DOCKETED	
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TN #:	240751-18
Document Title:	Section 5_12_Traffic and Transportation_Gem Energy Storage Center
Description:	This section describes the potential effects of the Gem Energy Storage Center (GESC) on traffic and transportation.
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Submitter Role:	Applicant Representative
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5.12 Traffic and Transportation

This section describes the potential effects of the Gem Energy Storage Center (GESC) on traffic and transportation. The analysis is organized into sub-sections as follows:

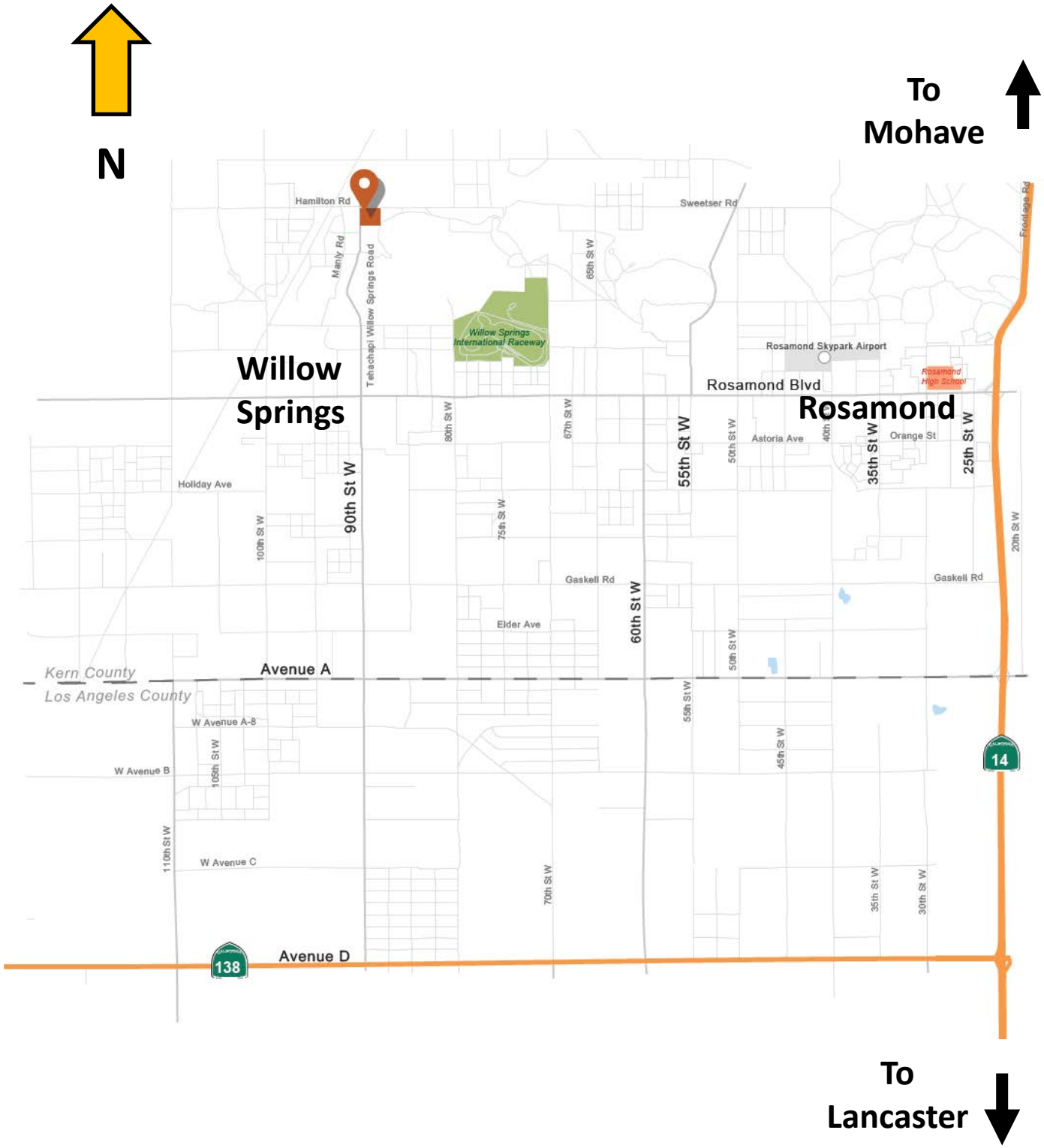
- Sub-Section 5.12.1 describes the transportation facilities in the vicinity of the project that might be affected by the project. This includes descriptions of roads, public transportation, rail, air, bicycle, and pedestrian facilities.
- Sub-Section 5.12.2 describes the potential effects of the project on local traffic conditions, and conditions for non-auto modes. This section concentrates on the project's impact during the month during construction when the project will have its greatest impacts on traffic and transportation.
- Sub-Section 5.12.3 describes the cumulative transportation effects of the project once construction is complete, and the project is in full operation.
- Section 5.12.4 describes measures that would mitigate the project's transportation impacts.
- Section 5.12.5 describes applicable laws, ordinances, regulations, and standards (LORS).
- Section 5.12.6 provides a list of the applicable regulatory agencies and contacts.
- Section 5.12-7 discusses traffic and transportation permits required.
- Section 5.12.8 lists the references used to prepare this section.

5.12.1 Affected Environment

The GESC will be a 500-megawatt compressed air energy storage facility. The project would have air compression and power generation equipment above ground and caverns below ground where compressed air would be stored. Compression would be maintained using pressure from a 500-acre-foot water reservoir. The project will be connected to the regional power grid through Southern California Edison's Whirlwind substation via a 10.9-mile-long 230-kilovolt (kV) transmission line. Alternatively, GESC may be interconnected to a future Los Angeles Department of Water and Power (LADWP) Rosamond substation via an approximately 3.5-mile 230 kV transmission line.

GESC will be located on an approximate 71-acre site in unincorporated Kern County, near Willow Springs, California (Figure 5.12-1). The unincorporated community of Rosamond is approximately 5 miles to the east of the site and the unincorporated community of Mojave is approximately 10 miles northeast of the site. The nearest incorporated city is Lancaster, the center of which is approximately 15 miles from the GESC project site. The near vicinity of the project consists of widely spaced rural farms and residences.

The project site is currently an undeveloped desert. It is bounded by an unpaved section of Sweetser Road to the north, an undeveloped mesa to the south and east, and Tehachapi Willow Springs Road to the west. The primary access to the site will be from Sweetser Road, an east extension of Hamilton Road at Tehachapi -Willow Springs Road intersection. Secondary access will be from Tehachapi – Willow Springs Road. There will be two additional entry/exit points from Sweetser Road for heavy load traffic. Access at the west side will lead to the maintenance/workshop/warehouse and laydown area while access at the east side will lead to the east end of the turbine hall and utility area (Figure 5.12-2).



LEGEND

Project Site

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Project Site

Figure
5.12-1

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LEGEND

- Project Site
- Study Segments
- Study Intersection

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Study Roadway Segments and Intersections

Figure
5.12-2

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Construction activities are expected to last 60 months, which can be divided into four types of activities, namely:

1) Site clearing and preparation (months 1 through 4)

2) Excavation and lining of shafts (months 5 through 18)

3) Construction of surface works (months 13 through 36)

4) Excavation of the caverns (months 19 through 60)

5.12.1.1 Existing Regional and Local Transportation Facilities

Important roadways adjacent to the project site are discussed below:

Tehachapi Willow Springs Road is a regional road that connects the City of Tehachapi with the communities of Willow Springs and Rosamond in southeastern Kern County. This two-lane road acts as a cut-off alternative for locals who wish to avoid State Route 58 and State Route 14 to travel between these two regions. Windmill farms and other agricultural uses are found adjacent to Tehachapi Willow Springs Road. Tehachapi Willow Springs Road will provide indirect access to the project site.

Rosamond Boulevard is a two-lane road that provides a direct east-west connection to SR-14 and the unincorporated community of Rosamond. The average daily traffic (ADT) on Rosamond Blvd near the project site is approximately 1,000 vehicles per day.

90th Street West is a two-lane arterial roadway that provides a direct north-south connection to SR-138 south of the project site.

West Avenue A is a two-lane arterial roadway that would provide access to the solar farms and residential neighborhood near 70th Street. West Avenue A provides a regional east-west direct connection to SR-14.

State Route 14 is a north-south route between the intersection with Route 395 near Inyokern and the south county line at the Rosamond. Freeway from the south county line to near Mojave. It is a two-lane highway except through Mojave (4-lanes) and Expressway through Red Rock Canyon and other locations northerly. The ADT on SR 14 near the project site is approximately 40,000 vehicles per day.

State Route 138 is a two-lane highway that runs east-west across the northern part of Los Angeles County, providing regional access from I-5 to SR 14. SR 138 is located approximately 4 miles south of the project site. The ADT on SR 138 near the project site is approximately 3,800 vehicles per day.

5.12.1.1.1 Pedestrian

There are no existing or proposed pedestrian facilities in the immediate vicinity of the GESC or along the surrounding roadways.

5.12.1.1.2 Bicycle Facilities

There are no dedicated bicycle facilities near the GESC or along the surrounding roadways. The Kern Region Active Transportation Plan (Kern 2018a) proposes Class II bike Lanes along Tehachapi Willow Springs Road/90th Street W and Rosamond Blvd.

5.12.1.1.3 Public Transportation

Public transportation in Kern County is provided by Kern Transit, formerly Kern Regional Transit, which offers 17 fixed routes throughout the county and a dial-a-ride general public transportation service for residents in most communities. Route 100 provides a fixed route scheduled bus service between Bakersfield and Lancaster on SR-58 and SR-14, with stops in the communities of Tehachapi, Keene, Mojave, and Rosamond. Route 250 provides fixed-route scheduled bus service between California City and Lancaster on SR-14, with stops in the communities of Mojave and Rosamond. No public transit routes pass or stop near the project site. The closest bus stop is located near W. Rosamond Blvd. and Eagle Way intersection.

5.12.1.1.4 Rail Traffic

The closest railway, the Mohave Subdivision, is operated by the Union Pacific Railroad and is located approximately 9.5 miles east of the project site near Sierra Hwy.

5.12.1.1.5 Air Traffic

The following airport facilities are located within 25 miles of the project site:

Rosamond Skypark is a privately-owned and operated residential airport that is open for public use and is located about 7.2 miles southeast of the project site. This airport has a 3,600-foot asphalt runway and exclusively serves general aviation aircraft. In operation since 1953, the facility serves an average of 29 flight operations per day.

Lloyd's Landing Airport is a private airstrip, located approximately 2 miles to the north of the project site. Lloyd's Landing Airport is a private facility with an approximately 2,300-foot dirt runway. The facility receives no regular scheduled flights and is not publicly accessible.

