

TRAFFIC AND TRANSPORTATION

Draft Testimony of Jason Ricks

SUMMARY OF CONCLUSIONS

Staff has analyzed information regarding traffic conditions provided in the Application for Certification, Data Responses, the Draft Traffic Mitigation Plan, and other sources. Staff concludes that with satisfaction of conditions TRANS-1 through TRANS-4, the Carrizo Energy Solar Farm project would not result in significant adverse traffic and transportation-related impacts.

As proposed, traffic generated during construction, particularly equipment deliveries requiring pilot cars and/or California Highway Patrol escorts, would create substantial delays to vehicle traffic along State Route 58 (SR-58), resulting in significant, adverse direct impacts, as well as significant, adverse cumulative impacts. To satisfy applicable requirements for certification, staff proposes four conditions.

To reduce significant impacts from construction traffic and to reduce the potential for conflicts between construction traffic and existing traffic along SR- 58, including school bus traffic, staff proposes Condition of Certification TRANS-1. TRANS-1 consists of an extensive Traffic Control and Implementation Plan that minimizes heavy construction traffic during peak traffic hours and hours when children are walking to and from school. Implementation of TRANS-1 would reduce impacts during morning and afternoon peak hours, as well as during off-peak hours, to less than significant levels.

Staff also proposes Conditions of Certification TRANS-2 and TRANS-3. TRANS-2 ensures the repair of any physical damage to area roadways caused by construction of the Carrizo Solar Energy Farm. TRANS-3 ensures safe access to the project site.

Finally, to address the potential for low-flying aircraft to be affected by turbulence from heat exhaust created by the project's air-cooled condenser, staff proposes Condition of Certification TRANS-4. TRANS-4 would require the project owner to notify local and regional airports that aircraft in the vicinity of the Carrizo Energy Solar Farm project should avoid direct overflight of the project area.

With implementation of Conditions of Certification **TRANS-1 through TRANS-4**, the Carrizo Energy Solar Farm as proposed would be consistent with all applicable laws, ordinances, regulations, and standards, including the County of San Luis Obispo traffic thresholds and the Circulation Element of the Kern County General Plan.

INTRODUCTION

In the **Traffic and Transportation** analysis, staff addresses the extent to which the project may impact the transportation system in the local area. This analysis focuses on whether construction and operation of the Carrizo Energy Solar Farm (CESF) would cause traffic and transportation impact(s) under the California Environmental Quality Act (CEQA) and whether the project would be in compliance with applicable laws, ordinances, regulations, and standards (LORS).

Specifically, in this analysis staff compares the effects of project-related construction and operational traffic on the local and regional transportation network in the context of:

- roads and routings that are proposed for use for construction and operation;
- potential traffic-related problems associated with the use of those routes by construction workers and truck drivers;
- anticipated encroachments upon public rights-of-way during the construction of the proposed project and associated facilities;
- frequency of trips and probable routes associated with the delivery of hazardous materials;
- possible effect of project operations on local airport flight traffic.

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS

Traffic and Transportation Table 1 provides a general description of adopted federal, state, and local LORS pertaining to traffic and transportation relevant to the proposed project.

**Traffic and Transportation Table 1
Laws, Ordinances, Regulations, and Standards**

Applicable Law	Description
Federal	
Code of Federal Regulations (CFR), Title 14 Aeronautics and Space, Part 77 Objects Affecting Navigable Airspace (14 CFR 77)	This regulation establishes standards for determining physical obstructions to navigable airspace; sets noticing and hearing requirements; and provides for aeronautical studies to determine the effect of physical obstructions to the safe and efficient use of airspace.
CFR, Title 49, Subtitle B	49 CFR Subtitle B includes procedures and regulations pertaining to interstate and intrastate transport (including hazardous materials program procedures) and provides safety measures for motor carriers and motor vehicles that operate on public highways.
State	
California Vehicle Code (CVC), Division 2, Chapter 2.5; Div. 6; Chap. 7; Div. 13, Chap. 5; Div. 14.1, Chap. 1 & 2; Div. 14.8; Div. 15	This code includes regulations pertaining to licensing, size, weight, and load of vehicles operated on highways; safe operation of vehicles; and the transportation of hazardous materials.
California Streets and Highway Code, Div. 1, Div. 2, Chapter 3 & Chapter 5.5	This code includes regulations for the care and protection of state and county highways and provisions for the issuance of written permits.
Caltrans Transportation Concept Report for State Route 58 in Caltrans District 5	This report states that level of service D is considered acceptable for the section of SR-58 from post mile 3.14 to the San Luis Obispo / Kern County line.
Caltrans Transportation	This report states that level of service C is considered acceptable

Concept Report for State Route 58 in Caltrans District 6	for the conventional highway section of SR-58 in Kern County.
Local	
San Luis Obispo County Public Works Department, Minimum Roadway Segment Level of Service	The county's level of service (LOS) standard is to maintain roadway segment LOS C or better on county roadways.
Kern County Circulation Element	The Circulation Element of the Kern County General Plan includes a goal to maintain a minimum level of service (LOS) D for all roads throughout the county.

SETTING

The project site is located on State Route 58 (SR-58) immediately west of Tracy Lane in an unincorporated area of eastern San Luis Obispo County that is located west of Simmler and northwest of California Valley, California. The 640-acre site consists primarily of disturbed rangeland and is currently occupied by abandoned farm structures and an abandoned residence (CESF 2007a, p.1-2). The project site is located approximately five miles west of Kern County. Access to the CESF site would be provided from Tracy Lane (off SR-58) via one new gate located at the northeastern corner of the site (CESF 2007a, p.3-3).

