5.12 Traffic and Transportation

This section addresses the potential effects of the Lodi Energy Center (LEC) on traffic and transportation. Section 5.12.1 describes the affected environment of the local and regional traffic and transportation routes surrounding the project site. Section 5.12.2 evaluates the project's environmental consequences on local traffic volumes and patterns. Section 5.12.3 evaluates potential cumulative effects on traffic and transportation due to other simultaneous projects. Section 5.12.4 describes mitigation measures for the project. Section 5.12.5 describes applicable laws, ordinances, regulations, and standards (LORS), and Section 5.12.6 lists the applicable regulatory agency 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 proposed 4.4-acre LEC project site is located on land owned and incorporated by the City of Lodi, 6 miles west of the Lodi city center, in San Joaquin County. The power plant site is on the west side of Interstate 5 (I-5) approximately 1.7 miles south of State Route 12 (SR 12). On the east side of the site is the City of Lodi's White Slough Water Pollution Control Facility (WPCF). The WPCF's treatment and holding ponds are located to the north, the existing Northern California Power Agency (NCPA) Combustion Turbine Project #2 (STIG plant) is located to the west with a 230-kV PG&E overhead electrical transmission line aligned further to the west, and the San Joaquin County Mosquito and Vector Control District facility is to the south.

5.12.1.1 Existing Regional and Local Transportation Facilities

The surrounding regional and local roadway networks are shown in Figures 5.12-1 and 5.12-2. Freeway access to the site is provided from the north and south via I-5, and to the east and west via SR 12. Local access to the project site is mainly provided by Thornton Road, a north-south arterial to the east of the project site. The LEC employees and construction workers traveling to the site may affect the roadways described below.

5.12.1.1.1 Interstate 5

I-5 is a north-south freeway from California to Washington. I-5 connects to SR 12 north of the project site and to State Route 4 (SR 4) south of the project site. Access from I-5 to the site is provided from the south using Thornton Road via West Eight Mile Road, and from the north using Thornton Road via SR 12. In the immediate vicinity of the proposed project, I-5 has three lanes in each direction, and two lanes in each direction north of SR 12. According to traffic counts published by the California Department of Transportation (Caltrans) in 2006, the average daily traffic volume on I-5 near the SR 12 interchange is 77,000 vehicles per day. Trucks are approximately 16 percent of all traffic.

5.12.1.1.2 State SR 4

SR 4 is an east-west freeway that connects Contra Costa County with San Joaquin County. SR 4 connects to I-5 to the south of the project site, and to State Route 160 (SR 160) to the west of the project site. In the vicinity of SR 160, SR 4 has two lanes in each direction. According to traffic counts published by Caltrans in 2006, the average daily traffic volume on SR 4 is 38,000 vehicles per day. Trucks are approximately 5 percent of all traffic.

5.12.1.1.3 State Route 12

SR 12 is an east-west state highway that provides indirect access to the project site from the northeast and northwest. It has one or two lanes in each direction in the vicinity of the LEC. According to Caltrans, the average daily traffic volume on SR 12 near the I-5 interchange is 22,200 vehicles per day. Trucks are approximately 14 percent of all traffic.

5.12.1.1.4 State SR 160

SR 160 is a north-south freeway that connects Contra Costa County to Solano County west of the project site. In the vicinity of SR 12, SR 160 has one lane in each direction. According to traffic counts published by Caltrans in 2006, the average daily traffic volume on SR 160 near the SR 12 interchange is 15,000 vehicles per day. Trucks are approximately 9 percent of all traffic.

5.12.1.1.5 North Cord Road

North Cord Road is a north-south roadway that connects the site entrance to North Thornton Road. It is an undivided facility that has one lane in each direction. According to San Joaquin County, North Cord Road carries about 30 vehicles per day.

5.12.1.1.6 West Eight Mile Road

West Eight Mile Road is an east-west roadway that connects I-5 to North Thornton Road. It is a five-lane divided facility. According to San Joaquin County, West Eight Mile Road carries about 11,200 vehicles per day.

5.12.1.1.7 North Thornton Road

North Thornton Road is a two-lane, north-south, undivided roadway. North Thornton Road connects West Eight Mile Road to SR 12 to the west. The connection to the eastern segment of SR 12 and North Thornton Road is via De Broggi Road. According to San Joaquin County, North Thornton Road carries about 10,000 vehicles per day near Devries Road.

5.12.1.1.8 De Broggi Road

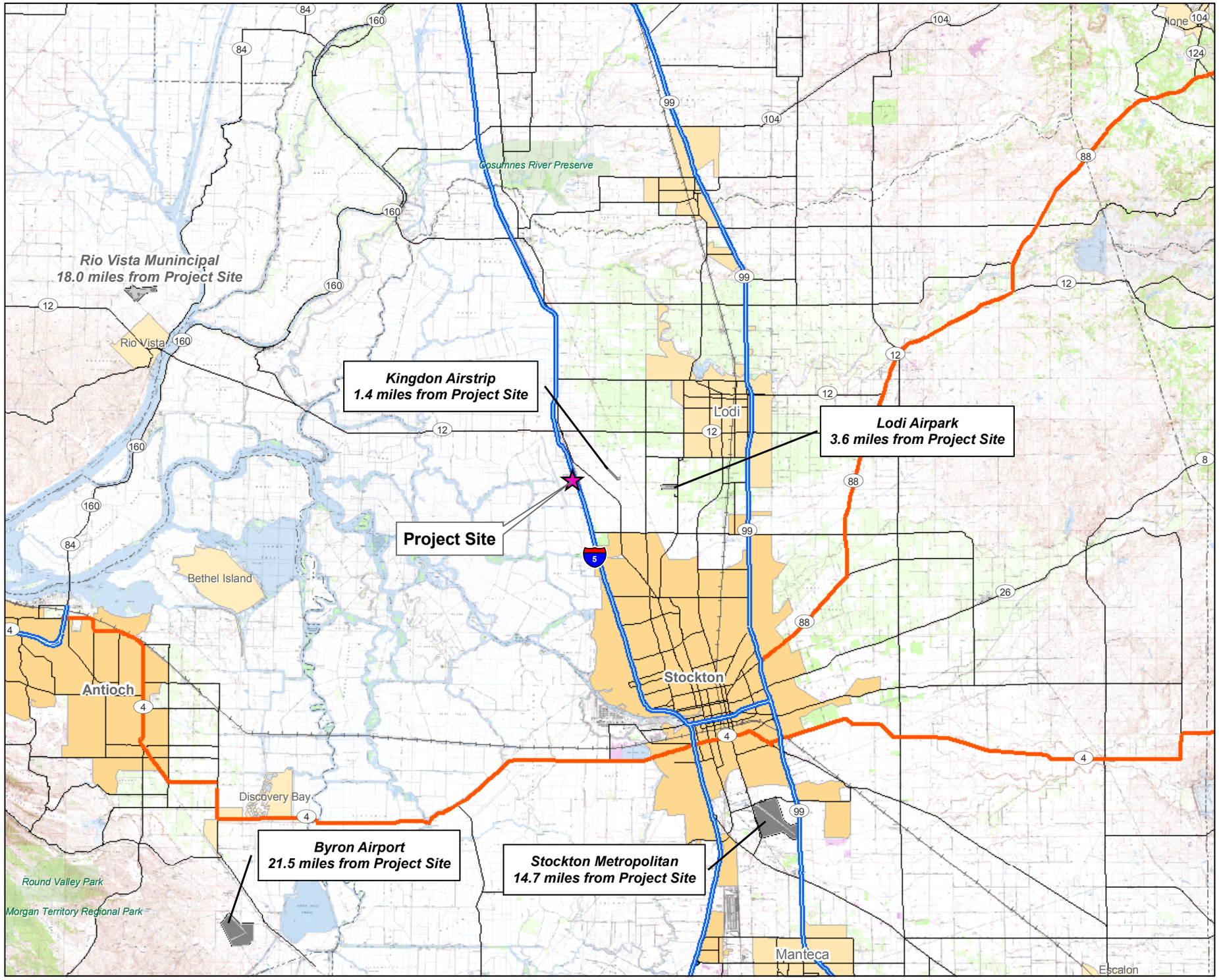
De Broggi Road is a two-lane, east-west roadway that connects North Thornton Road directly to the eastern segment of SR 12, and to SR 12 via Star Street. De Broggi Road carries about 600 vehicles per day.

5.12.1.2 Existing Traffic Conditions and Level of Service Analysis

The traffic analysis was conducted according to the methodologies and procedures outlined in the 2000 *Highway Capacity Manual* (HCM) published by the Transportation Research Board, and applicable provisions from the California Environmental Quality Act (CEQA). Average daily traffic for the study area local streets and State facilities were used in the analysis. Afternoon peak hour turning movement counts were used to assess intersection level of service (LOS).

5.12.1.2.1 Existing Roadway Conditions

The 2000 HCM assesses the performance of street and highway systems and the capacity of roadways by measuring the flow of traffic. LOS is a qualitative assessment of the quantitative effects of such factors as traffic volume, roadway geometrics, speed, delay, and maneuverability on roadway and intersection operations. Roadway traffic flow characteristics for different LOS are described in Table 5.12-1.



