proponent to access the proposed construction site.

2) Upon conclusion of the construction activities, the project proponent shall make any necessary construction related repairs to County roadways within the Grapevine Specific and Community Plan boundary in consultation with Public Works Staff.

Any grading or building permit for a single family residential dwelling unit located within an approved tentative tract map or parcel map that has already complied with this measure is specifically exempt from any further maintenance requirements. Any roadways that have been specifically over engineered and constructed by the project proponent to withstand large scale construction traffic and use, as determined by the Kern County Public Works Department shall also be exempt from future maintenance requirements.

MM 4.16-6 The project proponent shall implement the following measures to ensure adequate performance at internal intersections within the Grapevine Specific Plan area and eliminate any significant impacts on project and local roadways.

1) As part of any traffic study submitted with an application for a tentative tract map, parcel map (with the exception of financing maps), or commercial/industrial site plan development, the project proponent shall be required to identify any project or local roadway or intersection that could potentially fall below Level of Service (LOS) D under cumulative plus project conditions. This traffic study shall also identify residential and commercial uses for previously-approved tentative and/or final tract maps, occupancy permits issued for residential and commercial uses, and available traffic information from the TMA.

2) Prior to issuance of the 5,000th, 7,500th, and 10,000th residential building permit (single family and multi-family), the project proponent shall prepare a traffic report to identify the Level of Service (LOS) on all constructed project and local roadways and intersections. This traffic report may be included as part of the traffic study required for each tentative tract map if the tentative tract map (TTM) aligns with these residential buildout milestones but need not be included if the TTM does not align with these milestones. If the traffic report determines that any such project or local roadway or intersection is operating within LOS E or LOS F, the project proponent, in consultation with the County shall review whether this performance is consistent with County and Grapevine Specific and Community Plan criteria and determine if any additional improvements or implementation of additional transportation demand measures are required to ensure ongoing functioning of the facility. Any such improvements shall be constructed by the project proponent or implemented through another agreement in consultation with the Kern County Public Works Department.

MM 4.16-7 Prior to the issuance of any occupancy permit that would facilitate development within the project site that could be accessed utilizing the existing I-5/Grapevine Road interchange, the project proponent shall be required to consult with Caltrans and identify appropriate interchange enhancements such as implementing gore points, auxiliary lanes, acceleration lanes, lighting, signage, and relocation of Northbound and Southbound exit and entrance ramps approximately ½ mile to the north.

MM 4.16-8 Subsequent to the commencement of construction activities on the project site, the project proponent shall be required to conduct a biennial traffic monitoring report at the existing I-5/Wheeler Ridge Road/Laval Road interchange and, following the completion of operational enhancements, at the existing I-5/Grapevine Road interchange. The purpose of this program is to monitor Level of Service and queuing conditions at project utilized interchanges. The required report will include delay, level of service and queue length by movement / segment at the project utilized interchange to determine the operating conditions during AM and PM Peak Hour conditions. Caltrans has an operational goal for freeway mainline, on-ramp merge, off-ramp diverge and weaving section of LOS D or better. If any movement / segment is within 10 percent of falling below the acceptable LOS D threshold, improvements will be implemented to reduce delay and improve level of service and queue lengths to improve interchange operations. The required report shall be submitted to Kern County and to Caltrans by April 15th every other year.

If at any time, the results of this biennial traffic monitoring report indicate that the project is within 10 percent of falling below Level of Service (LOS) D at either interchange, the project proponent shall implement the following actions:

1) Provide Kern County and Caltrans a detailed breakdown of how many additional permits (Interim Permits) can be issued while still maintaining a Level of Service (LOS) D at either interchange. Once the Interim Permits have

been issued, no additional building permits shall be issued until such time as appropriate expanded and/or relocated improvements have been constructed.

2) Initiate with Caltrans all necessary actions to expand and/or relocate the existing I-5/Grapevine Interchange. Improvements can include, but are not limited to the following options:

   a. Variant 1 – Relocate the I-5/Grapevine interchange approximately one (1) mile north of the existing interchange, with construction phased to capacity requirements. This proposal would further connect with planned streets, construct a 2-lane overpass ½ mile north of the existing interchange, close freeway access while maintaining the underpass at the existing Grapevine interchange and require the replacement of the existing California Vehicle Enforcement Facility (CVEF) on Tejon Ranchcorp land west of the junction of I-5 and State Route (SR) 99 with a new access and bypass ramps connecting the CVEF to the freeway and a southbound auxiliary lane to the existing I-5/Laval Road interchange.

   b. Variant 2 – Would include similar improvements to Variant 1, except the location of the relocated I-5/Grapevine Interchange and the 2-lane overpass would be reversed. Further, this option would not require relocation of the existing California Vehicle Enforcement Facility (CVEF), but will require braided ramp improvements.