Surrounding land uses include the following: agricultural uses of primarily dry-farming and rangeland activities, rural residences, the Pacific Gas and Electric Company (PG&E) electric transmission line right-of-way and PG&E's Carrizo Plain Substation (CESF 2007a, p. 3-1).

Parking for construction workers would be provided at a 380-acre construction off-site laydown and parking area located directly south of the project site across SR-58 (CESF 2007a, p. 3-35). The completed CESF site would include a 20,000 square-foot paved parking area.

CRITICAL ROADS AND FREEWAYS

Traffic and Transportation Figure 1B shows the local transportation features as described in the Application for Certification (AFC).

The roadways discussion below is based on information obtained from the Traffic and Transportation section of the AFC (CESF 2007a), San Luis Obispo County Department of Public Works, the County of San Luis Obispo Transportation Plan, the Kern County General Plan, and the California Department of Transportation (Caltrans).

Bitterwater Road

Bitterwater Road is a two-lane, north/south collector connecting SR-46 with SR-58. According to San Luis Obispo County traffic counts, the average daily traffic on Bitterwater Road is 48 vehicles per day, and the peak hour traffic is 9 vehicles in each

direction in the morning and afternoon peak hours of 7:00 a.m and 4:00 p.m., respectively (SLOC 2007e).

Interstate 5 (I-5)

I-5 is a major north/south route through the Central Valley, extending the length of California from San Diego County to the Oregon border. Located east of the study area, I-5 provides for two mainline lanes in each direction with wide shoulders and a center median.

State Route 58 (SR-58)

SR-58 is a two-lane east/west state highway, located immediately south of the project site and providing regional and primary access to the project site. The posted speed limit is 55 mph. Originating from Highway 101 (San Luis Obispo mile post [MP] 0.0 to MP 1.64), SR-58 is a two-lane conventional state highway with shoulders of four to eight feet on flat terrain and moderate grades (CESF 2007a), p.5.11-1). From San Luis Obispo MP 1.64 to MP 57.15 at the Kern County line to the east, it has shoulders of 0 feet to 2 feet on rolling terrain with moderate to steep grades and sharp turns.

From the Kern County line east to SR-33 (Kern MP 0.0 to MP 15.4 in Caltrans District 6), SR-58 is a two-lane conventional highway with lane widths of 9 feet to 12 feet and shoulder widths of 0 feet over mountainous terrain (Caltrans 2004b).

The average daily traffic on the roadway segments within the project study area ranges from 720 vehicles per day to the west and 350 vehicles per day to the east of the project site, respectively. Peak hour traffic ranges from 50 to 80 vehicles (Caltrans 2007). SR-58 is also designated as a Class III bike route as described in the Caltrans District 5 bicycle map for state highways in the central coast (CESF 2007a, p.5.11-1).

SR-58 is designated as a state truck route as well as a California Legal Advisory Route with an advisory of kingpin-to-rear axle (KPRA)¹ less than 30 feet (CEC 2008p). This advisory means that travel on this route by trucks with a KPRA length of 30 feet or more is not advised (CEC 2008p). This advisory applies to the portion of SR-58 located between SR-229 and SR-33. Additionally, motorhomes and motorcoaches (i.e. buses) over 40 feet in length are prohibited on SR-58 between SR-229 and SR-33 (Caltrans 2005a).

United States Route 101 (US-101)

US-101 is a regional roadway that originates from the south in Los Angeles and traverses San Luis Obispo County, continuing north to San Francisco. Located west of the study area, US-101 is a four-lane freeway with an interchange with SR-58.

LEVEL OF SERVICE

Level of service (LOS) is a qualitative measure used to describe operational conditions within a traffic stream. LOS is used to describe and quantify the congestion level on a

¹ KPRA (kingpin-to-rear-axle) length is the distance between the rear axle of the trailer and the point at which the trailer connects to the back of the semi tractor.

particular roadway or intersection in terms speed, travel time, and delay. The Highway Capacity Manual² defines six levels of service for roadways or intersections ranging from LOS A—the best operating conditions—to LOS F—the worst. See **Traffic and Transportation Appendix A** for additional information.

The County of San Luis Obispo uses the LOS criteria, as defined by the 2000 Highway Capacity Manual, to assess the performance of its street and highway system and the capacity of roadway segments. The County of San Luis Obispo traffic thresholds require that LOS C or better be maintained on all county roadways. Kern County and Caltrans require their roadways to operate at LOS D or better.

Information about the existing volume-to-capacity (V/C) ratios and LOS for roadway segments in the project vicinity that may be affected by the project during construction and/or operation is presented below in **Traffic and Transportation Table 2**. LOS A represents free-flowing traffic, whereas, LOS F represents overcapacity operation. See **Traffic and Transportation Table A-1** in **Traffic and Transportation Appendix A** for additional information regarding V/C ratios and LOS designations.

Traffic and Transportation Table 2
Level of Service Summary for Existing Peak Hour Conditions

Roadway	Segment	Volume	LOS
SR-58	At Cammati Creek	80	A
SR-58	West of Soda Lake	50	A
Bitterwater Road	North of Bitterwater Valley	9	A

Source: Caltrans 2007, CESF 2008a, and SLOC 2007e

As shown above in **Traffic and Transportation Table 2**, all study area roadway segments currently operate at an acceptable LOS.