LEGEND

- Project Site
- Freeway
- Highway
- Major Road
- County Boundary
- Major Railroad Lines
- Airport Area

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

N

0 2 4
Miles

Scale = 1:250,000

FIGURE 5.12-1
REGIONAL TRANSPORTATION SETTING
LODI ENERGY CENTER
LODI, CALIFORNIA

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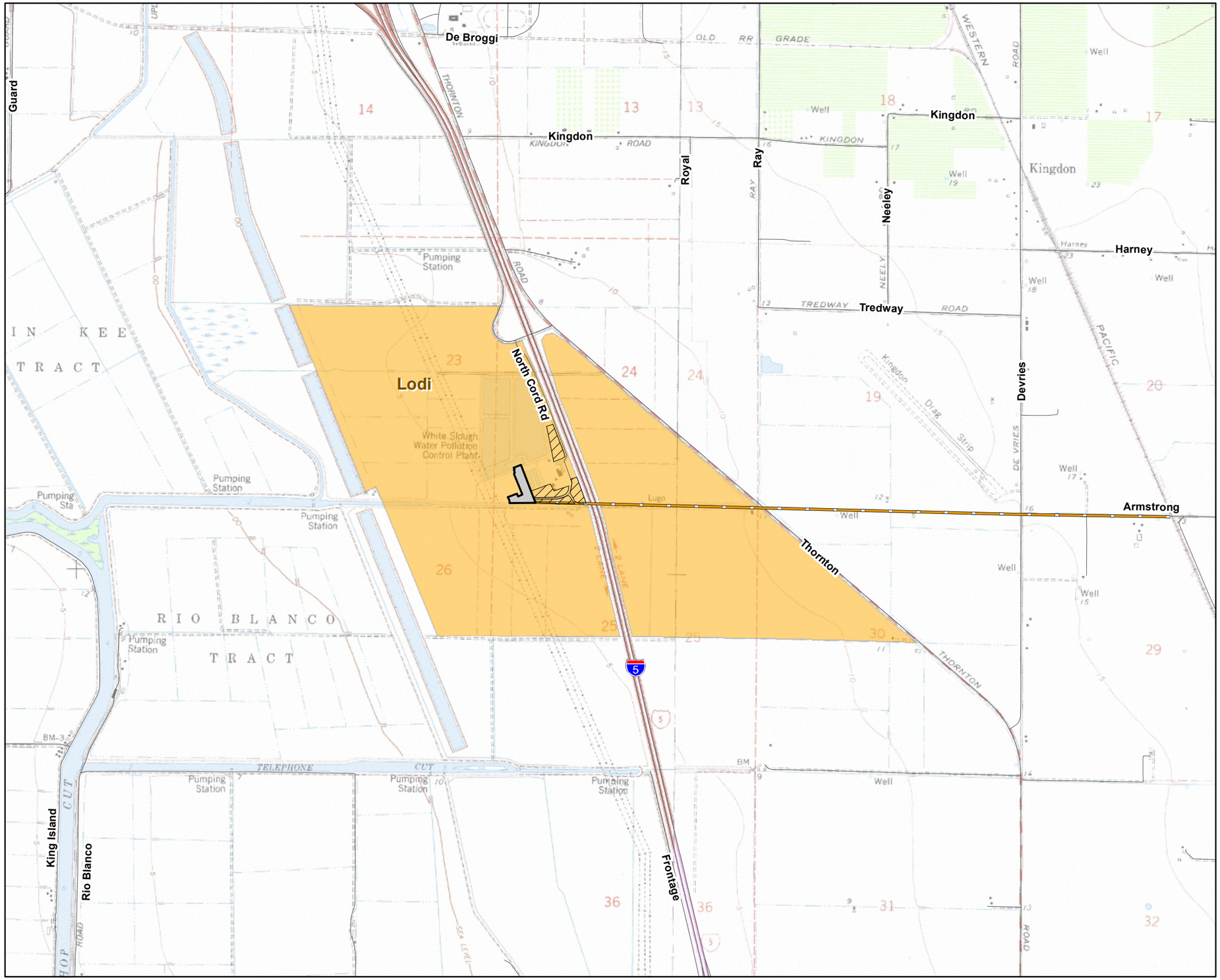

LEGEND

- Natural Gas Pipeline Route
- Proposed Laydown and/or Parking
- Proposed Plant Site
- City Limits

Notes:
1. No Bus Route or Bike Routes within the vicinity of the Project Site.

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

N

0 1,000 2,000
Feet

FIGURE 5.12-2
LOCAL TRANSPORTATION
LODI ENERGY CENTER
LODI, CALIFORNIA

CH2MHILL

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TABLE 5.12-1
Level of Service Criteria for Roadways

LOS	V/C	Traffic Flow Characteristics
A	0.00 – 0.60	Free flow; insignificant delays
B	0.61 – 0.70	Stable operation; minimal delays
C	0.71 – 0.80	Stable operation; acceptable delays
D	0.81 – 0.90	Approaching unstable flow; queues develop rapidly but no excessive delays
E	0.91 – 1.00	Unstable operation; significant delays
F	> 1.00	Forced flow; jammed conditions

Source:
Transportation Research Board. 2000. Highway Capacity Manual
V/C = traffic volume (demand) / roadway capacity ratio

The LOS requirements as specified in the Circulation Element of the City of Lodi General Plan are LOS C as the minimum to achieve on all roadway links and intersections. The San Joaquin County Traffic Impact Study Guidelines indicate that all County roadways shall also operate at LOS C or better, while intersections shall operate at LOS D or better on minor arterials and roadways of higher classification and LOS C on all other roads. All freeways and state highways shall operate at LOS D. City staff indicated that none of the local roads surrounding the project site were owned by the City. Therefore, County requirements were applied (San Joaquin County, June 2002).

The analysis for this section is based on daily two-way volumes. Using planning-level estimate of capacity, the following volumes were assumed: 20,000 vehicles/lane/day on state facilities, 8,000 vehicles/lane/day on divided local streets and 6,000 vehicles/lane/day on undivided local streets. Average Daily Traffic (ADT) volumes were provided by San Joaquin County; however, when the counts were provided for one direction only, they were multiplied by two for an estimate of two-way traffic count. Some counts were conducted over ten years ago; county staff recommended using a 1.5 percent non-compounded growth factor to update them. On state facilities, traffic counts were provided by Caltrans (2006).

Based on truck traffic counts performed for the Lodi ProStyle Sports Complex Environmental Impact Report (2000), truck percentages were assumed to be 14 percent on SR 12 and Thornton Road near SR 12, because of the Flag City Development which functions as a truck stop. Truck percentages on other local roadway segments represented 2 percent of the total traffic. Truck percentages were obtained from Caltrans (2006) for state facilities. A Passenger Car Equivalent (PCE) factor of 1.5 was used to convert the mixed flow of cars and trucks into a uniform car equivalent.

Analysis was conducted on the following roadways:

- North Cord Road
- West Eight Mile Road
- De Broggi Road
- Flag City Boulevard
- North Thornton Road
- SR 4
- SR 12
- SR 160
- I-5

Table 5.12-2 is a summary of the daily traffic volumes and V/C ratios for existing conditions. All segments operate at an acceptable LOS, with the exception of North Thornton Road, between West Eight Mile Road and North Devries Road (LOS E, at the limit of operating at LOS F), between North Devries Road and Frontage Road (LOS D), and between De Broggi Road and SR 12 (LOS F).

5.12.1.2.2 Existing Intersection Conditions

Existing afternoon intersection peak-hour turning movement volumes were obtained from the City of Lodi, and illustrated in Figure 5.12-3. Peak hour turning movement counts were adjusted to reflect 2:00 PM–3:00 PM traffic conditions. This time period (2:00 PM–3:00 PM) was selected for analysis based on the expected construction approach. During construction, the end of the first shift will coincide with the beginning of the second shift, so the worst case scenario for traffic would occur between 2:00 PM and 3:00 PM.

The analysis of the 2:00 PM–3:00 PM period was based on Caltrans' Freeway Performance Measurement System (PeMS). With PeMS, the proportion of the traffic that would be circulating during the 2:00 PM–3:00 PM time frame was assessed using freeway mainline volume counts for the 2:00 PM–3:00 PM and 4:00 PM–5:00 PM time periods. The ratio of the 2:00 PM–3:00 PM traffic to the peak traffic is approximately 90 percent.

The analysis focused on the afternoon period, because that was the highest volume of construction traffic. Also, morning turning movement counts were not available.

Traffic conditions at intersections were evaluated using the Synchro software (Trafficware, Version 6). Synchro is a traffic operations analysis tool that incorporates analytical tools from the 2000 HCM. For intersections, the resulting delay is expressed using LOS, where LOS A represents free-flow activity and LOS F represents overcapacity operation. The relationship of delay and LOS at signalized intersections is summarized in Table 5.12-3. San Joaquin County uses LOS D as a threshold at intersections on minor arterials and roadways of higher classification; otherwise, LOS C is used as a threshold.

Delays and LOS for the intersections in the vicinity of the project site are presented in Table 5.12-4. Delays for the entire intersection are available for signalized intersections; if the intersection is stop-controlled, the delay for the controlled approach is available. All intersections operate at an acceptable level of service.

5.12.1.3 Truck Routes—Weight and Load Limitations

As indicated by County staff, San Joaquin County has its own restrictions on County roads in addition to the California Vehicle Code (CVC) Sections 35550-35559. In 35 mph zones, the weight limitation is seven tons, and in 25 mph zones, the restriction drops to five tons. No map or list of roads is available.

TABLE 5.12-2
Existing Roadway Segment LOS Analysis Summary

Roadway Segment		Between	And	Divided	Number of Lanes	Year ADT was Counted	Original Daily Demand	Adjusted Daily Demand	Truck Percentage	Daily Capacity	Daily Demand with Truck PCE=1.5	Daily V/C	LOS	Minimum Acceptable LOS
Local Roadway Segments	N. Cord Road	Frontage Road	WPCF Access Road	Undivided	2	1981	30	42	2%	12,000	43	0.00	A	C
	W. Eight Mile Road	I-5	North Thornton Road	Divided	5	1996	11,158	13,166	2%	45,000	13,299	0.30	A	C
	De Broggi Road	North Thornton Road	Star Street	Undivided	2	2008	565	565	14%	12,000	605	0.05	A	C
	Flag City Boulevard	SR 12	Republic Way	Undivided	2	2008	624	624	14%	12,000	668	0.06	A	C
	Star Street	De Broggi Road	SR 12	Undivided	4	N/A	N/A	-	-	24,000	-	-	-	C
	North Thornton Road	W. Eight Mile Road	N. Devries Road	Undivided	2	1993	9,685	11,864	2%	12,000	11,983	1.00	E*	C
	North Thornton Road	N. Devries Road	Frontage Road	Undivided	2	2003	9,286	9,982	2%	12,000	10,083	0.84	D*	C
	North Thornton Road	Frontage Road	De Broggi Road	Undivided	2	2004	3,534	3,746	2%	12,000	3,784	0.32	A	C
	North Thornton Road	De Broggi Road	SR 12	Undivided	2	1993	9,775	11,974	14%	12,000	12,813	1.07	F*	C

TABLE 5.12-2
Existing Roadway Segment LOS Analysis Summary

Roadway Segment		Between	And	Divided	Number of Lanes	Year ADT was Counted	Original Daily Demand	Adjusted Daily Demand	Truck Percentage	Daily Capacity	Daily Demand with Truck PCE=1.5	Daily V/C	LOS	Minimum Acceptable LOS
Freeway Segments	SR 4	Hillcrest Avenue, Antioch	Junction SR 160	Divided	4	2006	38,000	38,000	5%	80,000	39,021	0.49	A	C
	SR 12	Junction SR 160	Junction I-5	Undivided	2	2006	22,200	22,200	14%	40,000	23,743	0.59	A	C
	SR 12	Junction I-5	Thornton Road	Divided	4	2006	17,200	17,200	15%	80,000	18,516	0.23	A	C
	SR 12	Thornton Road	Lower Sacramento Road	Undivided	2	2006	15,200	15,200	9%	40,000	15,877	0.40	A	C
	SR 160	Junction SR 4	Contra Costa/ Sacramento County Line	Divided	2	2006	16,000	16,000	13%	40,000	17,049	0.43	A	C
	SR 160	Contra Costa/ Sacramento County Line	Junction Route 12	Undivided	2	2006	15,000	15,000	9%	40,000	15,698	0.39	A	C
	I-5	Hammer Lane, Stockton	Eight Mile Road	Divided	6	2006	95,000	95,000	23%	120,000	105,735	0.88	D*	C
	I-5	Eight Mile Road	Junction Route 12	Divided	6	2006	77,000	77,000	16%	120,000	83,311	0.69	B	C
	I-5	Junction Route 12	Peltier Road	Divided	6	2006	64,000	64,000	16%	120,000	69,034	0.58	A	C