General William J. Fox Airfield is a public airfield located about 15 miles southeast of the project site. This airport has a 7,200-foot asphalt runway and serves general aviation aircraft, limited scheduled cargo service, and U.S. Forest Service aircraft. In operation since 1959, the airfield serves an average of 224 flight operations per day.

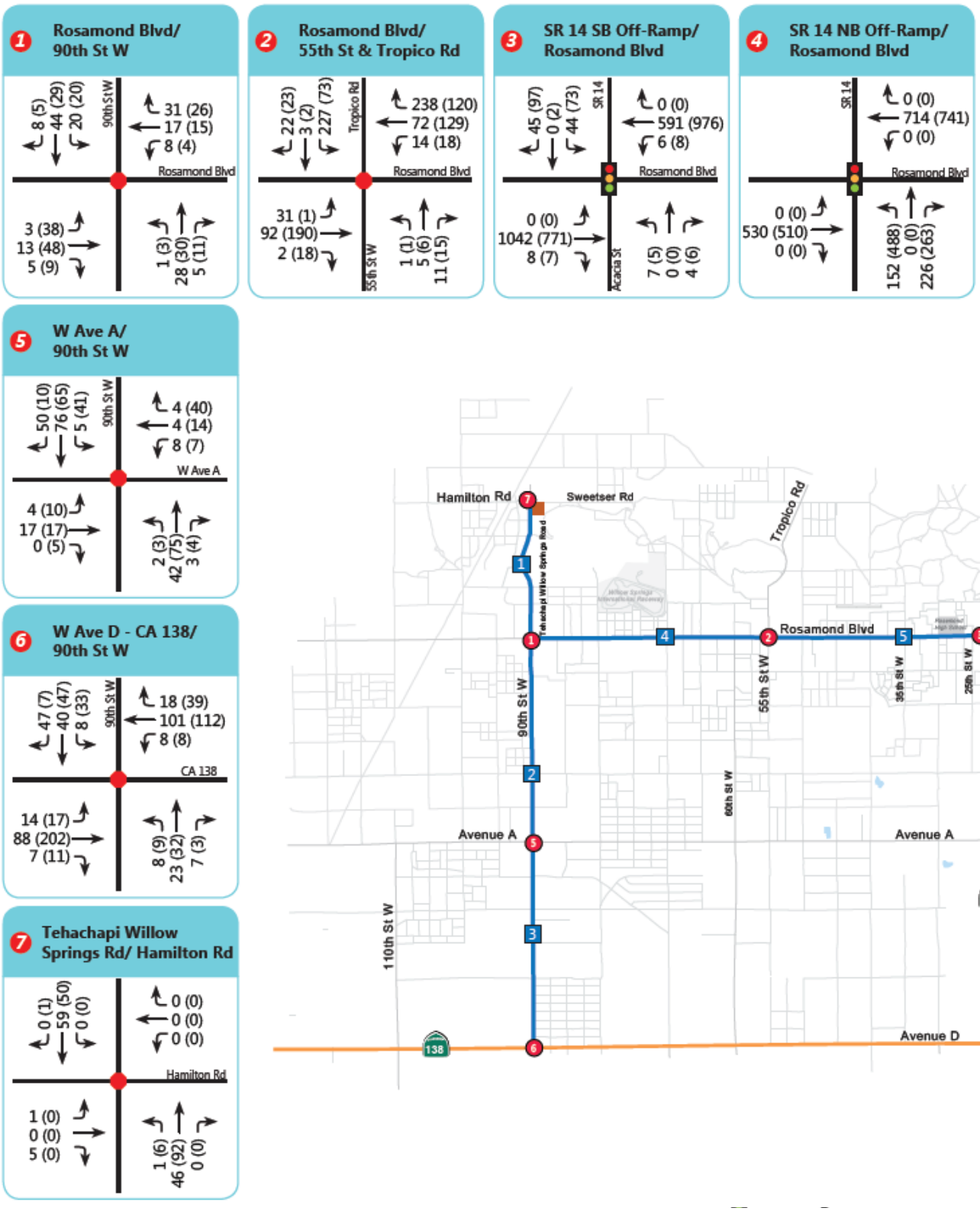
Mojave Air and Space Port is a public airfield located about 20 miles northeast of the project site. This airport has three asphalt runways (with lengths of 3,946, 7,049, and 12,503 feet) and primarily serves general aviation aircraft, with some commercial, air taxi, and military flights also using the facility. In operation since 1940, the airport serves an average of 58 flight operations per day. In 2004, this facility was the first to be certified as a spaceport by the FAA.

Mountain Valley Airport is a private airport that allows public access located approximately 20 miles to the northwest of the project site. The airport has two runways, each 4,890 feet long, and primarily serves general aviation aircraft, with some military flights also using the facility. In operation since 1968, the airport serves an average of 137 flight operations per day.

Edwards Air Force Base is a military base and airstrip located approximately 25 miles east of the project site. The base is owned and operated by the U.S. Air Force (not open to public use) and includes three runways that range in length from 8,000 feet to 12,000 feet and that are paved with concrete or asphalt. The base covers more than 301,000 acres and also includes additional landing areas on the hard-packed surface of the Rogers Dry Lake and Rosamond Dry Lake. The base also supported the U.S. space shuttle program as a backup landing site.

5.12.1.2 Existing Traffic Conditions and Level of Service

Kern County Development Standards for Traffic Engineering states that a facility is required to be analyzed when a project will generate more than 100 peak hour trips at a facility operating above Level of Service (LOS) C. Based on the engineering judgment and anticipated traffic volumes, the following intersections and roadway segments were identified for analysis (see Figure 5.12-3).



LEGEND

			Signal Control
	Project Site		Stop Control
	Study Intersection	XX	AM peak hour trips
	Study Segment	(XX)	PM peak hour trips

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Existing Volumes at Study Intersections

Figure
5.12-3

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Existing Volumes at Study Intersections Existing Volumes at Study Intersections

Study Roadway Segments:

1) Tehachapi Willow Springs Road between Hamilton Road and Rosamond Blvd
2) 90th Street between Rosamond Blvd. and Avenue A
3) 90th Street between W Avenue A and SR 138 (Avenue D)
4) Rosamond Blvd. between 90th Street W and 55th Street W
5) Rosamond Blvd. between 55th Street W and SR 14

Study Intersections:

1) Rosamond Blvd. and 90th Street W (All Way Stop)
2) Rosamond Blvd. and 55th Street W/Tropico Road (All Way Stop)
3) SR 14 SB Off-Ramp & Rosamond Blvd. (signalized)
4) SR 14 NB Off-Ramp & Rosamond Blvd. (signalized)
5) W Avenue A and 90th Street W (All Way Stop)
6) W Avenue D/ SR 138 and 90th Street W (Two-way Stop)
7) Tehachapi Willow Springs Road and Hamilton Road (Two-way Stop)

5.12.1.2.1 Existing Roadway Conditions

Segment Level of Service Criteria

All study segments were evaluated for changes in weekday average daily traffic (ADT) due to the project. The methodology used for estimating daily segment capacity is based on the generalized daily service volumes for signalized highways, published by the Federal Highway Administration (Washburn & Margiotta 2017). Table 5.12-1 summarizes the volume-to-capacity ratio (v/c) and LOS relationship for local roadway segments.

Existing Conditions of Study Roadway Segments

The existing average daily traffic volumes from the Caltrans, Kern Council of Government, and Los Angeles County Department of Public Works websites. Table 5.12-2 shows the existing conditions on the study roadway segments. All segments currently operate at LOS A.

Table 5.12-1: Level of Service Definitions for Local Roadway Segments

Level of service	V/C	Description
A	0.00 to 0.60	Free-flow conditions with unimpeded maneuverability. Stopped delay at signalized intersection is minimal.
B	0.61 to 0.70	Reasonably unimpeded operations with slightly restricted maneuverability. Stopped delays are not bothersome.
C	0.71 to 0.80	Stable operations with somewhat more restrictions in making mid-block lane changes than LOS B. Motorists will experience appreciable tension while driving.
D	0.81 to 0.90	Approaching unstable operations where small increases in volume produce substantial increases in delay and decreases in speed.
E	0.91 to 1.00	Operations with significant intersection approach delays and low average speeds.
F	Greater Than 1.00	Operations with extremely low speeds caused by intersection congestion, high delay, and adverse signal progression.

Source: Transportation Research Board, Highway Capacity Manual (HCM 2010), Special Report 209

Table 5.12-2: Existing Conditions on Study Roadway Segments

#	Study Segment	Daily ADT	HCM Capacity[1]	V/C	LOS
1	Tehachapi Willow Springs Rd between Hamilton Rd and Rosamond Blvd	1,790	15,000	0.12	A
2	90th Street between Rosamond Blvd and Avenue A	1,289	15,000	0.09	A
3	90th Street between Avenue A and CA 138 (Avenue D)	1,250	15,000	0.08	A
4	Rosamond Blvd between 90th St W and 55th St W	978	15,000	0.07	A
5	Rosamond Blvd between 55th St W and SR 14	13,120	35,800	0.37	A

Note: [1]Simplified Highway Capacity Calculation Method for the Highway Performance Monitoring System, (Washburn and Margiotta 2017)

V/C = Volume-to-Capacity ratio

5.12.1.2.2 Existing Roadway Conditions

Intersection Level of Service Criteria

The study intersections under traffic signal control were analyzed using the Highway Capacity Manual 2010 (HCM 2010), operations methodology for signalized intersections described in Chapter 18 (HCM 2010). This methodology determines LOS based on average control delay per vehicle for the overall intersection during peak hour intersection operating conditions. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. The stop-controlled intersections were analyzed using the HCM 2010 operations methodology described in Chapter 19 (HCM 2010). LOS ratings for stop-sign controlled intersections are based on the average control delay expressed in seconds per vehicle. At two-way stop-controlled intersections, the control delay is calculated for each movement, not for the intersection as a whole. For approaches composed of a single lane, the control delay is computed as the average of all movements in that lane. Table 5.12-3 and Table 5.12-4 summarize the relationship between control delay and LOS.

Table 5.12-3: Level of Service Definitions for Signalized Intersections

Level of Service	Description
A	Very low control delay, up to 10 seconds per vehicle. Progression is extremely favorable, and most vehicles arrive during the green phase. Many vehicles do not stop at all. Short cycle lengths may tend to contribute to low delay values.
B	Control delay greater than 10 and up to 20 seconds per vehicle. There is good progression or short cycle lengths or both. More vehicles stop causing higher levels of delay.
C	Control delay greater than 20 and up to 35 seconds per vehicle. Higher delays are caused by fair progression or longer cycle lengths or both. Individual cycle failures may begin to appear. Cycle failure occurs when a given green phase does not serve queued vehicles, and overflow occurs. The number of vehicles stopping is significant, though many still pass through the intersection without stopping.
D	Control delay greater than 35 and up to 55 seconds per vehicle. The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high volumes. Many vehicles stop, the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.
E	Control delay greater than 55 and up to 80 seconds per vehicle. The limit of acceptable delay. High delays usually indicate poor progression, long cycle lengths, and high volumes. Individual cycle failures are frequent.
F	Control delay in excess of 80 seconds per vehicle. Unacceptable to most drivers. Oversaturation, arrival flow rates exceed the capacity of the intersection. Many individual cycle failures. Poor progression and long cycle lengths may also be contributing factors to higher delay.