RAILWAYS

No railroads are located in the project area or cross any of the roadway segments analyzed in this staff assessment.

PUBLIC TRANSPORTATION

There is no public transportation provider servicing the project area.

BICYCLE ROUTES

SR-58 is a designated Class III bicycle route and is used as a motorcycle recreational route (CESF 2007a, p.5.11-1).

² The *Highway Capacity Manual* is the most widely used resource for traffic analysis. The *Highway Capacity Manual* is prepared by the Transportation Research Board, Committee on Highway Capacity and Quality of Service. The current edition was published in 2000.

AIRPORTS

A private airport is located in California Valley approximately 3.9 miles southeast of the CESF site. California Valley Airport is privately operated, with a functional classification of II-C (General Aviation). The airport has a 4, 200-foot paved runway with minimal traffic.

ASSESSMENT OF IMPACTS AND DISCUSSION OF MITIGATION

METHOD AND THRESHOLD FOR DETERMINING SIGNIFICANCE

To determine whether there is a potentially significant impact generated by the proposed project, staff reviewed the project using the criteria found in the CEQA Guidelines Appendix G Environmental Checklist and applicable LORS utilized by other governmental agencies. Specifically, staff analyzed whether the proposed project would do the following:

- cause an increase in traffic, which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume-to-capacity ratio on roads, or congestion at intersections or along roadway segments);
- exceed, either individually or cumulatively, a level of service 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;
- generate glare that could present a hazard to motorists or aircraft;
- substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment);
- result in inadequate emergency access;
- result in inadequate parking capacity;
- conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks).

Although not included as items in **Appendix G Traffic and Transportation** items, staff also discussed potential traffic and transportation impacts pertaining to nearby school operations and the transportation of hazardous materials.

DIRECT/INDIRECT IMPACTS AND MITIGATION

Construction Impacts and Mitigation

Total Construction Traffic

To analyze construction-related traffic impacts, staff compares the effects of project-related construction traffic on the local and regional transportation network. Project-related construction traffic includes:

- construction workforce bus trips

- construction equipment deliveries
- construction-related truck traffic
- trucks related to on-site manufacturing

Facility construction is projected to take place over 35 months from approximately the first quarter of 2010 through the third quarter of 2012 or first quarter of 2013. Typically, construction activity starts before the 7:00 a.m. to 9:00 a.m. peak hours (AM peak hour) and concludes after the 4:00 p.m. to 6:00 p.m. peak hours (PM peak hour), but for purposes of this traffic impact analysis, it was conservatively assumed that construction worker bus traffic would commute within the 7:00 a.m. to 9:00 a.m. and 4:00 p.m. to 6:00 p.m. peak hour traffic windows.

The size of the CESF construction workforce would range from 85 in the first month to a peak of 396 during months 16 and 17, with the peak number of construction workers commuting to the project site in 2011. Due to the remote location of the site, the majority of construction workers would be transported to the project site each day by bus. The applicant has proposed to use 21 buses to transport workers. The buses would commute to and from the site during the morning and afternoon peak hours for a total of 84 bus trips per day during the peak construction period (21 roundtrips in the AM peak hour and 21 roundtrips in the PM peak hour).

In addition to the construction workforce bus trips, construction equipment deliveries, construction-related truck traffic, and trucks related to on-site manufacturing would contribute additional trips during the construction period. All equipment deliveries would be truck trips. Additionally, the trucks required for equipment deliveries are assumed to be of widths³ that require use of pilot cars and/or CHP escort (URS 2008). Bus, truck and heavy equipment traffic trips were estimated using a passenger car equivalent factor of three cars for every truck or bus. **Traffic and Transportation Table 3**, presents the peak construction traffic estimates for the CESF (estimated number of vehicles), and **Traffic and Transportation Table 4** presents the estimated peak construction trip generation (estimated number of trips using passenger car equivalent).

³ Caltrans Pilot Car Requirements for SR-58 are based on the width of the truck. The table below shows what type of escort is required trucks of different widths:

>10'0" to 11'0"	>11'0" to 12'0"	>12'0" to 13'0"	>14'0" to 15'0"	>15'0" to 16'0"	>16'0"
1 Pilot Car	1 Pilot Car	2 Pilot Cars	2 Pilot Cars	CHP	CHP

Sources: Caltrans 2004a, Caltrans 2005b

**Traffic and Transportation Table 3
Estimated Construction Traffic**

Trip Type	Peak Daily Trips	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out*	Total
Peak CESF Construction Buses	84	21	21	42	21	21	42
Equipment Deliveries	14	4	4	8	0	3	3
Construction Trucks	75	5	5	10	0	5	5
On-Site Manufacturing	15	2	2	4	1	2	3
Total Trips	188	32	32	64	22	31	53

Source: CESF 2008c

* Trips leaving the site in the PM peak hour do not necessarily arrive in the PM peak hour.

**Traffic and Transportation Table 4
Estimated Peak Hour Construction Trip Generation**

Trip Type	Peak Daily Trips*	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out**	Total
Peak CESF Construction Buses	252	63	63	126	63	63	126
Equipment Deliveries	42	12	12	24	0	6	6
Construction Trucks	225	15	15	30	0	15	15
On-Site Manufacturing	45	6	6	12	3	6	9
Total Trips	564	96	96	192	66	90	156

Source: CESF 2008c

* A passenger car equivalent factor of 3.0 was used for all bus and truck trips.