* Segment operates at an unacceptable LOS.
N/A= Not Available

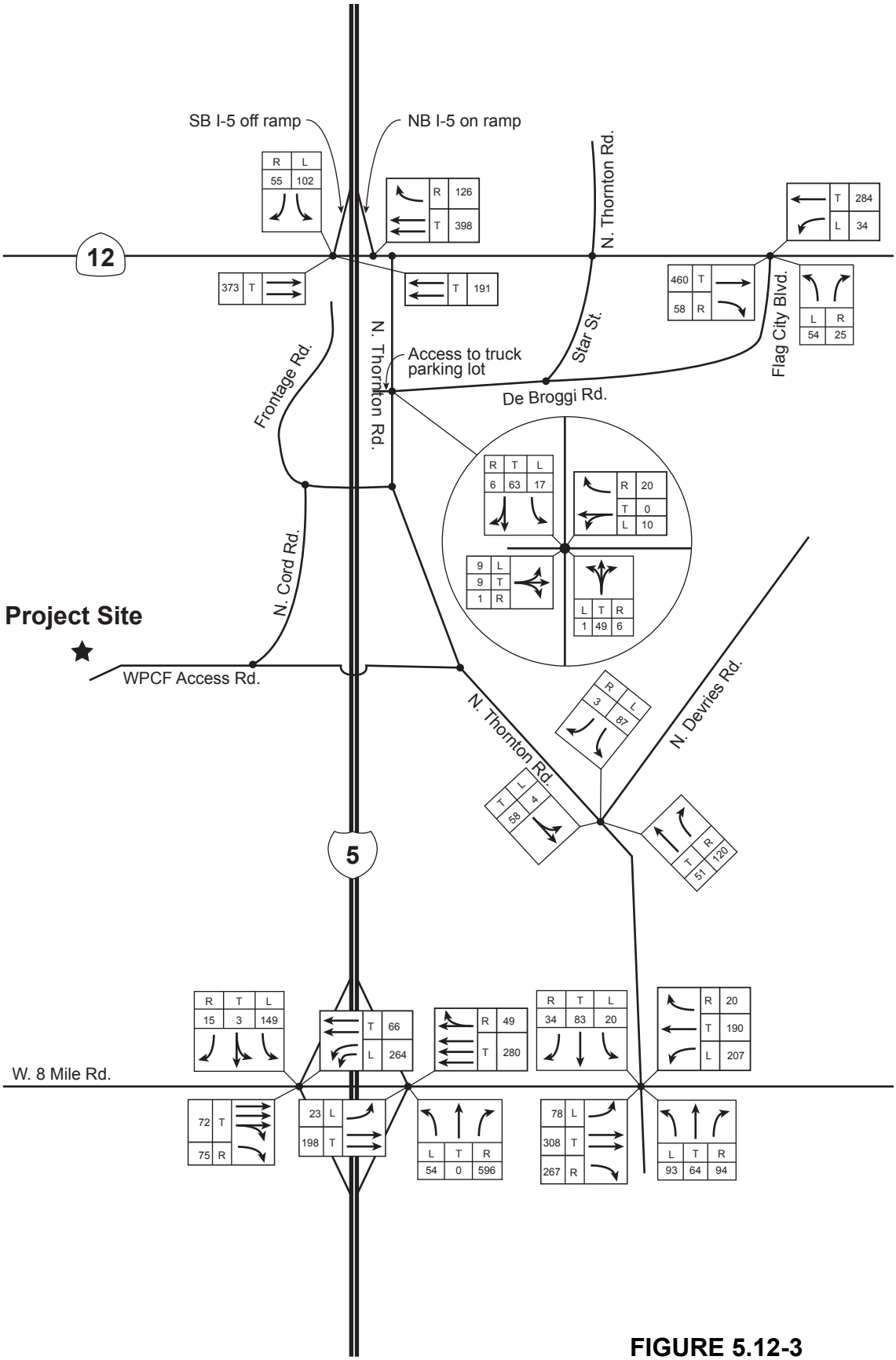

FIGURE 5.12-3
EXISTING CONDITIONS PM TURNING MOVEMENT COUNTS
LODI ENERGY CENTER
LODI, CALIFORNIA

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TABLE 5.12-3
Intersection LOS Criteria

LOS	Unsignalized Intersection Delay per Vehicle (seconds)	Signalized Intersection Delay Per Vehicle (seconds)
A	≤10.0	≤ 10.0
B	>10.0 and ≤15.0	>10.0 and ≤20.0
C	>15.0 and ≤25.0	>20.0 and ≤35.0
D	>25.0 and ≤35.0	>35.0 and ≤55.0
E	>35.0 and ≤50.0	>55.0 and ≤80.0
F	>50.0	>80.0

Source: Highway Capacity Manual 2000, Chapters 16 and 17

TABLE 5.12-4
Existing Intersection LOS Analysis Summary

Intersection	Movement	Delay*	LOS
SR 12 and Flag City Boulevard (Stop-controlled)	Northbound Approach	17	C
West Eight Mile Road and SB I-5 Ramps (Signalized)	Entire Intersection	25	C
SR 12 and SB I-5 On-Ramp (Signalized)	Entire Intersection	8	A
West Eight Mile Road and North Thornton Road (Signalized)	Entire Intersection	25	C
North Devries Road and North Thornton Road (Stop-controlled)	Westbound Approach	10	A
North Thornton Road and De Broggi Road (Stop-controlled)	Eastbound Approach	10	B
West Eight Mile Road and NB I-5 Ramps (Signalized)	Entire Intersection	9	A

*Delay is measured in seconds/vehicle for the intersection

5.12.1.4 Other Projects

5.12.1.4.1 Future Plans and Projects

San Joaquin County Public Works staff indicated that a levee might be built near the White Slough between 2010 and 2012, but the project has not been approved yet. Therefore, no further details are available at this time.

5.12.1.4.2 Local Comprehensive Transportation Plans

The 2007 Regional Transportation Plan (RTP), prepared by San Joaquin County Council of Governments, provides a general description of transportation improvements in the San Joaquin region. The 2007 Regional Transportation Plan Project List – Interchange category includes three interchange reconstruction projects in the vicinity of Lodi: SR 99 at Harney Lane, SR 99 at SR 12 East and SR 99 at SR 12 West.

5.12.1.5 Pedestrian/Bicycle Facilities

The July 2002 Unincorporated San Joaquin County Bikeway Plan provides a blueprint for developing a bikeway system that includes both on-street as well as support facilities and programs throughout the unincorporated parts of San Joaquin County.

A Class II bikeway provides for shared use with pedestrian or motor vehicle traffic. Devries Road is Class III Bike Route between North Thornton Road and Armstrong Road.

North Thornton Road between Devries Road and Peltier Road as well as Devries Road north of the existing bikeway requires major improvements to construct a 4-foot shoulder; West Eight Mile Road requires minor improvements to achieve the same goal.

5.12.1.6 Public Transportation

Public transportation in the area is provided by Lodi City Grape Line for intra-city destinations and by San Joaquin RTD for inter-city connections. The closest routes are about two miles away from the project site, both operated by San Joaquin RTD. Route 93 connects Stockton to Lodi and travels on Eight Mile Road between Thornton Road and Lower Sacramento Road. Route 66 connects Thornton Road to Spanos Park West and goes around the southeast corner of Oak Grove Regional Park.

5.12.1.7 Rail Traffic

The City of Lodi is served by two rail services: the Southern Pacific Railroad (SPRR) and the Central California Traction Company (CCTC). Union Pacific Railroad (UPRR) serves the areas west of Lodi; its tracks are the closest to the project site, about 2.2 miles east. These rail lines do not provide passenger service.

5.12.1.8 Air Traffic

Kingdon Airpark (FAA identifier: O20) is a privately owned airport about 1.4 miles east of the project site. In 2005, there were 42 aircraft operations a day on average. The project site is located in the conical surface of the airpark; however, the construction of the project does not conflict with the 1993 Airport Land Use Plan (Brunn, 2008).

Lodi (Precissi) Airpark[1] (FAA identifier: L53) is also a privately owned airport about 3.6 miles east of the project site, and is used predominantly for crop duster airplane traffic. In 2007, there were on average 20 daily aircraft operations. The runway for this airpark is 1,875 feet long. Since the runway is less than 3,200 feet long, the restricted space extends for only 10,000 feet (1.7 nautical miles) from the airpark. The LEC is therefore beyond the restricted airspace for the Lodi Airpark.

Since the Kingdon Airpark is located within 20,000 feet of the proposed LEC site, an FAA Notice Criteria evaluation was performed for the 150 foot tall exhaust stack and is included as Appendix 5.6B. Based on the results of this evaluation, a FAA Form 7460-1, Notice of Proposed Construction or Alteration has been filed with the FAA and is included in Appendix 5.6C. Figure 5.6C-5 shows the location of the Kingdon Airpark and the proposed LEC site as well as the airport land use zones.

[1] Lodi Airpark is also referred to a Precissi Airpark.

Additional information regarding airport land use is provided in Section 5.6, Land Use. Information regarding potential impacts on aircraft operations is found in Section 5.12.2.5.

5.12.2 Environmental Analysis

This section assesses the traffic and transportation impacts associated with the construction and operation of the project. This analysis primarily examines impacts on roadway levels of service expected during both construction and operation of the project.

Potential traffic impacts during construction, as well as plant operation after construction, have been considered and analyzed.

Construction will start in first quarter 2010 and last 24 months; operations will start in first quarter 2012. During the peak construction phase (month 16), construction will require at most 450 workers (225 workers per shift). During operations, the project is expected to require 21 staff members on average. To analyze the "worst-case" scenario, traffic impacts associated with peak construction traffic were analyzed.

A quantitative traffic analysis was not conducted for the long-term operations phase since it would generate a low volume of trips. Thus, operational traffic will not have a measurable impact on the study area roadways; only the impacts of construction traffic were analyzed.