Through consultation with Caltrans, required improvements as identified above can be construed in phases as development occurs. The project proponent shall provide any phased improvement provisions that have been approved by Caltrans to the County of Kern, and any such phased improvement provisions shall be included as conditions of approval for any applicable future tentative tract map, parcel map or commercial/industrial site plan development.

MM 4.16-9 Prior to issuance of the 5,000th, 7,500th, and 10,000th residential building permits the project proponent shall prepare and submit to the County of Kern and to Caltrans an Internalization Rate Report for all AM and PM project related trips.

The Internalization Rate Report shall assess whether internalization rates are progressing towards the projected total trip buildout internalization rates of 59.8 percent for the AM peak hour and 64.2 percent for the PM peak hour by confirming whether rates are within a certain percentage range of buildout total trip internalization rates.

- 5,000 residential units – 35% (24.8% for AM and 29.2% for PM)
- 7,500 residential units – 20% (39.8% for AM and 44.2% for PM)
- 10,000 residential units – 10% (49.8% for AM and 54.2% for PM)

If the required internalization rate report indicates that internalization rates are below projected buildout total trip AM and PM peak hour internalization rates by more than the percentages identified above, the project proponent shall consult with Caltrans and the project proponent shall elect to either (1) implement additional transportation demand management strategies as necessary to ensure that Caltrans facilities serving the project operate within applicable level of service

standards, (2) provide fair share funding for impacts to state highway and freeway facilities not covered by the 2017 fair share funding agreements between the Project proponent and Caltrans, or (3) implement a combination of (1) and (2) herein.

Level of Significance after Mitigation

Impacts would be less than significant.

Impact 4.16-2: Conflict with an Applicable Congestion Management Program, Including, but Not Limited to Level of Service Standards and Travel Demand Measures, or Other Standards Established by the County Congestion Management Agency or Adopted County Threshold for Designated Roads or Highways

Impacts related to congestion management plans could be greater under one or more of the Reduced ICR Scenarios than considered in the Updated 28.7% HBW ICR and FEIR (2016) analysis because there would be more use of project access facilities and adjacent intersections, and a greater volume of trips and VMT on external highways and freeways, in one or more of the reduced ICR scenarios.

Conclusion

As discussed under Impact 4.16-1, amended Mitigation Measures have been proposed that require earlier and more comprehensive ICR and related traffic system monitoring than required in the FEIR (2016). The amended Mitigation Measures also incorporate the potential implementation of the onsite improvements identified in Table 4.16-16, *Feasible Onsite Mitigation for Potentially Significant Intersection Impacts*, Table 4.16-18, *Feasible Onsite Mitigation for Potentially Significant Roadway Impacts*, and Table 4.16-20, *Feasible Onsite Mitigation for Potentially Significant Project Area Freeway Impacts* that would, if required, reduce potential significant impacts to local intersections, local roadways, and local freeway segments (except in the Grapevine Grade) identified in the FEIR (2016), the Updated 28.7% HBW ICR and in one or more of the reduced ICR scenarios to less than significant levels. Amended Mitigation Measure MM 4.16-9 also requires fair share funding for impacts to state highway and freeway facilities not covered by the 2017 fair share funding agreements between the project proponent and Caltrans, the implementation of traffic demand measures to achieve the ICRs analyzed in the FEIR (2016), or a combination of these measures.

Mitigation Measures

Implement Mitigation Measures MM 4.16-2, MM 4.16-3, and MM 4.16-6 through MM 4.16-9, as described above.

Level of Significance after Mitigation

Impacts would be less than significant.

Impact 4.16-3: Change in Air Traffic Patterns That Result in Substantial Safety Risks

Impacts related to changed airport traffic patterns for each of the Reduced ICR Scenarios would be the same as the impacts considered in the Updated 28.7% HBW ICR and FEIR (2016) analysis.

Mitigation Measures

MM 4.16-10 The following statement shall be included as a note on the final map for all subdivisions, commercial site plans and included in the project Covenants, Conditions and Restrictions (CC&Rs): "This property is presently located under military training routes and a supersonic corridor subject to use by the Department of Defense. For that reason, the property may be subject to some of the annoyances or inconveniences associated with proximity to the routes and corridor (for example: noise, vibration, low-level over flight or sonic booms). Tejon Ranch currently operates a helistop and you may be exposed to noise impacts from helicopter overflights. Individual sensitivities to those annoyances can vary from person to person. You may wish to consider what annoyances, if any, are associated with the property before you complete your purchase and determine whether they are acceptable to you."

Level of Significance after Mitigation

Impacts would be less than significant.