Source: HCM 2010

Table 5.12-4: Level of Service Definitions for Stop Controlled Intersections

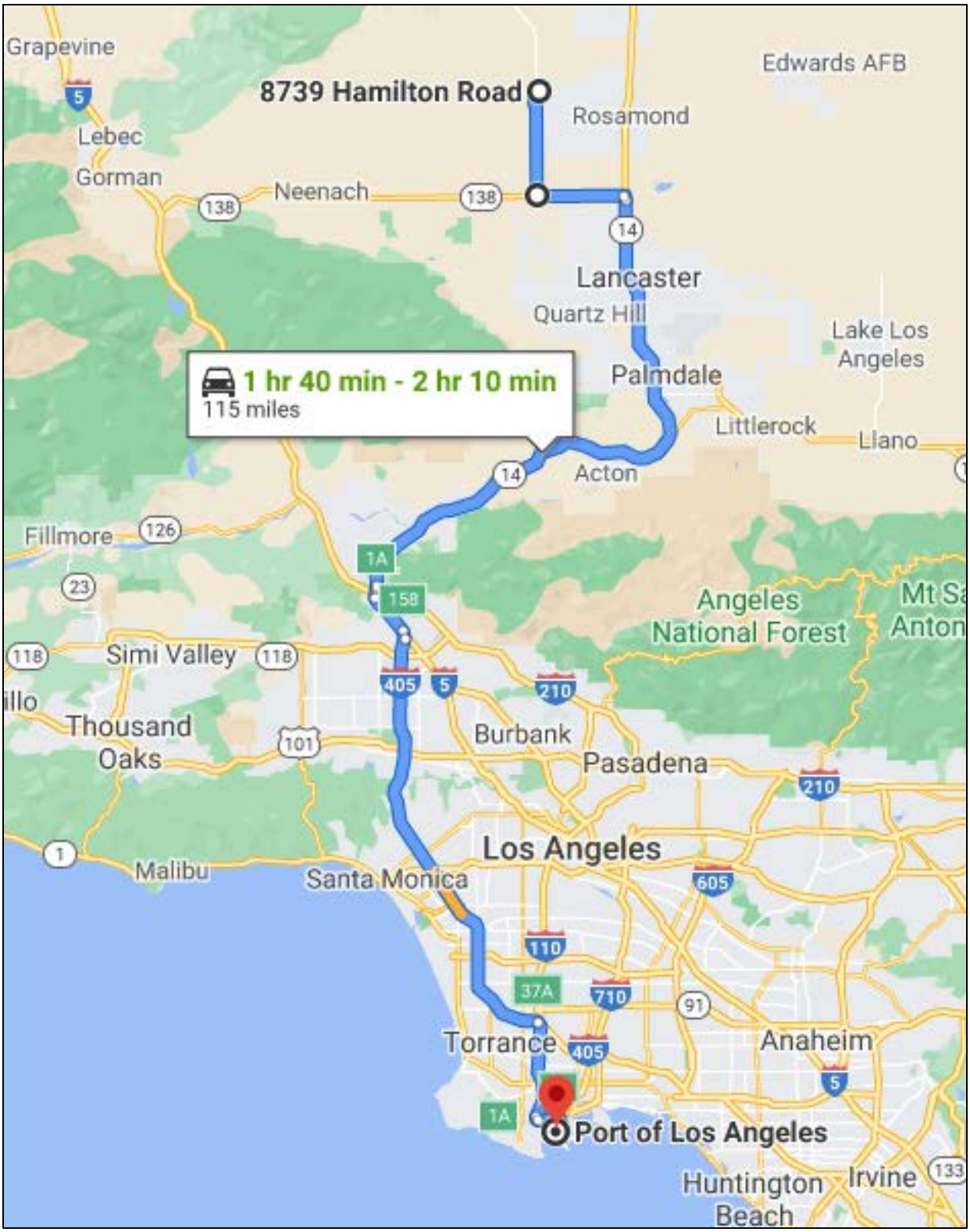
Level of Service	Description
A	Very low control delay less than 10 seconds per vehicle for each movement subject to delay.
B	Low control delays greater than 10 and up to 15 seconds per vehicle for each movement subject to delay.
C	Acceptable control delays greater than 15 and up to 25 seconds per vehicle for each movement subject to delay.
D	Tolerable control delays greater than 25 and up to 35 seconds per vehicle for each movement subject to delay.
E	Limit of tolerable control delay greater than 35 and up to 50 seconds per vehicle for each movement subject to delay.
F	Unacceptable control delay in excess of 50 seconds per vehicle for each movement subject to delay.

Source: HCM 2010

Existing Conditions at Study Intersections

Existing intersection lane configurations and peak hour turning movement volumes were used to calculate the Level of Service (LOS) for the study intersections during each peak hour. The study intersections were analyzed using the 2010 Highway Capacity Manual (HCM 2010) methodology by using Synchro 10.0 software program. The results of the intersection LOS analysis for Existing Conditions are summarized in Table 5.12-5. The existing intersection lane configurations and traffic controls were obtained using satellite imagery. Appendix A contains the corresponding calculation sheets.

Under Existing Conditions, all intersections operate at an acceptable LOS C or better. Figure 5.12-4 illustrates the a.m. and p.m. peak hour traffic counts at the study intersections.



LEGEND

		Signal Control
		Stop Control
Project Site	XX	AM peak hour trips
Study Intersection	(XX)	PM peak hour trips
Study Segment		

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Truck Route from Ports of Los Angeles and Long Beach

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Figure
5.12-4

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Table 5.12-5: Intersection Level of Service – Existing Conditions

INTID	Intersection Name	Traffic Control	Peak Hour	Existing Condition	
				Average Delay	LOS
1	Rosamond Blvd and 90th St W	AWSC	AM	7.3	A
			PM	7.6	A
2	Rosamond Blvd and 55th St W/Tropico Road	AWSC	AM	12.1	B
			PM	9.8	A
3	SR 14 SB Off-Ramp & Rosamond Blvd	Signal	AM	20	C
			PM	16.4	B
4	SR 14 NB Off-Ramp & Rosamond Blvd	Signal	AM	14	B
			PM	13.3	B
5	W Ave A and 90th St W	AWSC	AM	7.7	A
			PM	7.8	A
6	W Ave D/ SR 138 and 90th St W	TWSC	AM	11.6	B
			PM	13.5	B
7	Hamilton Road and Tehachapi Willow Springs Road	TWSC	AM	8.7	A
			PM	14.1	B

Note: Average delay expressed in seconds.
AWSC = All Way Stop Control; TWSC = Two-way Stop Control

5.12.1.2.3 Truck Routes – Weight and Load Limitations

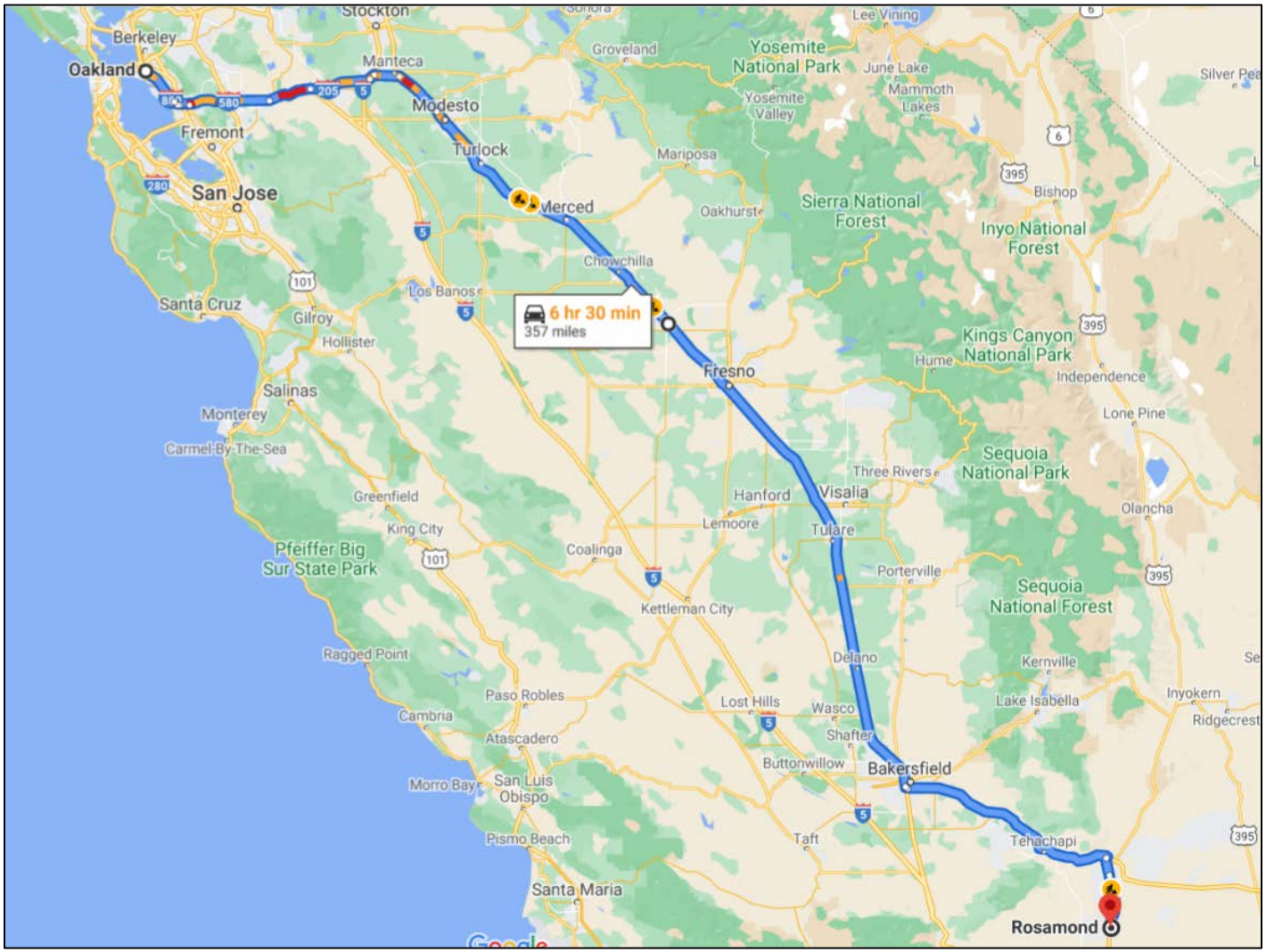
The construction of GESC will involve several different types of cargo that will travel to or from the site by truck. These are:

- **Construction Material:** Large and heavy components for GESC will be transported to the site by truck. These loads are expected to originate primarily (85%) from the greater Los Angeles area, including several shipments that will arrive at the Ports of Los Angeles and Long Beach. The path to be taken by these cargos would be via I-710, I-405, I-5, and then to SR 14 at Rosamond and west to the project site (see Figure 5.12-5). A lesser amount (15%) is expected to be shipped from the Bay Area, particularly the Port of Oakland. Their route would be via I-880, I-580, I-205, SR 99, SR 58, and then to SR 14 at Rosamond and west to the project site (see Figure 5.12-6**Error! Reference source not found.**). These routes are Surface Transportation Assistance Act (STAA) "Green" routes[1], meaning that they are designed to accommodate large trucks.
- **Tunneling Spoil:** Approximately 1.1 million cubic yards of rock will be excavated to construct the compressed air storage caverns. It is anticipated that a portion of this rock will be used on-site to construct the containment structure for the reservoir. The remaining spoil is expected to be transported to the local quarry, 5 miles north via Tehachapi Willow Springs Road.