5.12.2.1 Significance Criteria

The significance criteria have been developed using guidance provided in the CEQA, Appendix G (Title 14 California Code of Regulations 15000 et seq.) and relevant local policies. Impacts of the proposed project to transportation and circulation will be considered significant if the following criteria are met:

- Cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system
- Exceed, either individually or cumulatively, a LOS standard 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 due to a design feature or incompatible uses
- Result in inadequate emergency access
- Result in inadequate parking capacity
- Conflict with adopted policies, plans, or programs supporting alternative transportation

For LOS requirements, the County's requirements will be the standard used in this study.

5.12.2.2 "With Project" Traffic Conditions and Level of Service Analysis

5.12.2.2.1 Construction Traffic Generation

Estimates of the average and peak construction traffic during the onsite construction period were provided by the applicant. Based on experience with similar projects, it is estimated that 20 percent of the workforce will carpool and the average vehicle occupancy will be two persons per vehicle for carpools. During the peak month, the estimated number of

construction staff needed is 305 workers. The first shift would start at 6:00 AM and end at 2:30 PM, while the second shift would start at 2:30 PM and end at 11:00 PM. The greatest number of truck trips expected during construction of the project in the peak construction month is approximately 20 daily one-way truck trips; it was assumed that only one eighth of the deliveries would be made each hour. Peak construction traffic during the peak month (Month 16) was used for level of service analysis, to analyze worst-case scenario.

Because the end of the first shift would coincide with the beginning of the second shift, the worst case scenario would occur between 2:00 PM and 3:00 PM, which will be designated as the peak hour from this point forward. For purposes of this analysis, the truck trips were converted to passenger car equivalent units (PCEs) at a ratio of 1.5 passenger cars for each truck, consistent with the HCM 2000 guidelines. No traffic will be generated between the construction laydown area and the project site because the construction laydown area and the parking area will be located on adjacent property. The construction trip estimates are presented in Table 5.12-5.

TABLE 5.12-5
Construction Trip Generation Estimate

Trip Type	ADT*	Number of Workers	During Peak Hour		
			In	Out	Total
Delivery/Haul Trucks	20 x 2	0	3	3	6
PCE (1.5)	60	-	4	4	8
Workers					
Carpooling	61	61	16	16	32
Not Carpooling	488	244	122	122	244
Total Construction Traffic	609	305	142	142	284

*Average Daily Traffic (vehicles/day)

5.12.2.2.2 Construction Traffic Distribution

The following assumptions were used to distribute construction traffic over the study area network:

- 40 percent of trips will originate from Sacramento, using I-5 South
- 30 percent would come from Stockton and points south, using I-5 North
- 20 percent would come from the Bay Area, using SR 4 East, then SR 160 East and SR 12 East
- 10 percent would come from Lodi and the foothills, using SR 12 West

5.12.2.2.3 Roadway LOS with Construction Traffic

Average peak hour traffic generated during the construction period was added to the existing traffic volumes on each roadway segment. The peak hour traffic volumes for the study area roadway segments in the existing condition and with the addition of construction traffic are summarized in Table 5.12-6. Based on the analysis, the roadway segments are forecasted to operate at an acceptable LOS with the exception of North Thornton Road, between West Eight Mile Road and North Devries Road, which degrades from LOS E to LOS F. North Thornton Road between North Devries Road and Frontage Road still operates at LOS D. North Thornton Road between De Broggi Road and SR 12 still operates at LOS F.

TABLE 5.12-6
Roadway Sections LOS Analysis With Project Construction Traffic

Roadway Segment		Between	And	Added Vehicles	Percentage of Existing Daily Demand	Daily V/C	LOS
Local Roadway Segments	N. Cord Road	Frontage Road	WPCF Access Road	284	660%	0.03	A
	W. Eight Mile Road	Interstate 5	North Thornton Road	86	<1%	0.30	A
	De Broggi Road	North Thornton Road	Star Street	113	19%	0.06	A
	Flag City Boulevard	SR 12	De Broggi Road	28	4%	0.06	A
	Star Street	De Broggi Road	SR 12	85	-	-	-
	North Thornton Road	W. Eight Mile Road	N. Devries Road	86	<1%	1.01	F[a.b]
	North Thornton Road	N. Devries Road	Frontage Road	86	<1%	0.85	D[a]
	North Thornton Road	Frontage Road	De Broggi Road	198	5%	0.33	A
	North Thornton Road	De Broggi Road	SR 12	85	<1%	1.07	F[a]
Freeway Segments	SR 4	Hillcrest Avenue, Antioch	Junction SR 160	56	<1%	0.49	A
	SR 12	Junction SR 160	Junction I-5	56	<1%	0.59	A
	SR 12	Junction I-5	Thornton Road	170	<1%	0.23	A
	SR 12	Thornton Road	Lower Sacramento Road	28	<1%	0.40	A
	SR 160	Junction SR 4	Contra Costa/Sacramento County Line	56	<1%	0.43	A
	SR 160	Contra Costa/Sacramento County Line	Junction Route 12	56	<1%	0.39	A
	Interstate 5	Hammer Lane, Stockton	Eight Mile Road	86	<1%	0.88	D
	Interstate 5	Eight Mile Road	Junction Route 12	0	0%	0.69	B
	Interstate 5	Junction Route 12	Peltier Road	114	<1%	0.58	A

[a]Segment already operates at an unacceptable LOS.
[b]Segment LOS degraded.

5.12.2.2.4 Intersection LOS with Construction Traffic

The peak hour traffic generated during the construction period was added to the existing turning movement counts on the analyzed intersections within the study corridor. The results of the existing and "with project" peak-hour LOS analysis for all study area intersections are summarized in Table 5.12-7.

As shown in the table, all study area intersections will continue to operate at an acceptable LOS. The addition of construction traffic will not cause significant impacts on traffic operations at intersections.

5.12.2.3 Heavy Haul Routes

The LEC proposes to use the heavy haul routes shown in Figure 5.12-4. Route 1 would require the construction of a new temporary access road (approximately 100 feet long) connecting the on-ramp to the southbound lands of I-5 from eastbound SR 12. The temporary access road would require an encroachment permit from Caltrans.

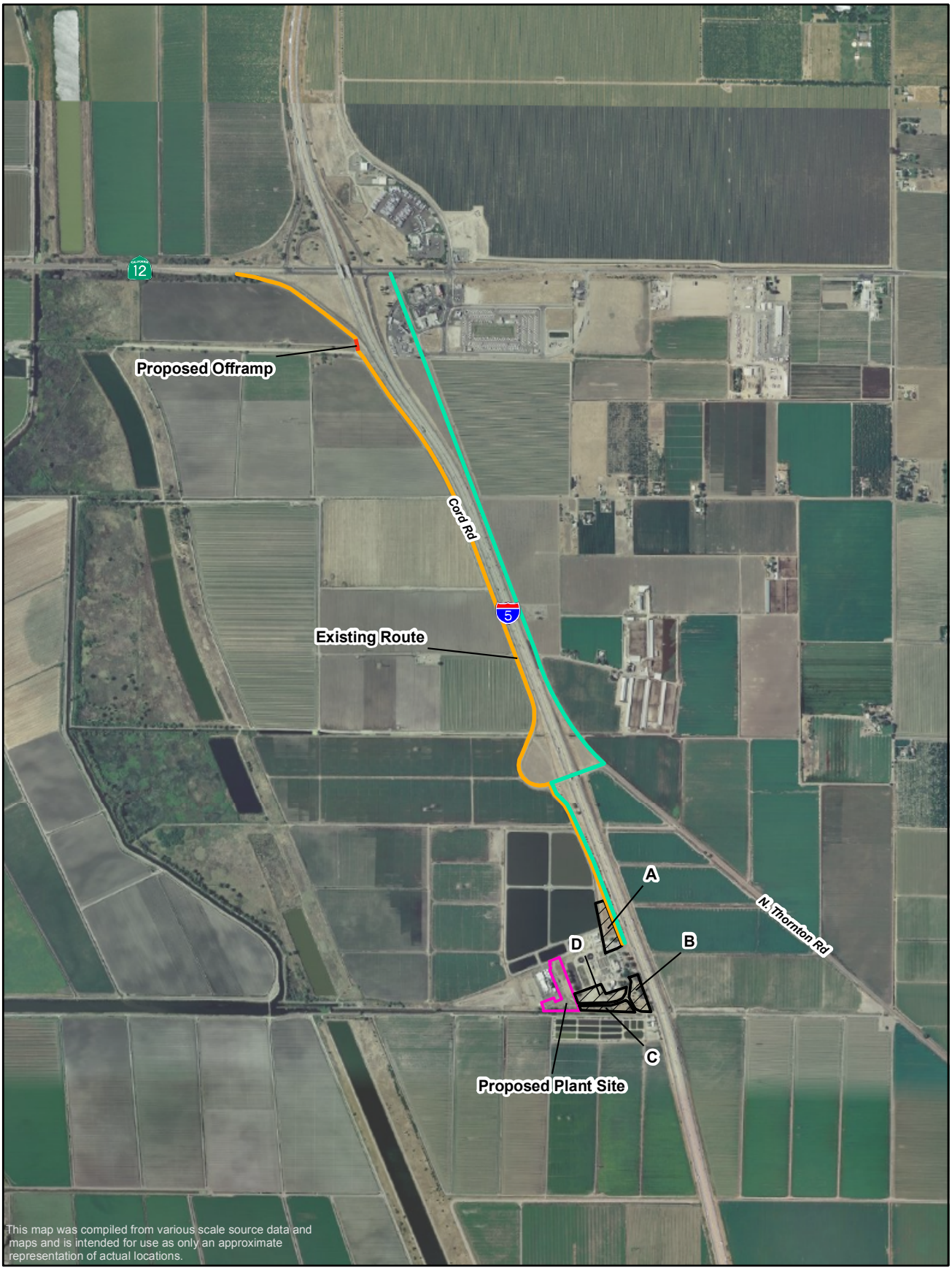
5.12.2.4 Transport of Hazardous Materials

Hazardous materials that will be onsite during construction are usually small in quantities relative to the quantities used during operation, and will include petroleum products such as diesel and oils, citric acid, sodium carbonate, and sodium nitrite.

The hazardous substances that will be used by the project during operations are: anhydrous ammonia, sulfuric acid, cleaning chemicals, trash pickup, lubricating oil, lubricating oil filters, laboratory analysis waste, oily rags, oil absorbents, water treatment chemicals, sodium hypochlorite, diesel, welding gases and lab chemicals. The average delivery frequency is estimated to be twelve per week.

These materials would be transported as hazardous materials or hazardous waste. Transport route arrangements would be required with Caltrans officials for permitting and escort, as applicable. Because the transport of hazardous wastes will be conducted in accordance with the relevant transportation regulations, no significant impact is expected.