Impact 4.16-4: Substantially Increase Hazards Due to a Design Feature or Incompatible Uses

Potential design feature or incompatible use hazard impacts for each of the Reduced ICR Scenarios would be the same as the impacts considered in the Updated 28.7% HBW ICR and FEIR (2016) analysis.

Mitigation Measures

Implement Mitigation Measures MM 4.16-1, through MM 4.16-7 and MM 4.16-9, as described above.

Level of Significance after Mitigation

Impacts would be less than significant.

Impact 4.16-5: Result in Inadequate Emergency Access

Potential impacts related to emergency access would be the same for each of the Reduced ICR Scenarios as considered in the Updated 28.7% HBW ICR and FEIR (2016) analysis.

Mitigation Measures

Implement Mitigation Measure MM 4.16-1, as described above.

MM 4.16-11 A Construction Traffic Management Plan shall be submitted with each application for a project tract or parcel map to ensure that safe operating conditions are maintained on local roadways, freeway facilities and for all pedestrian, cycling, trail and transit facilities. The Construction Traffic Management Plan shall be subject to the review and approval of the Kern County Public Works Department in consultation with Caltrans, as applicable. A copy of the plan shall be submitted to local emergency response agencies and transit providers as directed by Kern

County, and to Caltrans. These agencies shall be notified at least 30 days before the commencement of construction that would partially or fully obstruct public roadways.

Level of Significance after Mitigation

Impacts would be less than significant.

Impact 4.16-6: Conflict with Adopted Policies, Plans, or Programs Supporting Alternative Transportation

Impacts related to conflicts with adopted policies, plans, or programs supporting alternative transportation would be the same for each of the Reduced ICR Scenarios as the impacts considered in the Updated 28.7% HBW ICR and FEIR (2016) analysis.

Mitigation Measures

Implement Mitigation Measures MM 4.16-2, MM 4.16-6, and MM 4.16-9, as described above.

Level of Significance after Mitigation

Impacts would be less than significant.

Cumulative Setting Impacts and Mitigation Measures

Cumulative Setting

The geographic scope for transportation and traffic cumulative impacts is Kern County, specifically the I-5 corridor in Los Angeles County from the I-5/Fort Tejon interchange to the I-5/SR-99 junction.

Impact 4.16-7: Contribute to Cumulative Transportation and Traffic Impacts

Cumulative impacts for each of the Reduced ICR Scenarios would be greater than the cumulative impacts in the Updated 28.7% HBW ICR and FEIR (2016) analysis because there would be more use of project access facilities and adjacent intersections, and a greater volume of trips and VMT on external highways and freeways. As discussed under Impact 4.16-1, feasible onsite improvements within the project footprint analyzed in the FEIR (2016) have been identified that would reduce all of the new significant impacts to local intersections, local roadways and local freeway segments that could potentially be caused by one or more of the Reduced ICR Scenarios and identified in the FEIR (2016) and the Updated 28.7% HBW ICR analysis. Potential project impacts to the Grapevine Grade and to state highway and freeway segments to the north and south of the project area in the FEIR (2016) and Updated 28.7% HBW ICR analysis, and that could occur under one or more of the reduced ICR scenarios, are subject to the fair share funding agreements between the project and Caltrans that have been implemented in accordance with MM 4.16-12.

Amended Mitigation Measures 4.16-2, 4.16-3, 4.16-6 and 4.16-9 have been proposed to require earlier and more comprehensive ICR and related traffic system monitoring than required in the FEIR (2016). The amended Mitigation Measures also incorporate the potential implementation of the onsite improvements identified in Table 4.16-16, *Feasible Onsite Mitigation for Potentially*

Significant Intersection Impacts, Table 4.16-18, *Feasible Onsite Mitigation for Potentially Significant Roadway Impacts*, and Table 4.16-20, *Feasible Onsite Mitigation for Potentially Significant Project Area Freeway Impacts* that would, if required, reduce potential significant impacts to local intersections, local roadways, and local freeway segments (except in the Grapevine Grade) identified in the FEIR (2016), the Updated 28.7% HBW ICR and in one or more of the reduced ICR scenarios to less than significant levels. Amended Mitigation Measure MM 4.16-9 also requires fair share funding for impacts to state highway and freeway facilities not covered by the 2017 fair share funding agreements between the project proponent and Caltrans, the implementation of traffic demand measures to achieve the ICRs analyzed in the FEIR (2016), or a combination of these measures.