[1] See https://dot.ca.gov/programs/traffic-operations/legal-truck-access/truck-network-map

- **Transmission Line Construction:** In addition to going to and from the main project site, some project-related vehicles will travel to additional sites along the transmission line between GESC and Southern California Edison's Whirlwind substation via a 10.9-mile-long 230-kilovolt transmission line. Alternatively, GESC may be interconnected to a future Los Angeles Department of Water and Power (LADWP) Rosamond substation via an approximately 3.5-mile 230 kV transmission line. The alignment of the transmission line is not yet determined. No matter which alignment is selected, it is assumed that construction crews will use existing service roads to install a new line.

California Vehicle Code (CDMV 2012) Sections 35550–35559 regulate the use of trucks on state facilities (see Section 5.12.5.2). Transportation permits will be obtained for all heavy and oversize loads, as required by law.



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TITLE

Truck Route from Port of Oakland

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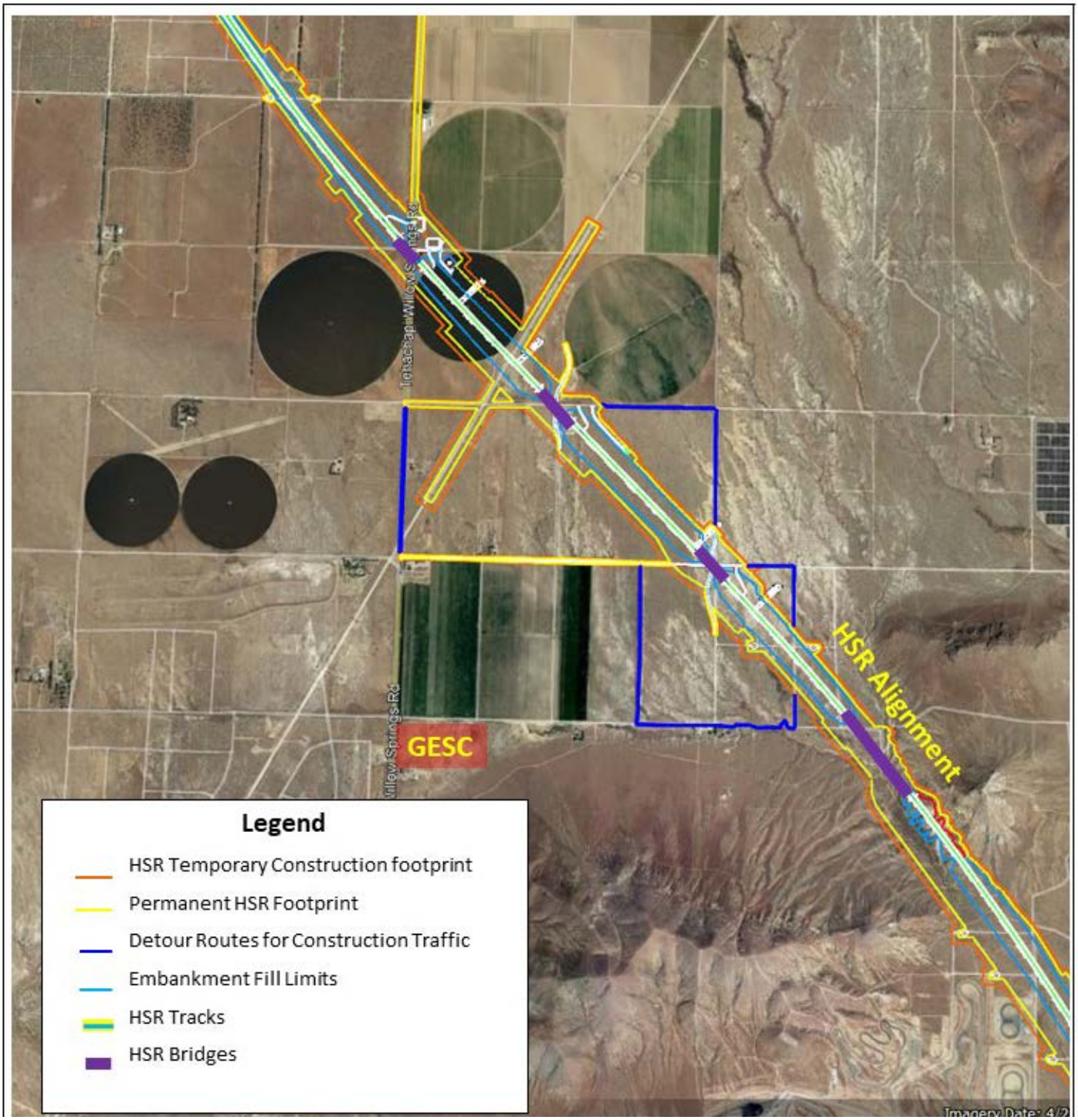
FIGURE

5.12-5



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High-Speed Rail Alignment in Relation to GESC

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Figure
5.12-6

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5.12.1.3 Other Projects

5.12.1.3.1 Future Plans and Projects

The current Regional Transportation Plan (RTP)[2] that was adopted by KernCOG in 2018 was reviewed to determine whether there were any projects relevant to GESC project traffic. The plan includes the widening of Tehachapi Willow Springs Road from its current two lanes to four lanes, from Route 58 to Rosamond Boulevard. This would include the west frontage of GESC. However, this project is not funded and if it happened it would occur after the horizon year of the RTP (2042).

5.12.1.4 Pedestrian/Bicycle Facilities

Bicycle facilities are typically categorized into four classes as follows:

- Class I facilities are bike paths or trails with an exclusive right-of-way (ROW) for bicycles separate from vehicles.
- Class II facilities are bike lanes with an exclusive ROW for bicycles designated by roadway striping and signs. Buffered bike lanes include a designated space between the bicycle lane and the automobile lanes.
- Class III facilities are bike routes signed for shared travel with motorized vehicles, without any striping. In addition, a shared-lane marking or sharrow is a street marking placed in the center of a travel lane to indicate that a bicyclist may use the full travel lane. Bicycle boulevards are a sub-group of Class III bike facilities usually comprised of low-volume residential streets that parallel major streets. Bicycle Boulevards are designed to give priority to bicyclists through various design techniques that reduce through traffic volumes and provide crossing enhancements for bicyclists at major intersections.
- Class IV facilities, also known as cycle tracks or separated bikeways, are bikeway for the exclusive use of bicycles and includes a separation required between the separated bikeway and the through vehicular traffic. The separation may include but is not limited to, grade separation, flexible posts, inflexible physical barriers, or on-street parking.

The 2018 RTP listed 33 potential bicycle facilities in the vicinity of Rosamond. These are listed in Table 5.12-6.

[2] https://www.kerncog.org/wp-content/uploads/2018/10/2018_RTP.pdf

Table 5.12-6: Bicycle Facilities Planned for the Rosamond Area

Street	Section	Planned Bicycle Facility	Length (miles)
Rosamond Blvd	60th St W-county line	Class II Buffered Bike Lane	5.6
20th St	W Av A-Rosamond Blvd	Class II Buffered Bike Lane	3
Sierra Hwy	W Av A-Hook Rd	Class II Buffered Bike Lane	3.6
35th St W	Felsite Av-Holiday Av	Class II Buffered Bike Lane	1.5
40th St	Rosamond Blvd-Holiday Av	Class II Buffered Bike Lane	1.1
30th St W	Patti Rose Av-Felsite Av	Class II Buffered Bike Lane	1.4
Felsite Av	35th St W-Frontage Rd	Class II Buffered Bike Lane	1.2
15th St W	Rosamond Blvd-Hook Av	Class II Bike Lane	0.6
Frontage Rd	Felsite Av-Rosamond Blvd	Class II Bike Lane	0.6
Rosamond Blvd	90th St-60th St	Class II Bike Lane	3
25th St	Rosamond Blvd-Holiday Av	Class II Bike Lane	1.1
60th St	Rosamond Blvd-Av A	Class II Bike Lane	3
80th St	Rosamond Blvd-Av A	Class II Bike Lane	3
90th St	Rosamond Blvd-Av A	Class II Bike Lane	3
Av A	90th St-Sierra Hwy	Class II Bike Lane	7.6
Hook Av	15th St W-United St	Class II Bike Lane	0.5
Tehachapi-Willow Springs Rd	Favorito Av	Class II Bike Lane	2.6
Glendower St	Rosamond Blvd-Hillcrest	Class III Bike Boulevard	0.5
Hillcrest Av	Haven St-Sierra Hwy	Class III Bike Boulevard	0.4
Holiday Av	40th St-35th St	Class III Bike Boulevard	0.2
Desert Cloud Av	35th St-Howard St	Class III Bike Boulevard	0.2
Marie Av	Hwy 14-Sierra Hwy	Class III Bike Boulevard	0.4
Orange St	Granite St-Sierra Hwy	Class III Bike Boulevard	0.3
Buss St	Janine Av-Summer Breeze Av	Class III Bike Boulevard	0.1
Howard St	Summer Breeze Av-Desert Cloud Av	Class III Bike Boulevard	0.1
Janine Av	Buss St-30th St	Class III Bike Boulevard	0.2
Summer Breeze Av	Howard St-Buss St	Class III Bike Boulevard	0.1
Backus Rd	Lone Butte Rd-Mojave-Tropico Rd	Class III Bike Route	3.6
Sierra Hwy	Felsite Av-Backus Rd	Class III Bike Route	5.6
Mojave-Tropico Rd	Backus Rd-Rosamond Blvd	Class III Bike Route	6.3
Elder Av	80th St-60th St	Class III Bike Route	2
Holiday Av	80th St-60th St	Class III Bike Route	2

5.12.1.5 Public Transportation

Based on a review of the RTP, it appears that there are no public transportation projects planned for Rosamond or Willow Springs.