According to Division 13 Section 31303 of the CVC, the transportation of regulated substances and hazardous materials will be on the state or interstate highways that offer the shortest overall transit time possible. Transporters of hazardous or explosive materials must contact the California Highway Patrol (CHP) and apply for a Hazardous Material Transportation License. Upon receiving this license, the shipper will obtain a handbook that will specify the routes approved to ship inhalation hazardous or explosive materials. The exact route of the inhalation or explosive material shipment will not be determined until the shipper contacts the CHP and applies for a license. Transportation impacts related to hazardous materials associated with the project operations will not be significant since deliveries of hazardous materials will be limited. Delivery of these materials will occur over prearranged routes and will be in compliance with all LORS governing the safe transportation of hazardous materials.



LEGEND

- Heavy Haul Route 1 - Existing Road
- Heavy Haul Route 2
- Proposed Temporary Offramp to Cord Rd
- Proposed Laydown and/or Parking
- Proposed Plant Site

0 1,000 2,000
Feet

N

FIGURE 5.12-4
HEAVY HAUL ROUTES

LODI ENERGY CENTER
LODI, CALIFORNIA

CH2MHILL

SAC\\ZION\SACGIS\PROJ\LODIENERGYCENTER_371322\MAPFILES\TRUCK_ROUTES.MXD MHASKELL 9/4/2008 14:16:56

TABLE 5.12-7
With-Project Intersection LOS Analysis Summary

Intersection	Movement	Delay	LOS
SR 12 and Flag City Boulevard	Northbound Approach	17	C
West Eight Mile Road and SB I-5 Ramps	Entire Intersection	26	C
SR 12 and SB I-5 On-Ramp	Entire Intersection	9	A
West Eight Mile Road and North Thornton Road	Entire Intersection	26	C
North Devries Road and North Thornton Road	Westbound Approach	10	B
North Thornton Road and De Broggi Road	Eastbound Approach	11	B
West Eight Mile Road and NB I-5 Ramps	Entire Intersection	9	A

Standards for the transport of hazardous materials are contained in the Code of Federal Regulations (CFR), Title 49 and 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 the California Code of Regulations, Title 26. Additional regulations for the transportation of hazardous materials are outlined in the CVC (Sections 2500-505, 12804-804.5, 31300, 3400, and 34500-501). The two state agencies with primary responsibility for enforcing federal and state regulations governing the transportation of hazardous wastes are the CHP and Caltrans. Transport of hazardous materials to and from the project site will comply with all applicable requirements.

The recommended routes, subject to Caltrans approval, are as follows:

- Coming from Sacramento and points north: from I-5 exit at SR 12 interchange then turn onto North Thornton Road
- Coming from Stockton and points south: from I-5 exit at West Eight Mile Road interchange then turn onto North Thornton Road
- Coming from the Bay Area: from SR 4, then SR 160 and SR 12, turn onto North Thornton
- Coming from Lodi and the foothills: from SR 12, turn onto Flag City Boulevard, then De Broggi Road and North Thornton Road

Outbound trucks would proceed on I-5 to access hazardous waste facilities throughout the state. Hauling would be carried out in accordance with local, state, and federal regulations that include the Resource Conservation and Recovery Act (42 U.S. Code 6901 et seq.) and the California Integrated Waste Management Act (Public Resources Code Sections 40000 et seq.).

In addition, the federal government prescribes regulations for transporting hazardous materials. These regulations are described in the CFR, Title 49, Section 171. These laws and ordinances place requirements on various aspects of hazardous waste hauling, from materials handling to vehicle signs, to ensure public safety.

5.12.2.5 Public Safety

Truck trips, including delivery of hazardous materials and removal of wastes are potentially a hazard for the public due to their nature. However, as stated earlier, the transporter will be required to obtain a Hazardous Material Transportation License in accordance with CVC Section 32105 and will be required to follow appropriate safety procedures when transporting and handling such materials. Therefore, public safety is not jeopardized.

5.12.2.6 Potential Impacts on Aircraft Operations

The following subsections address potential impacts of the LEC on aircraft operations in the area. There are two small, private airports in the vicinity of the project site: Lodi Airpark (L53), 3.6 miles east; and Kingdon Airpark (O20), approximately 1.4 miles east. Information regarding the airparks is summarized in Table 5.12-8. The locations of the airparks relative to the LEC site, along with the airport zones of influence, are shown in Figure 5.6-5.

TABLE 5.12-8
Airports in the Vicinity of the LEC

Parameter	Kingdon Airpark[a]	Lodi Airpark[b]
FAA Identifier	O20	L53
Location (Lat/Long)	38.0915864 / -121.3593931	38.0840869 / -121.3163369
Elevation (above mean sea level [amsl])	15 ft (5 m)	25 ft (8 m)
Number of runways	1 (bidirectional)	1 (bidirectional)
Runway Length	3,705 ft (1,120 m)	1,875 ft (572 m)
Aircraft Operations, avg	42/day	20/day

[a]Data from AirNav.com; average operations for 12-month period ending April 4, 2008.
[b]Data from AirNav.com; average operations for 12-month period engine October 4, 2007.

As discussed in Section 5.12.1.8, because the Lodi Airpark has a runway that is less than 3,200 feet long and the LEC is beyond the restricted airspace, it is not required to be included in this assessment of potential impacts. Further, because this airpark is more than 3 miles away from the proposed project, the LEC is not within any of the airpark-specific zones.

In addition, there are several low-altitude airways in the project area, located east and south of the Kingdon Airpark. However, these airways are at an altitude of 3,000 feet, far above any altitude where structures or exhaust plumes from the project could have any effect.

5.12.2.6.1 Air Traffic Patterns at Kingdon Airpark

The LEC site is located approximately 1.4 miles west of the Kingdon Airpark. Kingdon Airpark is a small, one-runway, uncontrolled (no control tower) facility. The airpark is used for general aviation and there is a flying school onsite. Of the 27 aircraft based at the field, 25 are single-engine planes.[2]

[2] Kingdon Airpark-specific data from AirNav.com; average operations for 12-month period ending April 4, 2008.

The Kingdon Airpark runway is 15 feet amsl. Runway 12/30 is oriented in a general northwest-southeast direction, and is designed for aircraft to land in either direction. Runway 12/30 refers to its landing directions of 120 degrees and 300 degrees, respectively.

The LEC site is located approximately 7,400 feet west-southwest of runway 12/30 at 8 feet amsl.

Several factors affect air traffic patterns at an airport. The primary factor is whether a pilot is operating under Visual Flight Rules (VFR) or Instrument Flight Rules (IFR), combined with local topography and land use (rural vs. urban setting). VFR operating procedures apply when weather conditions permit pilots sufficient time to see a runway for landing and avoid other aircraft in flight or obstacles on the ground. IFR procedures are required when weather conditions do not satisfy VFR requirements, but only instrument-rated pilots may fly under IFR conditions. The Kingdon Airpark operates under VFR as there are no approved instrument approaches, although there are plans to expand the airport and to establish an instrument approach sometime in the future.

FAA guidelines[3] establish the standard traffic pattern used by pilots under VFR conditions. Standard airplane traffic patterns for small planes consist of a generalized routing in the form of a rectangular path of left-hand turns leading to and from the runway at an altitude of 800 to 1,000 feet above the airport elevation. The Kingdon Airpark traffic pattern utilizes an altitude of 800 feet above ground level (AGL) for the downwind leg, with a normal altitude of 300 feet AGL for turn from base to final approach. At airports without air traffic control towers, such as the Kingdon Airpark, pilots can choose to make a straight-in approach, rather than flying the standard pattern. After takeoff, a pilot can leave the pattern at various points.

When flying a traffic pattern for landing into the wind, the normal procedure for pilots of average single-engine planes is to fly with up to one-mile horizontal separation away from, or to the side of, the runway when flying downwind, parallel to the runway. For takeoffs, the normal procedure is to fly straight ahead until reaching an altitude of at least 400 feet above the airport elevation before making a climbing left turn crosswind to stay in the traffic pattern, or continuing to climb and go straight or turn to proceed to another destination.

The airport utilizes a standard left-hand traffic pattern, which means that all turns taken once established in the traffic pattern are to the left. After taking off from the airport, pilots head northwest (or southeast; however, the prevailing winds are from the north, away from LEC). Depending upon their destination, they may continue northwest or turn to proceed in any direction. If a pilot were practicing take-offs and landings, the pilot would make a series of left turns to line up for the final approach to the runway. Because the LEC site is more than a mile west of the airpark, this pattern would not take the aircraft over the site. Small planes flying a standard pattern would not fly over the LEC as they line up for the final approach to the runway when landing.

Kingdon Airpark is also used by crop dusting planes. Crop dusters fly at very low altitudes—between 100 and 200 feet AGL—and do not use the standard traffic patterns. Therefore, the discussion above does not apply to crop dusters. However, because of the

[3] U.S. DOT, FAA Advisory Circular No. AC90-66A, "Recommended Standard Traffic Patterns and Practices for Aeronautical Operations at Airports Without Operating Control Towers."

existing power plant, transmission lines and other hazards in the area of the proposed LEC (including birds attracted to the ponds at White Slough WPCF)[4], crop dusting pilots already avoid the area around LEC and the proposed project will not create new hazards for these pilots.

5.12.2.6.2 Potential Issues of Concern

As discussed above, it is very unlikely that aircraft will fly over or near the LEC. Nevertheless, the following potential issues with respect to flight operations at Kingdon Airpark have been evaluated:

- The CTG/HRSG stack may produce a hazard to low flying aircraft,
- A saturated plume from the CTG/HRSG stack may cause visibility obstructions and thus produce a hazard to aircraft operations,
- Saturated cooling tower plumes may cause visibility obstructions and thus produce a hazard to aircraft operations, and
- A thermal plume from the HRSG stack may cause turbulence that could adversely affect flight operations.

This section provides an assessment of potential impacts of LEC operations on operations at Kingdon Airpark in terms of these potential issues. The conclusions of these analyses are supported by real-world experience at the existing Lodi STIG plant. NCPA currently operates a combustion turbine/STIG and a cooling tower immediately adjacent to the LEC site. Conversations with the operators at Lodi and Kingdon Airparks indicate that there have been no pilot complaints regarding the existing NCPA units and there are no concerns regarding the proposed expansion.[5] The STIG plant HRSG and cooling tower plumes are sufficiently similar to the expected plumes from the LEC to conclude that any thermal and vapor plumes from the proposed project will not pose any potential hazards to aviation. Additional analysis of the LEC HRSG and cooling tower plumes is provided below.

5.12.2.6.3 Compliance with FAA Height Restrictions

Federal Acquisition Regulations (FAR) Part 77 establishes standards for determining obstructions to air navigation. It applies to existing and proposed man made obstacles, objects of natural growth and terrain. FAR Part 77.13 identifies notification requirements for proposed construction. In general, notification is required for:

- Construction or alteration of more than 200 feet above the ground level at the site, and
- Construction or alteration of greater height than an imaginary surface extending outward and upward at the following slopes:
  - 100 to 1 for horizontal distance of 20,000 feet from the nearest point of the nearest runway at airports with at least one runway greater than 3,200 feet in length (excluding heliports).