** Trips leaving the site in the PM peak hour do not necessarily arrive in the PM peak hour.

Existing traffic volume on study area roadways is presented in **Traffic and Transportation Table 2**. However, based on historical traffic data, the volume of traffic traveling on study area roadways is expected to rise (CESF 2007a p. 5.11-8 and CESF 2008c, p. 2.11-3). Because the highest number of construction workers required during construction of the CESF would occur in 2011 during months 16 and 17 of the construction schedule, Year 2011 peak construction activities represent the worst possible case traffic analysis scenario during the lifetime of the CESF. Therefore, in order to accurately assess potential impacts of CESF peak construction traffic to the traffic and transportation system, the following two scenarios were analyzed for 2011: Year 2011 No-Project Conditions and Year 2011 Peak Project Construction Conditions. The Year 2011 No-Project Conditions were estimated to show the volume of traffic expected along study area roadways in 2011 without the addition of project traffic and are presented below in **Traffic and Transportation Table 5**.

**Traffic and Transportation Table 5
2011 No-Project Conditions**

Roadway	Segment	Peak Hour Volume	Level of Service
SR-58	At Cammati Creek	93	A
SR-58	West of Soda Lake	58	A
Bitterwater Road	North of Bitterwater Valley	10	A

As shown above in **Traffic and Transportation Table 5**, all study area roadway segments are forecast to operate at an acceptable LOS under Year 2011 No-Project Conditions.

To evaluate the effect of project-related peak construction traffic on area roadways, the AM and PM peak hour trips presented in **Traffic and Transportation Table 4** were added to the Year 2011 No-Project Conditions presented in **Traffic and Transportation Table 5**. The resulting Year 2011 Peak Project Construction Conditions are presented below in **Traffic and Transportation Table 6**.

**Traffic and Transportation Table 6
2011 Peak Project Construction Conditions**

Roadway	Segment	AM Peak Hour		PM Peak Hour	
		Volume	LOS	Volume	LOS
SR-58	At Cammati Creek	123	A	123	A
SR-58	West of Soda Lake	190	A	157	A
Bitterwater Road	North of Bitterwater Valley	40	A	40	A

As shown above in **Traffic and Transportation Table 6**, all study area roadway segments are forecast to operate at an acceptable LOS under Year 2011 Peak Project Construction Conditions.

All CESF construction truck traffic is expected to use SR-58 to access the site; however, SR-46 and Bitterwater Road may be used for limited trips if required (URS 2008). Project construction would generate approximately 188 daily truck and bus trips to and from the project site during peak construction; however, as presented above in **Traffic and Transportation Table 6**, these trips are not expected to reduce LOS or substantially increase congestion on these roadways.

Although all study area roadways would operate at an acceptable LOS, construction-related traffic would result in delays to existing traffic on SR-58 as a result of heavy haul deliveries. Heavy haul deliveries are construction-related equipment deliveries that would require use of trucks that require pilot cars and/or CHP escorts (URS 2008). The applicant estimates that construction of the CESF would require an average of 16 daily heavy haul deliveries throughout the 35-month construction duration, and a total of 26 daily heavy haul during peak construction (URS 2008).

An analysis was performed to determine how escorted vehicles required for project-related equipment deliveries would affect traffic flow on SR-58. A typical vehicle traveling at an average speed of 45 mph on westbound SR-58 from SR-33 to the project site can negotiate the 31-mile segment in approximately 41 minutes (URS 2008). A pilot car and CHP-escorted vehicle traveling at an average speed of 25 mph can negotiate the same segment in approximately one hour and 12 minutes (URS 2008). Therefore, non-project-related vehicles would potentially be delayed approximately 31 minutes when traveling behind a pilot car or escorted project-related truck without the opportunity of passing (URS 2008). A similar analysis was not performed for escorted vehicles traveling on SR-58 from San Luis Obispo; however, it is reasonable to assume that similar delays would occur to vehicles traveling on east-bound SR-58.

Of the anticipated peak 26 heavy haul deliveries, four would travel to and from the site in the AM peak hour, and three would travel from the site in the PM peak hour. Therefore, it is likely that non-project-related vehicles would experience delays of up to 31 minutes when traveling along SR-58 between 7:00 a.m. 6:00 p.m. during the 35-month construction. Because project-related traffic would result in substantial delays to non-project traffic traveling on SR-58, project impacts are considered to be significant. Therefore, to reduce the potential for delays to travelers along SR-58, staff has proposed Condition of Certification **TRANS-1**, which requires implementation of a Traffic Control Plan that includes requirements to limit construction equipment deliveries to times outside the AM and PM peak hours, between 9 AM and 4 PM.

The applicant has prepared a Draft Traffic Mitigation Plan, which includes measures to reduce the effects of construction-related truck traffic on area roadways. As described in the Draft Traffic Mitigation Plan, the applicant has indicated that construction of the CESF would require a total of 30 heavy haul deliveries, and that all 30 heavy haul deliveries would occur between months 12 and 18 of the overall 35-month construction period. These heavy haul trips would travel to the site from the west via eastbound SR-58. As required by Condition of Certification TRANS-1, the applicant would be restricted to traveling along SR-58 only on weekdays between 9 AM and 4 PM, or on weekends, to avoid delays to peak hour commuter traffic.