5.12.1.6 Rail Traffic

The RTP includes two rail projects planned for the project vicinity, namely:

- **Extension of the Metrolink from Lancaster to Rosamond:** This project was identified in the 2012 Kern Commuter Rail Feasibility Study[3]. This project is not currently funded, and if the project is implemented it would be sometime after the horizon year of the RTP (2042).California High-Speed Rail (HSR): This mega-project is expected to pass within a mile of the GESC site (see Figure 5.12-7), which suggests several possibilities for synergies between the projects:
  - This section of HSR will be elevated on embankments that will pass over local roads. The construction of the embankments will require large amounts of fill material. It is possible that spoil from GESC's cavern excavation could be used to satisfy part of this need. However, given that GESC is likely to be constructed earlier than HSR, the material may need to be stored temporarily on the HSR site before use.
  - HSR will require a series of electric sub-stations at intervals along its alignment. Each of these substations will be connected to the regional power grid through transmission lines. One of these substations will be located somewhere near GESC (exact location not yet known). Since both GESC and HSR need a set of transmission lines to a substation of the regional power grid, it is possible that they could share use of a set of lines or at a minimum share a right-of-way to the substation on the grid.

Both of these possibilities would reduce the environmental impacts of GESC. However, since agreements have not been worked out with HSR, neither of these synergies was assumed in this analysis.

5.12.1.7 Air Traffic

The RTP states that there is $142 million worth of potential capital improvement projects in Kern County, including $40 million in projects at Mojave Air and Spaceport, 20 miles north of GESC. However, these projects are not funded and if they are implemented it would be after the horizon year of the RTP (2042).

[3] http://www.kerncog.org/wp-content/uploads/2010/03/KernCOG_Commuter_Rail_Draft_Report_20120720.pdf

LEGEND

CLIENT

HYDROSTOR INC.

PROJECT

GEM ENERGY STORAGE CENTER

CONSULTANT

GOLDER
MEMBER OF WSP

TITLE

Construction Traffic by Month

PROJECT No. **20449449**

FIGURE **5.12-7**

5.12.2 Environmental Analysis

This sub-section analyzes the potential effects of the GESC on transportation in the study area. This sub-section will concentrate on the construction period when traffic to and from the project will peak. A later subsection will analyze the effects of the project post-construction.

5.12.2.1 Significance Criteria

The significance criteria have been developed using guidance provided in California Environmental Quality Act Appendix G (Title 14, California Code of Regulations [CCR], Section 15000 et seq.) and relevant local policies. Effects of the proposed project on transportation and circulation will be considered significant if the following criteria are met:

- Conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, considering all modes of transportation including mass transit and nonmotorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit.
- Conflict with an applicable congestion management program, including but not limited to LOS standards and travel demand measures or other standards established by the county congestion management agency for designated roads or highways.
- 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 attributable 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.

Most jurisdictions have adopted policies that set target levels of LOS for road facilities under their control. In this case, the study roadway segments are under the jurisdiction of Kern County, which has a target LOS of D for all roads throughout the county.

Based on this, the following thresholds of significance were used for this project:

- For roadway segments, an impact would occur if the addition of project traffic results in an LOS of E or F and the V/C ratio increases .04 or more over the baseline condition.
- For signalized intersections, an impact would occur if the addition of project traffic results in an LOS of E or F and an increase traffic delay of 5 seconds or more (measured as average delay for all-vehicles entering the intersection).
- For unsignalized intersections, an impact would occur if the addition of project traffic results in an LOS of E or F and an increase traffic delay of 5 seconds or more (measured as average delay for all-way stop or worst-movement delay for a side-street-stop intersection).

Although this study is being done pursuant to CEC's environmental impact analysis framework rather than CEQA and is therefore not subject to SB-743, it was felt that consideration should be given to the project's possible impact on the State's vehicle-miles of travel (VMT) greenhouse gas reduction goals.

The threshold that a project would have a significant VMT impact would be if the VMT/employee is greater than the average VMT/employee for the city it is located in. The Kern County Council of Governments (KernCOG) provided information on the average VMT/ per service population (residents and employees combined) in Rosamond, which was 43.18 MVT/person, which is, therefore, the threshold for a significant VMT impact.

5.12.2.1.1 Project Specific Impacts

5.12.2.1.2 Construction Traffic Generation

Traffic generated during the construction phase would include personnel vehicles and heavy trucks. These vehicles would access the project site using the study segments and routes identified previously. From months 13 to 36, the surface and cavern construction would occur simultaneously along with transmission infrastructure. The number of workers changes dramatically in construction phases depending on the stage of construction, as shown in Figure 5.12-8. During the peak of construction operations, it is anticipated that a maximum of 574 workers would be deployed daily. The peak daily number of truck trips during this phase is estimated to be 706 and the daily peak hour trips would be 141.

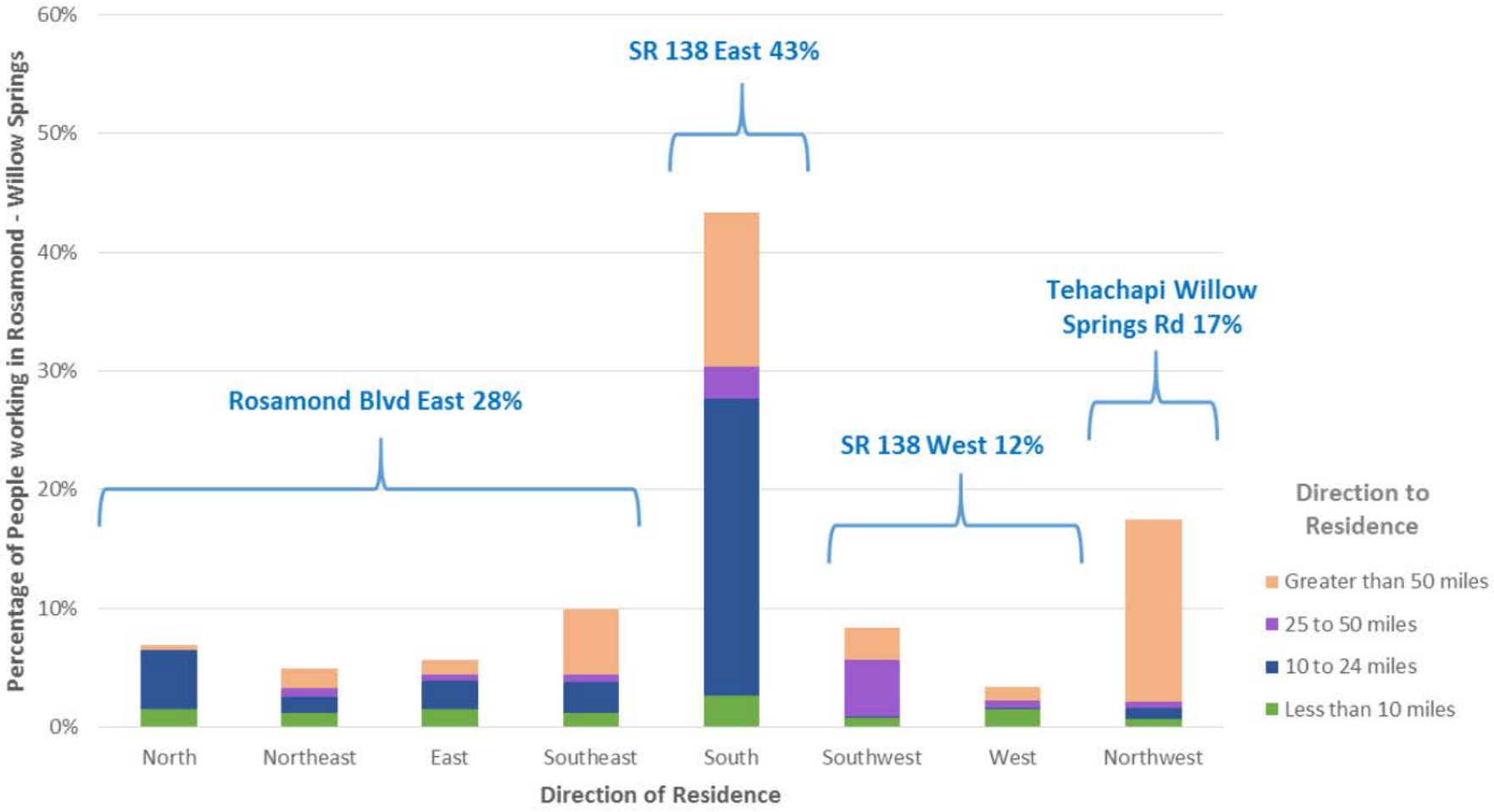
Table 5.12-7 provides the trip generation information based on the number of workers and truck trips as furnished by the applicant. To provide a conservative analysis (i.e., the worst-case trip generation scenario), construction workers are assumed to arrive at the a.m. peak (7:00 – 9:00 a.m.) and leave during the PM peak (4:00 – 6:00 p.m.) each weekday. With extreme temperatures in the Antelope Valley, it is likely that workers would start early to avoid hot afternoons. Additionally, it is assumed that there would be no carpool trips. Therefore, the project is likely to result in fewer impacts than described below.

Table 5.12-7: Trip Generation

Phase	Number of Workers	Number of Daily Truck Trips	Average Daily Traffic[1]	AM Peak Hour		PM Peak Hour	
				In	Out	In	Out
Construction Phase	574	706	2,290	474	71	71	474
Operational Phase	12	0	36	12	0	0	12

Note: Truck trips volumes were converted to passenger-car equivalent volumes using a factor of 2.0

Following HCM 2010 guidelines, heavy truck volumes were converted to passenger-car equivalent volumes using a factor of 2.0 to account for the effective reduction in free-flow speed (mean traffic speed under low-flow conditions) caused by the presence of heavy vehicles in the traffic flow. Trips were estimated based on assumptions regarding daily deliveries of materials and equipment anticipated for construction. It was assumed that the trucks would enter and depart the facility fairly uniformly throughout the day, and therefore only a portion -10% of the truck trips are assumed to occur in the a.m. and p.m. peak hours.



LEGEND

CLIENT

HYDROSTOR INC.

PROJECT

GEM ENERGY STORAGE CENTER

CONSULTANT

GOLDER
MEMBER OF WSP

TITLE

Distribution of Project Workers' Place of Residence

PROJECT No. **20449449**

FIGURE **5.12-8**

5.12.2.1.3 Construction Traffic Distribution

Trip distribution was developed based on the assumptions mentioned in the project description earlier. The distribution of trucks and workers was developed separately to capture the different points of origin.