[4] Telephone conversations between Sarah Madams, CH2M HILL, and Amrit Grewal, co-owner of Kingdon Airpark, August 21, 2008.

[5] Telephone conversations between Sarah Madams, CH2M HILL, and Peter Precissi, owner of Lodi (Precissi) Airpark, and Amrit Grewal, ibid, August 21, 2008.

  - 50 to 1 for a horizontal distance of 10,000 feet from the nearest point on the nearest runway of each airport with its longest runway no more than 3,200 feet in length.
  - 25 to 1 for a horizontal distance of 5,000 feet from the nearest landing and takeoff area of a heliport.
- Any highway, railroad, or other traverse way for mobile objects, of a height which, if adjusted by 17 feet for an Interstate, 15 feet for local road, or 23 feet for a railroad, would exceed the standards in A or B of this section.
- When requested by FAA.
- Any construction on an airport or heliport.

NCPA used the FAA Notice Criteria Tool[6] to determine whether the LEC met any of these FAR §77.13 requirements for notification of construction. The criteria tool indicated that the proposed stack would penetrate the 100 to 1 surface for Kingdon Airpark by approximately 70 feet, and thus notification is required through the filing of a 7460-1 Notice of Proposed Construction form to the Federal Aviation Administration (FAA). The required notice was filed on August 21, 2008. A copy of the notice is provided in Appendix 5.6B.

FAR §77.25 establishes imaginary surfaces surrounding civil airfields with specially prepared hard runway surfaces. Each of the surfaces varies in dimension and shape based on the category of aircraft operating at the airfield. The extent of these surfaces is shown in Figure 5.12-5.

A review of FAR Part 77 imaginary surfaces for the LEC was conducted that considered imaginary surfaces identified in §77.25 Civil Airport Imaginary Surfaces. This analysis indicates the HRSG stack falls within the area of the Kingdon Airpark conical surface. At the location of the proposed LEC HRSG stack, the elevation of the conical surface is approximately 281 feet amsl. The LEC HRSG stack will be 150 feet tall with a base elevation of 8.5 feet, so the top of the HRSG stack will be well below the conical surface and no FAR Part 77 impacts would be expected as a result of the proposed project.

5.12.2.6.4 HRSG Visible Plume Analysis

The potential for water vapor emissions to form visible plumes depends on the amount of water vapor in the exhaust gas, the temperature and volume of the exhaust gas, and the temperature and moisture content of the ambient air. There are various calculations and modeling procedures that can be used to predict the extent and frequency of visible plumes under site-specific ambient conditions. The applicant has provided the HRSG exhaust data and the ambient data that will allow the CEC staff to carry out their preferred modeling procedures and to predict the frequency and significance of visible plumes from the new HRSG stack (see Section 5.13, Visual Resources).

Visible plumes occur under cold temperature/high humidity conditions, mainly during the winter months. The plume would tend to be larger when wind velocities are low because wind causes increased mixing, which limits vertical plume height potential and interferes with plume coherence. The wind frequency distribution data for the region (shown in Air Quality Appendix 5.1B) indicate that low-speed winds are primarily from the north,

[6] Available at https://oeaaa.faa.gov/oeaaa

especially in the winter months (1st and 4th quarters). Under these conditions, any visible plume would be carried south, rather than east toward the airparks, so it is unlikely that any HRSG vapor plume would interfere with visibility at the airparks.

5.12.2.6.5 Cooling Tower Visible Plume Analysis

Cooling towers are more likely to form vapor plumes than HRSG stacks because their exhaust is cooler and has a higher moisture content. However, as discussed above regarding potential HRSG vapor plume impacts on nearby airparks, the conditions under which cooling tower vapor plumes would tend to form are likely to carry the plumes to the south rather than to the east toward the airparks. Therefore it is also unlikely that the cooling tower vapor plumes would adversely affect airpark operations.

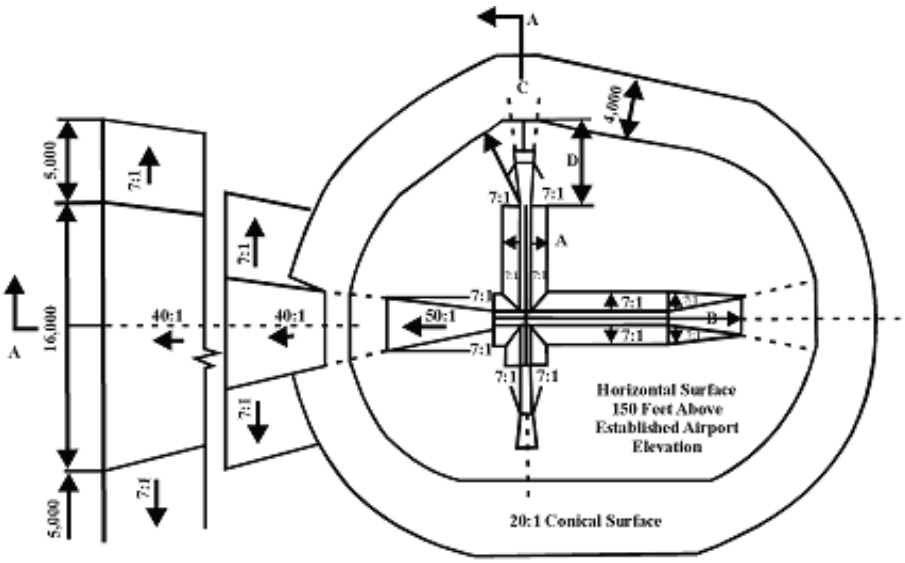
This qualitative analysis is supported by experience with the cooling tower at the existing NCPA STIG plant. As noted earlier, the Lodi (Precissi) and Kingdon airport operators have indicated that existing HRSG and cooling tower plumes have not posed any hazards to flight operations.

5.12.2.6.6 HRSG Thermal Plume Analysis

The impact of turbulence from the HRSG stack plume is considered not significant. The existing HRSG plume is hotter than the LEC HRSG exhaust plume (769°F vs. <200°F) and has a higher exhaust velocity (170 ft/sec vs. under 90 ft/sec), so has a higher potential for creating thermal turbulence than the exhaust plume from the new HRSG. As noted earlier, the Lodi (Precissi) and Kingdon airport operators have indicated that the existing HRSG plume has not posed any hazards to flight operations. Therefore, it is unlikely that the proposed project will pose a hazard.

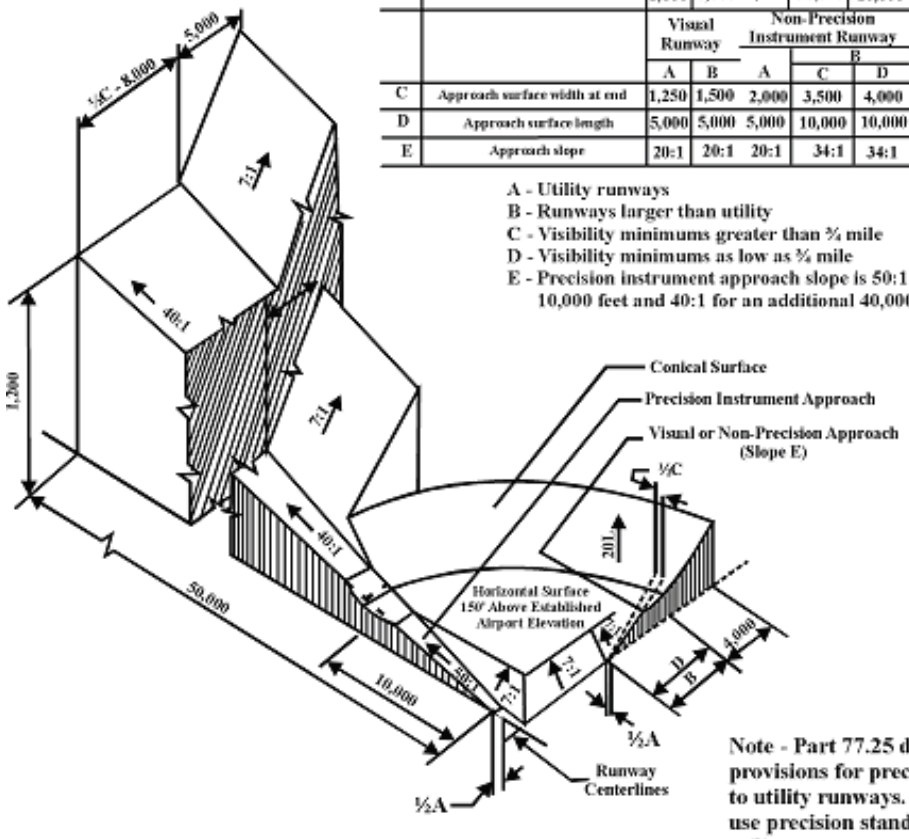
The most critical time for turbulence from a power plant stack plume to impact aircraft operations will be when aircraft are on their final approach for landing. At Kingdon Airpark, approaching planes will be landing to the northwest and will be on final approach from the southeast, or landing to the southeast and approaching from the northwest. In either approach, approaching aircraft will be over a mile from the plant site at nearest approach. The wind would have to be from the west for a power plant plume to be transported directly over the nearest runway. Winds from the north or northwest direction occur approximately 12 percent of the time. Since the airpark is over a mile away, it is unlikely that the plume from the LEC would drift over the active approach to the Kingdon runway and potentially impact slow-moving aircraft on final approach.

As noted earlier, the HRSG stack is 1.4 miles from the Kingdon Airpark runway approach and at times when the wind flow direction is from the power plant site toward the airpark, at an average daytime wind speed of 5 m/s or 11.2 mph, it will take the plume more than 7 minutes to drift over the approach end of the runway. During this time, plume turbulence will dissipate and will become indistinguishable from ambient atmospheric turbulence.



DIM	ITEM	Dimensional Standards (Feet)					
		Visual Runway		Non-Precision Instrument Runway			Precision Instrument Runway
					B		
		A	B	A	C	D	
A	Width of primary surface and approach surface width at inner end	250	500	500	500	1,000	1,000
B	Radius of horizontal surface	5,000	5,000	5,000	10,000	10,000	10,000
		Visual Runway		Non-Precision Instrument Runway			Precision Instrument Runway
					B		
		A	B	A	C	D	
C	Approach surface width at end	1,250	1,500	2,000	3,500	4,000	16,000
D	Approach surface length	5,000	5,000	5,000	10,000	10,000	*
E	Approach slope	20:1	20:1	20:1	34:1	34:1	*

A - Utility runways
B - Runways larger than utility
C - Visibility minimums greater than ¾ mile
D - Visibility minimums as low as ¾ mile
E - Precision instrument approach slope is 50:1 for inner 10,000 feet and 40:1 for an additional 40,000 feet



Note - Part 77.25 does not make provisions for precision approaches to utility runways. In these situations, use precision standards for other than utility runways to develop the primary, approach, and transition surfaces.