Additionally, to further reduce potential congestion or delays to peak and non-peak hour traffic on SR-58 from construction-related trucks, the Traffic Mitigation Plan requirements included in Condition of Certification **TRANS-1**, limits total truck deliveries to the site to no more than 10 trucks per day traveling to the project site along eastbound SR-58 and no more than 10 trucks per day travel to the project site along westbound SR-58. This 10 truck per day restriction would apply to all types of trucks, including all tractor trailer trucks, dump trucks, cement trucks, and straight trucks. This restriction would not apply to passenger vehicle trucks such as pickup trucks, vans, and sport utility vehicles weighing less than 14,000 pounds. With implementation of Condition of Certification **TRANS-1**, impacts related to congestion from construction-related truck traffic would be less than significant.

Damage to Rights-of-Way

Additionally, the potential exists for construction truck traffic to result in unexpected damage to roads within the project area. Therefore, staff is proposing Condition of

Certification **TRANS-2** which would require that any road damaged by project construction be repaired to its original condition. This would ensure that any damage to local roadways would not be a safety hazard to motorists.

Construction Workforce Parking and Laydown Area

The approximately 21 construction buses commuting to the CESF site each day would not remain on site after delivering workers to the site. Instead, the buses would return at the end of the day to transport workers from the site resulting in two round trips per day for each bus. Therefore, parking requirements during construction would be limited to assorted personal vehicles and delivery trucks. The precise number of parking spaces required during construction is unknown. However, it is reasonable to assume that the 380-acre construction laydown area would provide adequate space for any vehicles required to park at the site during construction.

SR-58 is a designated Class III bicycle route and is used as a motorcycle recreational route. All project construction traffic would traverse SR-58. Construction worker buses and truck traffic could present potential conflicts with bicyclists riding past the construction laydown area and project site. Proposed Condition of Certification **TRANS-1** requires the applicant to provide adequate signage, lighting, and traffic control device placement at the project site and laydown areas to decrease the potential for hazards to bicyclists in the vicinity of the project.

Hazards Due to a Street Design Feature

Primary access to the CESF site would be from Tracy Lane (off SR-58) via a new gate located at the northeastern corner of the site (CESF 2007a, p.3-3). Additionally, two permanent road crossings would be constructed on the access road within the construction laydown area. The size of the project site access and the road crossings within the construction laydown area have not been confirmed. Therefore, staff has proposed Condition of Certification **TRANS-3**, which requires the applicant to ensure that access roads into the site and construction laydown area is of sufficient width (at least 30 feet) to safely facilitate truck turning movements onto the CESF site.

Most construction traffic would travel from I-5 via SR-58. For the section of SR-58 from the Kern County line east toward SR-33, for approximately four miles, this two-lane highway is characterized by several very sharp turns over mountainous terrain with lane widths of 9 feet to 12 feet and shoulder widths of less than one foot (Caltrans 2004b). Because of these sharp turns, SR-58 is a California Legal Advisory Route with an advisory of KPRA less than 30 feet. Under this advisory, trucks with a KPRA length of 30 feet or greater are advised not to travel this roadway; however, it is not illegal for trucks with KPRA greater than 30 feet to use this roadway. Additionally, as mentioned above, buses over 40 feet in length are prohibited on SR-58 between SR-229 and SR-33 (Caltrans 2005a).

The sharp turns, small shoulders, and steep drop-offs along this roadway segment present potential safety hazards to all vehicle traffic, but particularly to large vehicles such as trucks and buses due their large size and limited turning ability. Local community members have raised this issue to staff at several public meetings. Staff agrees that the sharp turns along portions of this roadway present the potential for

construction trucks and buses to cross the centerline of the roadway (especially for vehicles operated by drivers who are unfamiliar with the roadway), which would present a safety hazard to oncoming traffic. Staff has coordinated with Caltrans and the California Highway Patrol (CHP) to identify methods to improve traffic safety along this roadway segment during project construction. Additionally, the applicant has coordinated with Caltrans to identify potential off-tracking⁴ areas along SR-58 (URS 2008). Thus far, 12 areas have been identified along SR-58 where off-tracking may occur (URS 2008). Coordination between the applicant and Caltrans to address these areas to ensure safety of all travelers along these portions of SR-58 is ongoing. To improve traffic safety during construction, proposed Condition of Certification **TRANS-1** requires the applicant to implement any recommendations provided by Caltrans to address off-tracking issues and to prepare and implement a Truck and Bus Safety Plan that requires adherence to the Legal Advisory KPRA length, provision of funding for additional CHP units to patrol SR-58 in the project area during construction, and informing truck and bus drivers of the CHP patrols.

Linear Facilities

The CESF would include the construction of a new 230 kilo-volt (kV) switchyard located adjacent to the two Steam Turbine-Generators. To provide transmission level voltage, the electricity generated will be stepped up using two 13.8/230 kV generator step-up transformers. A new double-circuit 230 kV overhead transmission line, approximately 850 feet in length, will interconnect the CESF switchyard to Pacific Gas and Electric's (PG&E's) new loop-in switching station that would also be located within the CESF site along the northern project boundary. Another 90-foot long double circuit 230-kV line would tie PG&E's switching station to the existing Morro Bay–Midway #1 230 kV line located immediately outside the northern project boundary and running west to Morro Bay Powerplant and east to Midway Substation. The loop-in switching station serves as the project's point of interconnection and would reroute the Morro Bay–Midway #1 230 kV line through the switching station (CESF 2008c).