Although SR 138/90th Street W could be a preferred route based on the fewer traffic signal and stop controls, workers would be likely to use Rosamond Blvd. to access restaurants and convenience stores in addition to better pavement conditions.

The distributions assumed during the construction phase are as follows:

Workers: The distribution of project non-specialized workers' residential locations was assumed to follow the distribution of residential locations for persons currently employed in the Rosamond-Willow Springs area. Figure 5.12-8 shows the distribution based on U.S. Census data. This distance and direction-based information was then used to identify the top 10 locations for workers' residence as shown in Table 5.12-8.

- 43 percent to/from SR 138 to the east
- 28 percent to/from Rosamond Blvd to the east
- 17 percent to/from Tehachapi Willow Springs Road to the north
- 12 percent to/from SR 138 to the west

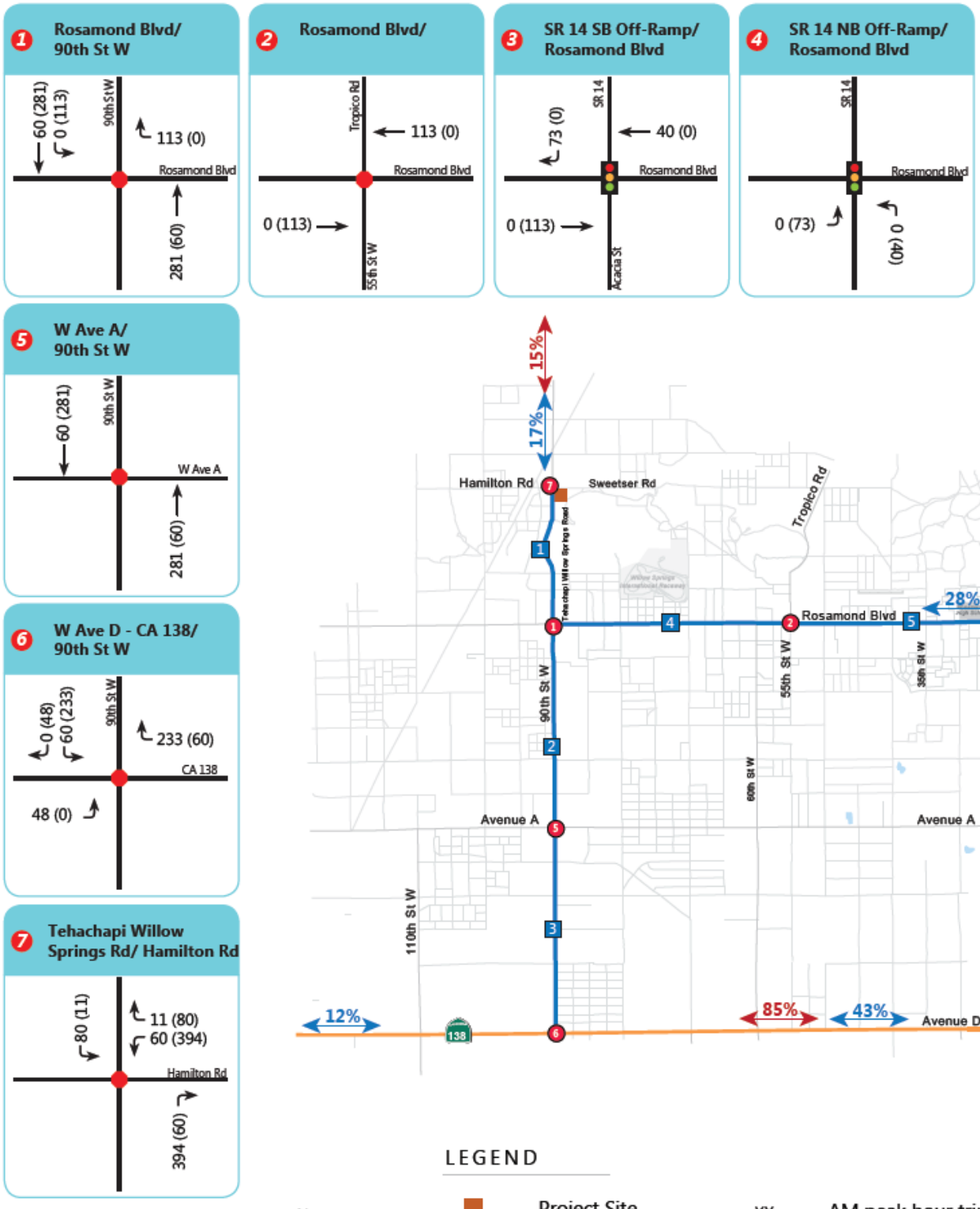
Table 5.12-8: Top 10 Residential Locations for Workers

Location	Percent of Workers %
Rosamond CDP, CA	47
Lancaster City, CA	19
Palmdale City, CA	14
Los Angeles City, CA	6
Mojave CDP, CA	4
Tehachapi City, CA	3
California City, CA	2
Santa Clarita City, CA	2
Sun Village CDP, CA	2
Quartz Hill CDP, CA	1
Total	100

Trucks

- 85 percent to/from SR 138 to the east
- 15 percent to/from Tehachapi Willow Springs Road to the north

Based on these assumptions, the project trip distribution and assignment for the construction phase is shown in Figure 5.12-9.



LEGEND

Project Site	Signal Control	
Study Intersection	Stop Control	
Study Segment	XX	AM peak hour trips
	(XX)	PM peak hour trips

XX% Project Workers Trip Distribution

XX% Project Truck Trip Distribution

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Project Trip Distribution During Construction

Figure
5.12-9

Project No.
20449449

Path: document1 File Name: Document1

5.12.2.1.4 Roadway LOS with Construction Traffic

Table 5.12-9 shows the roadway capacity analysis for the study segments in the project vicinity. All segments operate at LOS A under existing conditions and would continue to do so during the GESC construction. The project's impacts during construction would therefore be less than significant.

Table 5.12-9: Roadway Capacity Analysis

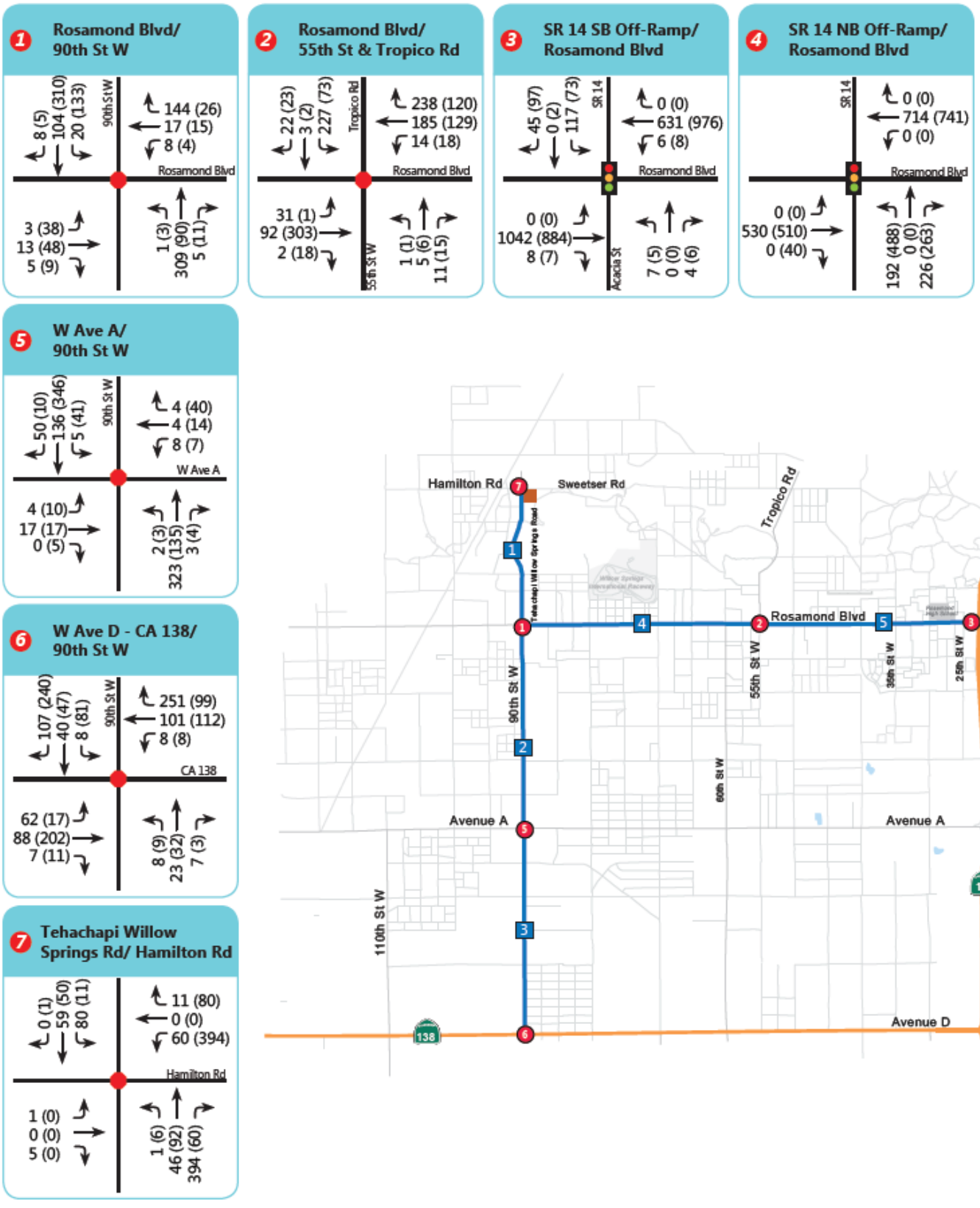
#	Study Segment	Daily ADT	HCM Capacity [1]	V/C	LOS	Project Trips	Existing Plus Project Trips	V/C	Change in V/C	LOS
1	Tehachapi Willow Springs Rd between Hamilton Rd and Rosamond Blvd	1,790	15,000	0.12	A	361	2,151	0.14	0.02	A
2	90th Street between Rosamond Blvd and Avenue A	1,289	15,000	0.09	A	1,683	2,972	0.20	0.11	A
3	90th Street between Avenue A and CA 138 (Avenue D)	1,250	15,000	0.08	A	1,683	2,933	0.20	0.11	A
4	Rosamond Blvd between 90th St W and 55th St W	978	15,000	0.07	A	246	1,224	0.08	0.02	A
5	Rosamond Blvd between 55th St W and SR 14	13,120	35,800	0.37	A	246	13,366	0.37	0.01	A

Note: [1]Simplified Highway Capacity Calculation Method for the Highway Performance Monitoring System, 2017
V/C = Volume-to-Capacity ratio

5.12.2.1.5 Intersection LOS with Construction Traffic

Intersection levels of service during construction were calculated by adding project construction traffic to existing volumes to evaluate the consequent conditions at the study intersections. Figure 5.12-10 shows projected turning movement volumes at the study intersections for Existing plus Construction Phase Conditions.