FIGURE 5.12-5
IMAGINARY SURFACES
LODI ENERGY CENTER
LODI, CALIFORNIA

The CEC staff performed thermal plume modeling for the Russell City Energy Center (RCEC) and Blythe II (BEP) combined cycle gas turbine stacks. Both projects proposed to use Frame 7 gas turbines, and the thermal plume modeling for both plants produced similar results. The gas turbine/HRSG stack parameters for the RCEC, BEP and LEC projects are compared in Table 5.12-9.

TABLE 5.12-9
Comparison of Gas Turbine/HRSG Stack Parameters

	RCEC[a]		BEP[a]		LEC[b]	
Parameter	**38°F**	**59°F**	**38°F**	**59°F**	**24°F**	**61°F**
Stack Ht, ft	145		130		150	
Stack Diam, ft	18		16.5		19	
Stack Velocity, ft/s	72.1	74.0	84.7	85.0	61.5	58.5
Exhaust Temp, °F	193	194	216	218	183	187

[a]From RCEC FSA Section 4.10, June 2007.

[b]From Air Quality Appendix 5.1B.

The CEC staff calculated plume velocities for the RCEC and BEP plumes under the two temperature conditions and concluded:

> "For the [RCEC] gas turbine HRSG cases the heights at which the plume velocity drops below 4.3 m/s are calculated to be approximately 995 feet and 880 feet, respectively for the 38°F and 59°F operating cases… For the [BEP] gas turbine/HRSG cases the heights at which the plume velocity drops below 4.3 m/s are calculated to be approximately 1,030 feet and 950 feet, respectively, for the 38°F and 59°F operating cases."[7]

Because the LEC has lower velocities and exhaust temperatures than RCEC, the LEC plume velocity would be expected to drop below 4.3 m/s at altitudes lower than the 995 foot and 880 foot altitudes calculated for RCEC. The LEC HRSG plume velocity is expected to drop below 4.3 m/s before reaching the standard traffic pattern altitude of between 800 and 1.000 feet and therefore would be unlikely to cause significant turbulence.

A similar analysis was performed for the RCEC and BEC cooling tower plumes. The cooling tower stack parameters for the RCEC, BEP and LEC projects are compared in Table 5.12-10.

[7] CEC, Final Staff Assessment for the Russell City Energy Center, Traffic and Transportation, p. 4.10-29, June 2007.

TABLE 5.12-10
Comparison of Cooling Tower Stack Parameters

Parameter	RCEC[a]		BEP[a]		LEC[b]
	38°F	68°F	38°F	59°F	94°F
Cell Ht, ft	60		40.14		45.8
Cell Diam, ft	32		36.7		14
Stack Velocity, ft/s	33.8	33.8	22.0	21.8	27.5
Exhaust Temp, °F	73.2	81	74	85	86.7

[a]From RCEC FSA Section 4.10, June 2007.

[b]From Air Quality Appendix 5.1B.

The RCEC FSA found that:

> "The cooling tower vertical plume velocities are calculated to be somewhat higher for RCEC than BEP, which is not surprising since the heat load for RCEC is somewhat higher, the initial stack height and velocity are both higher for the RCEC cooling tower, and the RCEC cooling tower will have additional thermal buoyancy since it is a plume abated tower."[8]

The LEC cooling tower is expected to have performance more comparable to the BEP cooling tower than the RCEC tower, since its stack height is similar to BEP and it is not a plume-abated tower. The thermal modeling of the BEP cooling tower presented in the RCEC FSA (Plume Velocity Table 6) showed that the BEP cooling tower plume velocity fell below the CEC staff's 4.3 m/s significance threshold at an elevation of about 800 feet. We conclude that the LEC cooling tower plume velocity can also reasonably be expected to fall below 4.3 m/s before reaching the standard traffic pattern altitude of between 800 and 1,000 feet and, therefore, would be unlikely to cause significant turbulence.

5.12.3 Cumulative Effects

A cumulative impact refers to a proposed project's incremental effect together with other closely related past, present, and reasonably foreseeable future projects whose impacts may compound or increase the incremental effect of the proposed project (Public Resources Code § 21083; California Code of Regulations, title 14, § 15064(h), 15065(c), 15130, and 15355).

In July 2008, 21 projects were in various stages of progress with the City of Lodi. Most of these projects are zoned residential, with a few office, mixed use, institutional, commercial, and industrial projects proposed. All of these projects are more than 4 miles from the proposed project, except for the improvements at the White Slough WPCF (Draft EIR issued March 28, 2008), which is adjacent to the project site (Bereket, 2008; City of Lodi, 2008b).

In July 2008, 72 projects[9] were being processed with the San Joaquin County Building Department. These projects were located in Acampo, Escalon, Farmington, French Camp, Linden, Lodi, Lockeford, Manteca, Ripon, Stockton, and Tracy. The types of projects included residential projects such as new residences, additions and remodels to existing

[8] Ibid., p. 4.10-31.

[9] For the purposes of this discussion, San Joaquin County sorted its projects by project cost, and provided a list of the projects costing $25,000 or more.

residences, mobile home renovations, and pool construction; commercial projects such as administration buildings, barns, and a riding arena; light industrial projects such as storage buildings, spray booths, and warehouses; office projects such as building conversions and tenant improvements; and institutional projects such as classroom relocation and facilities to house animals (Raborn, 2008).

Although there are a number of projects that are currently under development in the vicinity of CECP that could potentially have an adverse cumulative traffic and transportation impact, most of these projects have not advanced to the point where enough is known about them in terms of construction traffic or construction schedule; therefore, cumulative effects were not assessed.

5.12.4 Mitigation Measures

5.12.4.1 Construction Impacts

In general, construction-related traffic associated with the project will not adversely affect operations on the surrounding roadway segments. Only one roadway segment (North Thornton Road, between West Eight Mile Road and North Devries Road) is projected to have a negative change in LOS with the addition of the construction traffic. The projected LOS changed from E to F, but only because the volume passed a threshold value. The construction traffic is only one percent of the total traffic on this segment. The other segments of North Thornton Road will continue to have unsatisfactory operations, but only one to two percent traffic will be added. No intersection impacts were identified.

Therefore, there is an impact to the second CEQA significance criterion: the project is expected to "exceed, either individually or cumulatively, a LOS standard established by the county congestion management agency for designated roads or highways." While this impact is relatively minor (one percent of traffic), it is a significant impact based on the traffic analysis.

To address this construction impact, the construction contractor will be required to prepare a construction traffic control plan and construction management plan, also known as a Transportation Management Plan (TMP). The TMP should address construction hours, timing of heavy equipment and building material deliveries, potential street and/or lane closures, signing, lighting, and traffic control device placement. Damage to any roadway caused by project construction traffic will be restored to or near its preexisting condition. The construction contractor will work with the local agency's engineer to prepare a schedule and mitigation plan that includes appropriate traffic control measures for the roadways along the construction routes. After mitigation, the construction impact should be less-than-significant. Since the only significant impact before mitigation (North Thorton Road between West Eight Mile Road and North Devries Road) was caused by an increase in traffic of less than one percent, the improvements associated with the TMP should mitigate that relatively minor increase in traffic.

The project will not:

- Cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system

- 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
- Cause unannounced traffic delays greater than 15 minutes during construction within or adjacent to public roadways

No new design feature or incompatible uses that would substantially increase hazards have been identified. The implementation of a proper safety plan will address the hazards due to the crossing of the onsite rail line.

Specific construction worker parking areas have been designated onsite, so the project will not result in inadequate parking capacity. The project will not result in inadequate emergency vehicle access either. No conflict with adopted policies, plans, or programs supporting alternative transportation has been found.

5.12.4.2 Operations Impacts

The operations-related and maintenance-related traffic associated with the project is minimal and insignificant when added to major movements on freeways and local roadways (the twelve weekly deliveries scheduled represent less than one percent of the daily demand on surrounding streets). Consequently, no operations-related impacts require mitigation measures.

5.12.5 Laws, Ordinances, Regulations, and Standards

LORS related to traffic and transportation are summarized in Table 5.12-11 and the following subsections.

5.12.5.1 Federal LORS

- Title 49, CFR, Sections 171-177 (49 CFR 171-177), governs the transportation of hazardous materials, the types of materials defined as hazardous, and the marking of the transportation vehicles.
- 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.
- 49 CFR 397.9, the Hazardous Materials Transportation Act of 1974, directs the U.S. Department of Transportation to establish criteria and regulations for the safe transportation of hazardous materials.
- 14 CFR 77.13(2)(i) requires an applicant to notify the Federal Aviation Administration (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. Kingdon Airpark is the closest airport to the site and is located less than 20,000 feet south of the site; therefore, this requirement is applicable and the Applicant will comply by notifying the FAA of the construction of the project.