Water would be provided to the CESF from the existing on-site well (CESF 2007a, p. 4-5). Because all potential linear facilities would be located within the property boundaries of the CESF or PG&E's Morro Bay–Midway right-of-way, no new rights-of-way or widening of roadways would be required; therefore, no traffic delays are expected from linear facilities.

Proximity to Schools

The Carrisa Plains Elementary School is located on SR-58 approximately 0.8 mile south of the CESF site and approximately 1,000 feet southeast of the southern boundary of the construction laydown area. According to Jani Kasfeldt, Carrisa Plains Elementary School secretary and teacher's aide, the school currently serves approximately 6 kindergarten and 18 elementary school students. No students are transported to or from the school by bus; all students are dropped off in personal vehicles between 8:00 a.m. and 8:30 a.m. (Kasfeldt 2008). Kindergarten students are picked up between 12:00 p.m.

⁴ Off-tracking is the tendency for rear tires to follow a shorter path than the front tires when turning, which may cause rear tires to clip street signs, drive onto shoulders, or cross the centerline on a curve, creating a safety hazard for adjacent and oncoming traffic.

and 12:30 p.m., and elementary school students are picked up between 2:40 p.m. and 3:00 p.m. The pick-up and drop-off area is located on the school site, and cars do not queue or park on SR-58 (Kasfeldt 2008).

The proposed construction travel route would traverse SR-58 and would travel directly past the Carrisa Plains Elementary School during the AM peak hour when students are being dropped off at school. However, all students are picked up and dropped off within the drop-off and pick-up area located on school grounds. Therefore, construction traffic would not present a direct safety hazard to students at the school. However, the addition of 192 construction-related trips driving past or in the immediate vicinity of the school in the AM peak hour could increase the potential for conflicts between school traffic and construction traffic. Therefore, proposed Condition of Certification **TRANS-1** includes several measures to improve traffic safety in the vicinity of the Carrisa Plains Elementary School, including placement of signage in the vicinity of the school to notify drivers of school-related traffic, signage along SR-58 to notify drivers of construction-related traffic, and implementation of a Traffic Management Plan that includes rerouting of construction traffic in the vicinity of the CESF site and construction laydown area with a flag person.

SR-58 is utilized by school buses servicing the Atascadero Unified School District (USD). Atascadero USD bus Route 4, Route 5, Route 6, Route 7, and Route 8 cross or travel along a portion of SR-58 between the CESF site and El Camino Real in Santa Margarita as described below:

- **Route 4:** Travels along westbound SR-58 for approximately 45 miles each weekday morning from Soda Lake Road (just east of the project site) (6:20 AM) El Camino Real in Santa Margarita (7:20 AM). The bus travels the same route on eastbound SR-58 in the afternoon from approximately 3:35 PM to 4:20 PM.
- **Route 5:** Travels along eastbound SR-58 for approximately 7 miles each weekday morning from Huer Huero Road (6:30 AM) to La Panza Road (6:45AM). The bus travels the same route on westbound SR-58 in the afternoon from approximately 3:55 PM to 4:05 PM).
- **Route 6:** Travels along eastbound SR-58 for approximately 7 miles each **weekday** morning from Huer Huero Road (7:30 AM) to La Panza Road (7:45AM). The bus travels the same route on westbound SR-58 in the afternoon from approximately 2:55 PM to 3:10 PM).
- **Route 7:** Travels along westbound SR-58 for approximately 5 miles each weekday morning from Parkhill Road (7:05 AM) to El Camino Real (7:15 AM). The bus travels a different route in the afternoon but travels along westbound SR-58 from Parkhill Road (4:40 PM) to the last stop near Salinas River Bridge (4:45 PM).
- **Route 8:** Travels along westbound SR-58 for approximately 5 miles each **weekday** morning from Parkhill Road (8:00 AM) to Santa Margarita Elementary School in Santa Margarita (8:15 AM). The bus travels a different route in the afternoon but travels along westbound SR-58 for approximately one mile from Parkhill Road (3:50 PM) to the last stop near Salinas River Bridge (3:55 PM).

As described in the Traffic Mitigation Plan required by Condition of Certification **TRANS-1**, construction-related trucks would be restricted to traveling along SR-58 between the hours of 9:00 AM and 4:00 PM. Therefore, the potential for construction truck traffic to result in delays to morning school bus routes would not exist because all of the bus routes described above would complete travel on SR-58 prior to 9:00 AM.

During peak project construction (when the most number of workers would be required onsite) construction workers would travel to the CESF site in 21 buses. As presented in the Traffic Haul Route Plan included in the Traffic Mitigation Plan required by Condition of Certification **TRANS-1**, buses transporting construction workers would travel to the CESF site from US 101 via SR-58, from US-41 via La Panza Road, and from SR-33 via SR-58. Assuming an equal distribution of workers from each direction, a total of 7 buses would travel any one of these routes, with a total of 14 buses traveling westbound SR-58 from La Panza Road. Because construction would begin at 7:00 AM each morning, these buses would arrive the CESF site well before most of the school buses identified above (except for Route 5) would travel along SR-58. Therefore Routes 4, 6, 7, and 8 would not be affected by construction bus traffic. With regard to Atascadero USD Route 5, as described above, this bus travels along eastbound SR-58 for approximately 7 miles each weekday morning from Huer Huero Road (6:30 AM) to La Panza Road (6:45AM), therefore it is likely that at least some of the 7 construction buses assumed to travel along this same route would do so at the same time as Atascadero USD Route 5. However, construction buses would travel at the same speeds as the school bus, and would not be expected to result in delays to the Atascadero USD Route 5.