The results of the intersection level of service calculations for construction phase conditions are presented in Table 5.12-10. Appendix A contains the corresponding calculation sheets. All intersections would continue to operate at acceptable LOS C with the addition of construction traffic. The project's impacts during construction would therefore be less than significant.



LEGEND

	Project Site		Signal Control
	Study Intersection		Stop Control
	Study Segment	XX	AM peak hour trips
		(XX)	PM peak hour trips

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Volumes at Study Intersections (Construction Phase)

Project No.
20449449

Figure
5.12-10

Path: document1 File Name: Document1

Table 5.12-10: Intersection Level of Service - Construction Phase Conditions

INTID	Intersection Name	Traffic Control	Peak Hour	Existing		Existing plus Construction		Change in Delay
				Average Delay	LOS	Average Delay	LOS	
1	Rosamond Blvd and 90th St W	AWSC	AM	7.3	A	10.1	B	2.8
			PM	7.6	A	12.5	B	4.9
2	Rosamond Blvd and 55th St W/Tropico Road	AWSC	AM	12.1	B	12.8	B	0.7
			PM	9.8	A	11.8	B	2
3	SR 14 SB Off-Ramp & Rosamond Blvd	Signal	AM	20	C	19.5	B	-0.5
			PM	16.4	B	17.5	B	1.1
4	SR 14 NB Off-Ramp & Rosamond Blvd	Signal	AM	14	B	13.9	B	-0.1
			PM	13.3	B	14.2	B	0.9
5	W Ave A and 90th St W	AWSC	AM	7.7	A	9.7	A	2
			PM	7.8	A	10.8	B	3
6	W Ave D/ SR 138 and 90th St W	TWSC	AM	11.6	B	18.4	C	6.8
			PM	13.5	B	18	C	4.5
7	Hamilton Road and Tehachapi Willow Springs Road	TWSC	AM	8.7	A	9.4	A	0.7
			PM	14.1	B	19.8	C	5.7

Note: Average delay expressed in seconds.
AWSC = All- Way Stop Control; TWSC = Two-way Stop Control

5.12.2.2 Linear Facility Construction Impacts

Construction of the transmission lines is expected to involve small crews using fewer than 10 cars per day with a small number of trucks delivering construction materials. Access to the tower sites would be via the network of small secondary roads, followed by off-road travel to the individual sites. The exact alignment and location of the transmission towers is not known at this time. Nevertheless, the small number of vehicles involved suggest that the transportation impact would be less than significant.

5.12.2.3 Transport of Hazardous Materials

The construction and operation of GESC is expected to involve transportation of the following hazardous materials (see Chapter 5.5, Hazardous Materials):

- During Construction: Explosives and detonators used for cavern construction, and oil for mechanized equipment.
- During Operation: Water treatment chemicals, lubricant oil, propane for utilities, and diesel fuel for backup generators.

Division 13, Section 31303 of the California Vehicle Code (CDMV 2012) stipulates that the transportation of regulated substances and hazardous materials are required to be carried out via the most direct route, using State or interstate highways whenever possible. In accordance with this policy, for GESC, subject to Caltrans approval, the recommended route for delivery of regulated or hazardous materials is via SR 99, SR 58, and SR 14.

Transporters of hazardous or explosive materials must contact the California Highway Patrol (CHP) and apply for a Hazardous Material Transportation License. Instructions are available in Section 9 of the California Commercial Driver Handbook. The exact route of the hazardous material shipment will not be determined until the shipper contacts CHP and applies for a license.

Standards for the transport of hazardous materials are contained in Title 49 of the Code of Federal Regulations (CFR) and are enforced by the U.S. Department of Transportation. Additionally, the State of California has promulgated rules for hazardous waste transport that can be found in CCR, Title 26. Additional regulations for the transportation of hazardous materials are outlined in the CVC (CDMV 2012) (Sections 2500-505, 12804-804.5, 31300, 3400, and 34500-501). The state agencies with primary responsibility for enforcing federal and state regulations governing the transportation of hazardous wastes are CHP, Caltrans, and the Department of Toxic Substances Control. Transport of hazardous materials associated with GESC will comply with all applicable requirements.

5.12.2.4 Public Safety

The GESC project is not expected to pose any unusual safety hazard to the public, except for the transportation of hazardous materials, where the transporter will be required to obtain a Hazardous Material Transportation License in accordance with CVC Section 32105 (CDMV 2012) and follow proper safety procedures.

There are no schools, day care centers, retail centers or other generators of pedestrian traffic near the project site.

5.12.2.5 Air Traffic

The project is more than 7 miles from the nearest airport. The GESC is not expected to have any effect on the operations of any air facility.

5.12.2.6 Emergency Vehicle Access

Emergency access to GESC will be through the main driveway on Tehachapi Willow Springs Road. Construction and operation of GESC will not involve any road closures and will have no effect on the operations of emergency vehicles.

5.12.2.7 Parking

The approximate 71-acre project site will allow all project-related parking to be on-site.

5.12.2.8 VMT Impacts

VMT impacts are measured by comparing the average VMT per employee for the project area, in this case Rosamond, with the average VMT per employee for the project.

Table 5.12-10 showed the top ten residential locations for people who work in Rosamond. Table 5.12-11 uses that information to determine the average commute distance (VMT) for people working in Rosamond. As can be seen in the table, the average is 19.0 VMT/employee.

As stated earlier in this report, 15% of the GESC construction workers will be recruited locally. These workers would presumably have the same spatial distribution as other people who work in Rosamond and the same VMT/employee. As such, their VMT impact would be less than significant.

Table 5.12-11: Computation of Average VMT for People Employed in Rosamond

Location	Percent of Workers%	Miles from Site	Calculation of Average VMT
	(A)	(B)	(C)=(A)*(B)
Rosamond CDP, CA	47	4	1.9
Lancaster City, CA	19	21	4.0
Palmdale City, CA	14	30	4.2
Los Angeles City, CA	6	81	4.9
Mojave CDP, CA	4	19	0.8
Tehachapi City, CA	3	22	0.7
California City, CA	2	33	0.7
Santa Clarita City, CA	2	47	0.9
Sun Village CDP, CA	2	41	0.8
Quartz Hill CDP, CA	1	21	0.2
Total	100%		19.0

Besides the 15 percent of GESC construction workers that are locally recruited, another 85 percent would be brought in from other parts of the state and country and would reside temporarily in hotels. Since, at this time, we do not know in which hotels the crews would be lodged, we assumed that their spatial distribution would be similar the spatial distribution of hotels within a 30-minute driving radius of the GESC site. Table 5.12-12 shows this distribution, based on information obtained from Google Maps. Using this information, and assuming that each worker drove themselves to the project site, the average VMT/employee would be 22.7. Since this is higher than the current average of 19.0, these workers would have a significant VMT impact.

Table 5.12-12: Computation of VMT/Employee for GESC Workers Residing in Hotels

Hotel Location	Number of Hotels	Percent of Hotels%	Miles from Site	Calculation of Average VMT
	(A)	(B)=(A)/Σ(A)	(C)	(D)=(B)*(C)
Rosamond	2	4	9	0.35
Lancaster	17	33	21	7.00
Palmdale	13	25	30	7.65
Mojave	9	18	19	3.35
Tehachapi	10	20	22	4.31
Total	51	100		22.67

5.12.3 Cumulative Effects

Once the A-CAES facility is constructed, it will be operated by a workforce of approximately 50 employees who will be commuting from nearby communities. In accordance with Kern County traffic guidelines, a traffic impact analysis of study intersections and roadway segments is not required during the operational phase, as the project will generate fewer than 100 peak-hour trips during this phase. The traffic impacts of the project would be less than significant.

5.12.4 Mitigation Measures

GESC's only transportation impact would be the VMT impact of construction workers staying at hotels. This impact could be mitigated through carpooling. Table 5.12-13 shows that if 20% or more of the GESC construction workers residing in hotels carpooled with another worker staying at the same hotel, then the average VMT/employee would drop below the current average and the impact would be reduced to less than significant.

Table 5.12-13: Computation of VMT/Employee for Workers Residing in Hotels after Mitigation

Hotel Location	Number of Hotels	Percent of Hotels	Miles from Site	Calculation of Average VMT	With 20% Carpooling
	(A)	(B)=(A)/Σ(A)	(C)	(D)=(B)*(C)	(E)=(D)*.8
Rosamond	2	4%	9	0.4	0.3
Lancaster	17	33%	21	7.0	5.6
Palmdale	13	25%	30	7.6	6.1
Mojave	9	18%	19	3.4	2.7
Tehachapi	10	20%	22	4.3	3.5
Total	51	100%		22.7	18.1

The GESC project would have no other significant transportation impacts, so no further mitigation measures are required.

5.12.5 Laws, Ordinances, Regulations, and Standards

The project applicant would ensure compliance with LORS of all applicable federal, state, local and administering agencies pertaining to traffic and transportation issues.

5.12.5.1 Federal LORS

- 49 CFR 172, 173, and 173. These regulations provide standards for labels, placards, and markings on hazardous materials shipments by truck (Part 172), standards for packaging hazardous materials (Parts 173), and for transporting hazardous materials in tank cars (Part 179). The administering agencies for the above authority are the CHP and U.S. Department of Transportation.
- *As per the project description, the project will have 1 fuel truck trip per day during the Site clearing stage. Additionally, the project will deliver explosives biweekly during the mining stage (months 19-60). The project will comply with all standards for the transportation of hazardous materials.*
- 49 CFR 350-399, and Appendices A-G, Federal Motor Carrier Safety Regulations, address safety considerations for the transport of goods, materials, and substances over public highways.

- 14 CFR 77.13(2) (i) requires an applicant to notify the FAA of the construction of structures within 20,000 feet of the nearest point of the nearest runway of an airport with at least one runway longer than 3,200 feet.

The Rosamond Skypark Airport is the closest airport and is located 7.5 miles (40,000 Feet) from the project site. The FAA notice criteria tool suggests that the notice of proposed construction is not required.