TABLE 5.12-11
Laws, Ordinances, Regulations, and Standards for Traffic and Transportation

LORS	Requirements/Applicability	Administering Agency	AFC Section Explaining Conformance
49 CFR, Section 171-177 and 350-399	Requires proper handling and storage of hazardous materials during transportation.	U.S. Department of Transportation and Caltrans	Project and transportation will comply with all standards for the transportation of hazardous materials. (Sections 5.12.2.3 and 5.12.5.1)
14 CFR, Section 77.13(2)(i), 77.17, 77.21, 77.23, and 77.25	Requires an applicant to notify the FAA of the construction or alterations of structures within certain distance from an airport, in order to avoid air navigation conflicts.	U.S. Department of Transportation and Federal Aviation Administration	Kingdon Airpark is within 20,000 feet of the project site; therefore, this requirement is applicable (Section 5.12.5.1)
CVC §§13369, 15275, and 15278	Addresses the licensing of drivers and classifications of licenses required for the operation of particular types of vehicles. In addition, certificates permitting the operation of vehicles transporting hazardous materials are required.	Caltrans	The project will conform to these sections in the CVC. (Section 5.12.5.2)
CVC §§25160 et seq.	Addresses the safe transport of hazardous materials.	Caltrans	The project will conform to these sections in the CVC. (Section 5.12.5.2)
CVC §§2500-2505	Authorizes the issuance of licenses by the Commissioner of the CHP for the transportation of hazardous materials including explosives.	Caltrans	The project will conform to these sections in the CVC. (Section 5.12.5.2)
CVC §31300 et seq.	Requires transporters to meet proper storage and handling standards for transporting hazardous materials on public roads.	Caltrans	Transporters will comply with standards for transportation of hazardous materials on state highways during construction and operations. The project will conform to CVC §31303 by requiring that shippers of hazardous materials use the shortest route possible to and from the site. (Section 5.12.5.2)
CVC §§31600 – 31620	Regulates the transportation of explosive materials.	Caltrans	The project will conform to CVC 31600 – 31620. (Section 5.12.5.2)
CVC §§32000 – 32053	Regulates the licensing of carriers of hazardous materials and includes noticing requirements.	Caltrans	The project will conform to CVC 32000 – 32053. (Section 5.12.5.2)
CVC §§32100 – 32109 and 32105	Establishes special requirements for the transportation of substances presenting inhalation hazards and poisonous gases. Requires that shippers of inhalation or explosive materials contact the CHP and apply for a Hazardous Material Transportation License.	Caltrans	The project will conform by requiring shippers of inhalation or explosive materials to contact the CHP and obtain a Hazardous Materials Transportation License. (Section 5.12.2.3 and Section 5.12.5.2)

TABLE 5.12-11
Laws, Ordinances, Regulations, and Standards for Traffic and Transportation

LORS	Requirements/Applicability	Administering Agency	AFC Section Explaining Conformance
CVC §§34000 – 34121	Establishes special requirements for the transportation of flammable and combustible liquids over public roads and highways.	Caltrans	The project will conform to CVC §§34000 – 34121. (Section 5.12.2.3 and Section 5.12.5.2)
CVC §§34500, 34501, 34501.2, 34501.3, 34501.4, 34501.10, 34505.5-7, 34506, 34507.5 and 34510-11	Regulates the safe operation of vehicles, including those used to transport hazardous materials.	Caltrans	The project will conform to these sections in the CVC. (Section 5.12.2.3 and Section 5.12.5.2)
S&HC §§660, 670, 1450, 1460 *et seq.*, 1470, and 1480	Regulates right-of-way encroachment and the granting of permits for encroachments on state and county roads.	Caltrans	The project will conform to these sections in the S&HC. (Section 5.12.5.2)
S&HC §§117, 660-711	Requires permits from Caltrans for any roadway encroachment during truck transportation and delivery.	Caltrans	Encroachment permits will be obtained by transporters, as required. (Section 5.12.6)
CVC §35780; S&HC §660-711	Requires permits for any load that exceeds Caltrans weight, length, or width standards for public roadways.	Caltrans	Transportation permits will be obtained by transporters for all overloads, as required. (Section 5.12.6)
CVC §§35550-35559	Regulates weight and load limitations.	Caltrans	The project will conform to these sections in the CVC. (Section 5.12.6)
California State Planning Law, Government Code Section 65302	Project must conform to the General Plan.	Caltrans	Project will comply with the City of Lodi and San Joaquin County General Plans. (Section 5.12.5.3)
Transportation Element of the City of Lodi and San Joaquin County General Plan	Specifies long-term planning goals and procedures for transportation infrastructure system quality in the City of Lodi.	City of Lodi; San Joaquin County	Project will comply with goals and policies for City and County transportation and traffic systems. (Section 5.12.5.3)

CVC California Vehicle Code
CFR Code of Federal Regulations
S&HC California Streets and Highways Code

- 14 CFR 77.17 requires an applicant to submit a Notice of Proposed Construction or Alteration (FAA Form No. 7460-1) to the FAA for construction within 20,000 feet of the nearest runway of an airport with at least one runway longer than 3,200 feet. This requirement is also applicable and the Applicant will comply by submitting Form No. 7460-1 to the FAA.
- 14 CFR 77.21, 77.23, and 77.25 outlines the criteria used by the FAA to determine whether an obstruction would create an air navigation conflict. Because of the distance, LEC is less than 3 nautical miles from the nearest airport, these requirements are applicable.

5.12.5.2 State LORS

- CVC Sections 13369, 15275, and 15278 address the licensing of drivers and classifications of licenses required to operate particular types of vehicles. In addition, certificates permitting the operation of vehicles transporting hazardous materials are addressed.
- CVC Sections 25160 et seq. address the safe transport of hazardous materials.
- CVC Sections 2500-2505 authorize the issuance of licenses by the Commissioner of the CHP to transport hazardous materials, including explosives.
- CVC Sections 31300 et seq. regulate the highway transportation of hazardous materials, routes used, and restrictions.
- CVC Section 31303 requires hazardous materials to be transported on state or interstate highways that offer the shortest overall transit time possible.
- CVC Sections 31600-31620 regulate the transportation of explosive materials.
- CVC Sections 32000-32053 regulate the licensing of carriers of hazardous materials and include noticing requirements.
- CVC Sections 32100-32109 establish special requirements for the transportation of substances presenting inhalation hazards and poisonous gases. CVC Section 32105 requires shippers of inhalation or explosive materials to contact the CHP and apply for a Hazardous Material Transportation License. Upon receiving this license, the shipper will obtain a handbook specifying approved routes.
- CVC Sections 34000-34121 establish special requirements for transporting flammable and combustible liquids over public roads and highways.
- CVC Sections 34500, 34501, 34501.2, 34501.3, 34501.4, 34501.10, 34505.5-7, 34506, 34507.5, and 34510-11 regulate the safe operation of vehicles, including those used to transport hazardous materials.
- California Street and Highways 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. California 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 the 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.

- California State Planning Law, Government Code Section 65302, requires each city and county to adopt a General Plan, consisting of seven mandatory elements, to guide its physical development. Section 65302(b) requires that a circulation element be one of the mandatory elements.

- All construction in the public right-of-way will need to comply with the "Manual on Uniform Traffic Control Devices" (Caltrans, 2003; FHWA, 2003).

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:

- The San Joaquin County Regional Transportation Plan (RTP), administered by San Joaquin Council of Governments (SJCOG), establishes regional transportation goals, policies, objectives and actions for various modes of transportation. In the 2007 RTP, eight goals have been identified. These are:

  - Improve safety and security
  - Improve system maintenance and operations
  - Promote interagency coordination, public participation and citizen involvement
  - Improve quality of life
  - Improve goods movement
  - Improve mobility and accessibility

- Enhance the environment
- Maximize cost effectiveness

- The County of San Joaquin 2010 General Plan Transportation Element establishes policies and implementation measures regarding the assessment and mitigation of traffic impacts of new development. As defined in the General Plan, "all county roadways shall operate at a LOS C or better (except in a City sphere of influence where the City has adopted LOS D); intersections shall operate at an overall LOS D or better on minor arterials and roadways of higher classification; and LOS C on all other roads; all freeways and State highways shall operate at a LOS D."
- San Joaquin County Hazardous Waste Management Plan (CHWMP) various policies regarding the transport of hazardous waste ensure safe and effective management and transport of hazardous waste within the county.
- The City of Lodi General Plan Circulation Element presents the goals, objectives, policies and actions to guide the development of the City's transportation system. Among other policies, the City strives for LOS C as the minimum to achieve on all roadway links and intersections.

5.12.5.4 Compliance with Laws, Ordinances, Regulations, and Standards

Table 5.12-11 summarizes all applicable federal, state and local LORS and administering agencies, and describes how the Applicant will comply with all LORS pertaining to traffic and transportation impacts.

5.12.6 Agencies and Agency Contacts

Table 5.12-12 lists the agency contacts related to traffic and transportation.

TABLE 5.12-12
Agency Contacts for Traffic and Transportation

Issue	Agency	Contact
Transportation Permit for Oversized Loads	Caltrans	Caltrans North Region Transportation Permits Office 1823 14th Street Sacramento, CA 95814 Officer on Duty (909) 383-4637
Transportation Permit for Oversized Loads	San Joaquin County	San Joaquin County Public Works 1810 East Hazelton Avenue Stockton, CA 95205 Scott Cooper (209) 468-3058
Transportation Permit for Oversized Loads	City of Lodi	City of Lodi Public Works 221 West Pine Street Lodi, CA 95240 Kari Chadwick (209) 333-6706

TABLE 5.12-12
Agency Contacts for Traffic and Transportation

Issue	Agency	Contact
Hazardous Material Transportation License	California Highway Patrol	Accounting Section (HM Licensing Program) P.O. Box 942902 Sacramento, CA 94298-2902 (916) 327-5039 Email form available at: http://www.chp.ca.gov/prog/email.cgi
Safety Permits	Federal Motor Carrier Safety Administration	California Field Office 1325 J Street, Suite 1540 Sacramento, CA 95814 (916) 930-2760 Fax: (916) 930-2770 Email contact depends on the nature of the hazardous material hauled.

5.12.7 Permits and Permit Schedule

Table 5.12-13 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, Sections 117 and 660-711 of the California State Highway Code, and Sections 1411.1 to 1411.6 of the California Code of Regulations. Affected vehicles will be required to obtain transportation permits from Caltrans, San Joaquin County, and the City of Lodi.

Transport route arrangements would be required with Caltrans and CHP officials for permitting and escort, as applicable. Transportation of hazardous materials to and from LEC will be conducted in accordance with CVC Section 31303.

TABLE 5.12-13
Permits and Permit Schedule for Traffic and Transportation

Permit	Administering Agency	Schedule
Single/annual-trip transportation permit for oversized loads and oversized vehicles	Caltrans North Region Transportation Permits Office 1823 14th Street Sacramento, CA 95814 Officer on Duty (909) 383-4637	Obtain when necessary, 2-hour processing time (single trip) to 2 weeks (annual trip).
Hazardous materials transportation license	California Highway Patrol HM Licensing Program (916) 327-5039	Obtain when necessary, approximately 2-week processing time.

TABLE 5.12-13
Permits and Permit Schedule for Traffic and Transportation

Permit	Administering Agency	Schedule
Transportation Permit for Oversized Loads in San Joaquin County	San Joaquin County Public Works 1810 East Hazelton Avenue Stockton, CA 95205 Scott Cooper (209) 468-3058	Usually two-day processing time for either a single trip permit or an annual (blanket) permit.
Encroachment Permit for San Joaquin County	San Joaquin County Public Works 1810 East Hazelton Avenue Stockton, CA 95205 Scott Cooper (209) 468-3058	Obtain when necessary, issuance varies depending on the complexity of the work; usually issued within a week, up to a year.
Transportation permit for the transportation of oversize and overweight loads through the City of Lodi	City of Lodi Public Works 221 West Pine Street Lodi, CA 95240 Denise Wiman (209) 333-6706	Obtain when necessary, issuance within 3 to 5 business days.
Encroachment Permit for the City of Lodi	City of Lodi Public Works 221 West Pine Street Lodi, CA 95240 Kari Chadwick (209) 333-6706	Obtain when necessary, issuance within 5 business days.

5.12.8 References

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