Additionally, it is likely that some construction activities would begin later than 7:00 AM, which presents the potential for construction-related buses departing the CESF site to cause delays to school bus or peak hour traffic. As described above, Atascadero USD Route 8 would travel along SR-58 in the morning near Santa Margarita between 8:00 AM and 8:15 AM. Therefore, the Traffic Mitigation Plan required by Condition of Certification **TRANS-1** requires buses transporting construction workers to the site to wait on-site and delay their return trip until after 9:00 AM to avoid any conflicts with school buses and peak hour traffic.

Bus Routes 5 through 8 travel along SR-58 in the afternoon between 2:55 PM and 4:00 PM, however because of the short distances these buses travel on SR-58, substantial delays to these routes as a result of construction related traffic is not likely to occur. Bus Route 4 travels east bound SR-58 in the afternoon starting at El Camino Real at 3:35 PM. El Camino Real is located approximately 45 miles west of the project site. In order for a construction-related truck to arrive at the site from eastbound SR-58 by 4:00 PM, as required by Condition of Certification **TRANS-1**, it would have to access SR-58 from US 101 before 3:00 PM. Therefore, for any construction truck traveling along SR-58 during the same general time frame, Atascadero USD Bus Route 4 would be traveling at least 35 minutes ahead of the truck, and therefore would not be expected to delay the school bus.

Therefore, with implementation of Condition of Certification **TRANS-1**, construction truck traffic would not result in substantial delays to school bus traffic. It should be noted that school bus schedules may change from year to year. Therefore, Condition of Certification **TRANS-1** requires that the applicant coordinate with the Atascadero USD

at least 30 days prior to the beginning of each school year to ensure that construction truck traffic does not conflict with school bus traffic to result in substantial delays.

Operation Impacts and Mitigation

Operation Traffic

The CESF would be staffed 24 hours per day with approximately 70 employees during daytime hours and up to 5 employees during nighttime hours (CESF 2007a, p. 5.11-8). Although it is likely that some of the 75 employees would travel during off-peak hours, it was assumed for this traffic analysis that all employees would commute during the 7:00 a.m. to 9:00 a.m. and 4:00 p.m. to 6:00 p.m. peak hours.

The earliest the site could begin operations is third quarter 2012. Therefore, in order to accurately assess potential impacts to the traffic and transportation system as a result of CESF operation, two scenarios were analyzed for 2012: Year 2012 No-Project Conditions and Year 2012 Peak Project Construction Conditions. The Year 2012 No-Project Conditions were estimated to show the volume of traffic expected along study area roadways in 2012 without the addition of project traffic. Historical traffic volumes were analyzed to estimate 2012 conditions, which are presented below in **Traffic and Transportation Table 7**.

**Traffic and Transportation Table 7
2012 No-Project Conditions**

Roadway	Segment	Peak Hour Volume	LOS
SR-58	At Cammati Creek	96	A
SR-58	West of Soda Lake	60	A
Bitterwater Road	North of Bitterwater Valley	11	A

As shown above in **Traffic and Transportation Table 7**, all study area roadway segments are forecast to operate at an acceptable LOS under Year 2012 No-Project Conditions.

To evaluate the effect of project-related operations traffic on area roadways, the AM and PM peak hour trips presented in **Traffic and Transportation Table 7** were added to the Year 2012 No-Project Conditions. Year 2012 Peak Project Construction Conditions are presented below in **Traffic and Transportation Table 8**.

**Traffic and Transportation Table 8
2012 Project Operation Conditions**

Roadway	Segment	AM Peak Hour		PM Peak Hour	
		Volume	LOS	Volume	LOS
SR-58	At Cammati Creek	115	A	115	A
SR-58	West of Soda Lake	98	A	98	A
Bitterwater Road	North of Bitterwater Valley	29	A	29	A

As shown above in **Traffic and Transportation Table 8**, all study area roadway segments are forecast to operate at an acceptable LOS under Year 2012 Project Operation Conditions.

Operation of the CESF would require approximately 75 employees. The CESF includes a paved parking area approximately 200 feet by 100 feet. The precise number of parking spaces at the proposed parking lot is unknown. However, using a conservative assumption of 10 feet by 20 feet of area required for one parking space, the applicant would need an area of at least 15,000 square feet (0.34 acre) to accommodate 75 vehicles. The proposed parking lot at the CESF comprises an area of approximately 20,000 square feet (0.46 acre), which would provide adequate space for 75 vehicles. Therefore, operation of the proposed project is not expected to result in an inadequate parking capacity.

Glare

The CESF would consist of rows of mirrors that would reflect sunlight to a receiver structure. During operation, concentrated light from CESF reflectors will be directed at the absorber pipes in the receiver structure, which is approximately 56 feet from ground level. As reflectors move from a stow position into tracking position with light focused on absorber pipes, there is a possibility of a concentrated beam being directed horizontally to the east or west of the CESF boundary or spilling out to the north. However, because the reflectors would be oriented such that sunlight would not be reflected toward the south, drivers along SR-58 would not be subjected to reflected glare from the facility.