5.12.5.2 State LORS

- California Vehicle Code (CDMV 2012) Sections 13369, 15275, and 15278 address the licensing of drivers and classifications of licenses required to operate particular types of vehicles.
- CVC Sections 32100.5 addresses the transportation of hazardous materials that pose an inhalation hazard.
- CVC, 13 CCR 1160, et seq. provides the CHP with authority to adopt regulations for the transportation of hazardous materials in California. The CHP can issue permits and specify the route for hazardous material delivery.
- California Streets and Highway Code (S&HC), Sections 660, 670, 1450, 1460 et seq. 1470, and 1480, regulate right-of-way encroachment and granting of permits for encroachments on state and county roads.
- S&HC Sections 117 and 660–711 and CVC Sections 35780 et seq., require permits to transport oversized loads on county roads. S&HC Sections 117 and 660 to 711 require permits for any construction, maintenance, or repair involving encroachment on state highway rights-of-way. CVC Section 35780 requires approval for a permit to transport oversized or excessive loads over state highways.
- Caltrans weight and load limitations for state highways apply to all state and local roadways. The weight and load limitations are specified in CVC Sections 35550 to 35559. The following provisions, from the CVC, apply to all roadways and are therefore applicable to this project.
- General Provisions: The gross weight imposed upon the highway by the wheels on any axle of a vehicle shall not exceed 20,000 pounds and the gross weight upon any one wheel, or wheels, supporting one end of an axle, and resting upon the roadway, shall not exceed 10,500 pounds.
- The maximum wheel load is the lesser of the following: (a) the load limit established by the tire manufacturer, or (b) a load of 620 pounds per lateral inch of tire width, as determined by the manufacturer's rated tire width.
- Vehicles with Trailers or Semi-trailers: The gross weight imposed upon the highway by the wheels on any one axle of a vehicle shall not exceed 18,000 pounds and the gross weight upon any one wheel, or wheels, supporting one end of an axle and resting upon the roadway, shall not exceed 9,500 pounds, except that the gross weight imposed upon the highway by the wheels on any front steering axle of a motor vehicle shall not exceed 12,500 pounds.

5.12.5.3 Local LORS

This section reviews compliance with all relevant local LORS without regard to their applicability as a matter of law. These LORS include the following:

- No Stopping Zones: A no-stopping zone on the north side of Rosamond Boulevard, beginning at the northwest curb return with Eagle Way, thence westerly for a distance of four hundred twenty-five (425) feet. A no-stopping zone on the north side of Rosamond Boulevard, beginning at the northwest curb return with

Eagle Way, thence westerly for a distance of five hundred forty-seven (547) feet to the true point of beginning, thence westerly for a distance of eight hundred sixty-one (861) feet. A no-stopping zone on the north side of Rosamond Boulevard, beginning at the northeast curb return with 30th Street West, thence easterly for a distance of two hundred fifteen (215) feet. (Municipal Code §10.16.058, 2021).

- Parking Limitations: In the absence of the posting of a stricter limitation, it shall be unlawful for any vehicle, as defined in the Vehicle Code of the State of California, to remain parked or standing upon any public street or alley within the unincorporated area of the county, with the exception of state highways, for a period of seventy-two (72) or more consecutive hours.
- Kern County General Plan: The goals in the Kern County General Plan Circulation Element for transportation that are applicable to the project are provided below. The Kern County General Plan contains additional policies, goals, and implementation measures that are more general in nature and are not specific to development such as the project. Therefore, they are not listed below, but all policies, goals, and implementation measures in the Kern County General Plan are incorporated by reference. The design level-of-service (LOS) for Kern County is LOS C. The minimum LOS for conformance with the Kern County General Plan is LOS D.

  Circulation Element

  - To satisfy the trip reduction and travel demand requirements of the Kern Council of Government's Congestion Management Program.
  - To coordinate congestion management and air quality requirements and avoid multiple and conflicting requirements
  - Kern County will plan for a reduction of environmental effects without accepting a lower quality of life in the process.
  - Maintain a minimum [level of service] LOS D for all roads throughout the county.
  - Provide for Kern County's heavy truck transportation in the safest way possible.
  - Reduce potential overweight trucks.
  - Use State Highway System improvements to prevent truck traffic in neighborhoods.
- Willow Springs Specific Plan: The project is subject to the provisions of the Willow Springs Specific Plan. The Willow Springs Specific Plan was adopted in April 2008 and contains goals, policies, and standards that are compatible with those in the Kern County General Plan but are unique to the specific needs of the Willow Springs Area. The transportation-related policies and measures contained in the Willow Springs Specific Plan that are applicable to the project are outlined below (Kern County Department of Planning and Development Services 2008). Note that only applicable goals, policies, and standards are included here; those goals, policies, and standards that are not applicable are not included.

Circulation Element

Goals

- Goal 5 To maintain public safety within the plan area by providing a more direct and efficient circulation system for law enforcement and fire protection vehicles.
- Goal 7 To provide an adequate circulation system which will support the proposed land uses.

Policies

- Policy 7 Require the widening of impacted roadways to handle increased traffic generated by new development.
- Policy 8 Encourage resourceful air quality improvement and reduction methods.

Mitigation/Implementation Measures

- Measure 9 A traffic study in accordance with the requirements of Kern County and Caltrans, as appropriate, shall be submitted for all discretionary projects. Study shall demonstrate consistency with the Willow Springs Specific Plan.
- Measure 13 The Traffic Impact Fee Program implements Mitigation Measure 10 of the Willow Springs Final Environmental Impact Report (EIR).

- Kern Council of Governments Congestion Management Program: All urbanized areas with a population larger than 200,000 residents are required to have a Congestion Management System, program, or process. The Kern Council of Governments (Kern COG) refers to its congestion management activities as the Congestion Management Program (CMP). Kern COG was designated as the 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 level of service (LOS) performance standards and air quality improvement. The program attempts link land use, air quality, transportation, advanced transportation technologies as integral and complementary parts of this 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: The latest Regional Transportation Plan (RTP) was prepared by the Kern COG and was adopted on August 16, 2018. The 2018 RTP is a 24-year blueprint that establishes a set of regional transportation goals, policies, and actions intended to guide development of the planned multimodal transportation systems in Kern County. It was developed through a continuing, comprehensive, and cooperative planning process, and provides for effective coordination between local, regional, State, and federal agencies. Included in the 2018 RTP is the Sustainable Communities Strategy (SCS), which is required by California’s Sustainable Communities and Climate Protection Act, of Senate Bill (SB) 375. The California Air Resources Board (CARB) set Kern greenhouse gas (GHG) emissions reductions from passenger vehicles and light-duty trucks by 5 percent per capita by 2020 and 10 percent per capita by 2035

as compared to 2005. In addition, SB 375 provides for closer integration of the RTP/SCS with the Regional Housing Needs Allocation (RHNA) ensuring consistency between low-income housing need and transportation planning. Kern COG engaged in the RHNA process concurrently with the development of the 2014 RTP. This process required Kern COG to work with its member agencies to identify areas within the region that can provide sufficient housing for all economic segments of the population and ensure that the state's housing goals are met.

- The intent of the SCS is to achieve the State's emissions reduction targets for automobiles and light trucks. The SCS will also provide opportunities for a stronger economy, healthier environment, and safer quality of life for community members in Kern County. The RTP/SCS seeks to: improve economic vitality; improve air quality; improve the health of communities; improve transportation and public safety; promote the conservation of natural resources and undeveloped land; increase access to community services; increase regional and local energy independence; and increase opportunities to help shape our community's future.
- The 2018 RTP/SCS financial plan identifies how much money is available to support the region's transportation investments. The plan includes a core revenue forecast of existing local, state, and federal sources along with funding sources that are considered to be reasonably available over the time horizon of the RTP/SCS. These new sources include adjustments to state and federal gas tax rates based on historical trends and recommendations from two national commissions (National Surface Transportation Policy and Revenue Study Commission and National Surface Transportation Infrastructure Financing Commission), leveraging of local sales tax measures, local transportation impact fees, potential national freight program/freight fees, future state bonding programs and mileage-based user fees (Kern COG, 2018).
- Kern County Airport Land Use Compatibility Plan (ALUCP)

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

5.12.6 Agencies and Agency Contacts

Table 5.12-14 lists the agency contacts related to traffic and transportation.

Table 5.12-14: Agency Contacts for Traffic and Transportation

Permit	Agency	Contact
Transportation Permit for Oversized Loads	Caltrans	Caltrans Transportation Permits Issuance Branch 1823 14th Street Sacramento, CA 95814-7119 (916) 322-4958 http://www.dot.ca.gov/hq/traffops/permits/

Permit	Agency	Contact
Hazardous Material Transportation License	California Highway Patrol	Hazardous Material Licensing P.O. Box 942898 Sacramento, CA 942898-0001 (916) 843-3400 Email form available at: http://www.chp.ca.gov/prog/email.cgi
Transportation Permit for Oversized or Overweight Loads	Los Angeles County	Los Angeles County Department of Public Works Transportation Permitting Desk 900 South Fremont Avenue, 8th Floor Alhambra, CA 91803 (626) 458-3129 Complete form available at: https://dpw.lacounty.gov/spats/public/tpap.cfm
Transportation Permit	Kern County	Kern County Department of Public Works 2700 M Street Bakersfield, CA 93301 (661) 862-8987 Email form available at: https://kernpublicworks.com/wp-content/uploads/2017/06/transportation_singletrip_application.pdf
Safety Permits	Federal Motor Carrier Safety Administration	California Division Office 1325 J St. Suite 1540 Sacramento, CA 95814-2941 (916) 930-2760

5.12.7 Permits and Permit Schedule

Table 5.12-15 lists the permits related to traffic and transportation and the permit schedule. The vehicles used to transport heavy equipment and construction materials will require transportation permits when they exceed the size, weight, width, or length thresholds set forth in Section 35780 of the CVC (CDMV 2012), Sections 117 and 660-711 of the California Streets and Highways Code (S&HC), and Sections 1411.1 to 1411.6 of the CCRs. Affected vehicles will be required to obtain transportation permits from Caltrans and Kern County, or from any other affected agency. Transport route arrangements would be required with Caltrans and CHP officials for permitting and escort, as applicable. Transportation of hazardous materials to and from the GESC will be conducted in accordance with CVC Section 31303 (CDMV 2012).

Table 5.12-15: Permits and Permit Schedule for Traffic and Transportation

Permit	Agency Contact	Schedule
Single/annual-trip transportation permit for oversized loads and oversized vehicles	Permit Officer on Duty Caltrans, Transportation Permits Issuance Branch (916) 322-1297	Obtain when necessary, 2-hour processing time (single trip) to 2 weeks (annual trip).
Hazardous Material Transportation License	California Highway Patrol Hazardous Material Licensing Program (916) 327-5039	Obtain when necessary, approximately 2-week processing time.
Single/annual transportation permit for oversize and overweight loads through Kern County	Kern County Department of Public Works 2700 M Street Bakersfield, CA 93301 (661) 862-8987 Email form available at: https://kernpublicworks.com/wp-content/uploads/2017/06/transportation_singletrip_application.pdf	Obtain when necessary, Applications can be processed in a single working day.

5.12.8 References

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