The implementation of Mitigation Measures MM 4.16-1 to 4.16-12, including amended Mitigation Measures 4.16-2, 4.16-3, 4.16-6 and 4.16-9, would reduce significant impacts to local and project area intersections, roadways, freeways and interim access facilities. Amended Mitigation Measure 4.16-9 and MM 4.16-12 will also provide Caltrans with fair share funding, require the implementation of transportation demand management measures to achieve the ICRs considered in the FEIR (2016), or a combination of these measures, to reduce impacts to state highway and freeway facilities on the Grapevine Grade and north and south of the project site in Kern County and Los Angeles County. Mitigation Measure MM 4.16-12 requires that the project provide fair-share funding to mitigate for potential cumulative impacts to state highway facilities, and the project has executed such agreements with Caltrans. Nevertheless, the County lacks jurisdiction to require the implementation of the required improvements by Caltrans.

Mitigation Measures

Implement Mitigation Measures MM 4.16-1 through 4.16-11, as described above.

MM 4.16-12 Prior to the issuance of any building permit, the project proponent shall provide evidence that the following off-site impact mitigation requirements have been completed: Execute traffic impact mitigation agreements with Caltrans that identify project funding that will be paid to Caltrans to mitigate the project's incremental contribution to I-5 cumulative impacts to the Grapevine Grade in Kern County and Los Angeles County and cumulative impacts to State Route (SR) 138 in Los Angeles County.

Level of Significance after Mitigation

Although the project would provide fair-share funding to mitigate for potential cumulative impacts to state highway facilities, Kern County lacks jurisdiction to require the implementation of the required improvements by Caltrans. Cumulative impacts to state highway facilities would remain significant and unavoidable. All other cumulative impacts would be reduced to less than significant levels.

Mitigation Measures

The following discussion provides an overview of the development of the amended mitigation measures referenced in this SREIR section.

The analysis of the Reduced ICR Scenarios is conservative for several reasons. The ITE Manual used to estimate project trip generation by land use assumes a very high percentage of commute

trips take place during AM or PM peak hours. Under real world conditions, many workers are required to commute outside of the peak periods to arrive at work at or leave from work to arrive at their destination in a timely manner. As shown in Table 1-3 of the 2019 Traffic Study, a significant number of external trips that the Kern COG model, which better reflects off-peak work commuting patterns, was reassigned to the AM and PM peak periods to achieve the lower ICRs and internal and external trip volumes required for the Reduced ICR Scenario analyses.

The FEIR (2016), Updated 28.7% HBW ICR, and the Reduced ICR Scenarios do not include any reduction in average daily or peak hour trips from the implementation of required mitigation measures. FEIR (2016) Mitigation Measure 4.16-2, for example, mandates the formation and funding of a Transportation Management Association (TMA) to implement several measures to encourage alternative transportation modes such as walking and biking, and to create incentives for carpooling and other measures to reduce single-occupant automobile commute trips. The amended Mitigation Measure 4.16-2 below further requires TMA implementation of employer surveys and other measures to accurately inform more frequently required traffic reports on ICRs and other traffic operational conditions to further reduce automobile trips.

The development of housing without complementary onsite uses such as retail, restaurants, medical and other services, and local businesses beyond than legally required schools and parks is inconsistent with the proposed Project purpose and design. The proposed Project has been designed to incorporate complementary residential and non-residential land uses that would reduce the volume of external trips below the levels evaluated in the residential-only development scenarios. The development of additional employment-generating uses immediately adjacent to TRCC, an existing job center, without residential units on the Project site is also unlikely to occur. The conservative assumptions incorporated in the Updated 28.7% HBW ICR traffic and transportation analysis are discussed in more detail in Section 9.2 of the 2019 Traffic Study.

As discussed above, however, new, potentially significant impacts in addition to the impacts identified in the FEIR (2016) and Updated 28.7% HBW ICR could occur under one or more of the Reduced ICR Scenarios. To address this possibility, the FEIR (2016) mitigation measures have been amended as summarized below to require earlier and more extensive traffic monitoring to detect and respond to lower than anticipated ICR rates earlier in the project's development process. In addition, the mitigation measures have been amended to specifically reference and allow for the implementation of one or more of the onsite improvements identified in Table 4.16-16, *Feasible Onsite Mitigation for Potentially Significant Intersection Impacts,* Table 4.16-18, *Feasible Onsite Mitigation for Potentially Significant Roadway Impacts*, and Table 4.16-20, *Feasible Onsite Mitigation for Potentially Significant Project Area Freeway Impacts* to reduce potentially significant impacts to local intersections, local roadways and local freeway segments to less than significant levels. The amended mitigation measures also require that the project proponent implement transportation demand management strategies, provide fair share funding for impacts not covered by the 2017 fair share funding agreements with Caltrans, or a combination of these strategies to address potential impacts to state highway facilities that could occur under one or more of the Reduced ICR Scenarios.