With regard to vertical glare and potential impacts to air traffic safety, the mirrors are designed to reflect light directly at the receivers. However, there is a potential for vertical glare at the site during the four minute period in the morning when the reflectors are moved from their storage position to collection position. However, based on the low intensity of sunlight at this time of day and the limited duration of the period during which glare could occur, glare is not expected to pose a problem to aircraft.

Airports

The closest airport to the CESF site is located in California Valley approximately 3.9 miles southeast of the CESF project site. As described in the Shandon Carrizo Area Plan, California Valley Airport is privately operated with a II-C (General Aviation) functional classification. The airport has a 4,200-foot paved runway with minimal traffic.

Federal Aviation Administration (FAA) Regulations, Part 77, establish standards for determining obstructions in navigable airspace and set forth requirements for notification of proposed construction. These regulations require FAA notification for any construction over 200 feet in height. In addition, notification is required if the obstruction is lower than specified heights and falls within any restricted airspace in the approaches to airports. For airports with runways longer than 3,200 feet, the restricted space extends 20,000 feet (3.79 miles) from the runway. For airports with runways less than 3,200 feet, the restricted space extends 10,000 feet (1.89 miles). For heliports, the restricted space extends 5,000 feet (0.95 mile).

As depicted on **Traffic and Transportation Figures 1-A&B**, the northern end of the runway at the California Valley Airport is located at least 20,500 feet from the southeast corner of the project site, therefore, an FAA air navigation hazard review would not be necessary. Staff concludes that the CESF would not represent an obstruction hazard to aviation activities and FAA notification is not required.

When the CESF is operating, exhaust from the air cooled condenser (ACC) will have the potential to cause turbulence to low flying small aircraft. The intensity of turbulence produced by the ACC exhaust is a function of the vertical exhaust velocity remaining at given heights above the ACC, which depend on wind speed and ACC cooling load resulting from solar radiation, and will therefore vary depending on these two ambient conditions. Turbulence will increase during calm or low wind conditions and during periods of high solar radiation (high ACC load) and would not occur at night when the ACC would not be in operation. While staff did not prepare a thermal plume analysis for CESF, it draws on its experience in other power plant siting cases to develop hazard avoidance measures for aircraft that could fly over the CESF ACC. Staff has reviewed various international regulatory agency standards and found that a plume average vertical velocity of 4.3 m/s (plume maximum velocity of 8.6 m/s) is used by one regulatory agency as a threshold for concern for aircraft damage or upset in operation (CASA 2004). Based on staff's experience, the 4.3 m/s threshold vertical velocity that can affect small aircraft, can be avoided if aircraft avoid overflight of the ACC at an altitude of less than 1,000 feet. Therefore, in order to prevent hazards to low flying aircraft, staff recommends Condition of Certification TRANS-4. This measure would require the applicant to notify the California Valley Airport that aircraft accessing the airport should avoid direct overflight of the CESF ACC during daylight hours. Because of the expansiveness of the area surrounding the project and the relatively small size of the project's ACC, avoiding overflight of the CESF ACC would not result in a substantial reduction of navigable airspace in the area.

Emergency Services Vehicle Access

San Luis Obispo County contracts with the California Department of Forestry to provide fire protection to the county under the CalFire/San Luis Obispo Fire Department. The Carrizo Plain Fire Station (Station No. 42) would be the first responder to an emergency at the CESF site (Trezak 2008). The Carrizo Plain Fire Station is located at 13050 Soda Lake Road, approximately 3.5 miles southeast of the CESF site. The Carrizo Plain Fire Station houses one fire engine and one rescue squad vehicle. If necessary, the Carrizo Plain Fire Station would be supported by the Shandon Fire Station (Station #31) located at 501 Centre Street Shandon, CA 93441, and the La Panza Fire Station (Station #41) located at 5398 Pozo Road, Santa Margarita, CA 93453 (Trezak 2008).

In the event of an emergency at the CESF site, emergency vehicles would enter the project site via Tracy Lane. With implementation of Condition of Certification **TRANS-3**, staff believes emergency services vehicle access is adequate.

Transportation of Hazardous Materials and Waste

The applicant does not estimate a maximum number of truck trips to or from the CESF per month for hazardous materials; however, operation of the CESF would result in use of hazardous materials and periodic generation of hazardous wastes such as used

hydraulic fluid, oils, grease, oily filters, spent batteries, oily rags, and absorbents. All such waste materials would be stored on site for less than 90 days before being transported to an authorized disposal facility (CESF 2007a pp. 3-16 and 3-17). Staff has addressed this issue in the **Hazardous Materials Management and Waste Management** sections of this Staff Assessment. As presented in these sections, staff believes that based on the limited environmental mobility, toxicity, quantities at the site, and frequency of delivery, the transportation of hazardous materials and waste to and from the CESF does not pose a significant risk.

Although the transportation and handling of hazardous materials and waste can increase roadway hazard potential, impacts associated with the hazardous materials can be mitigated to a level of insignificance by compliance with existing federal and state standards established to regulate the transportation of hazardous substances. These standards constitute a comprehensive regulatory program whose purpose is to ensure the safety of hazardous materials transportation. Staff has assessed the efficacy of these standards and finds that they are successful in minimizing the risks associated with hazardous materials transportation. The applicant stated that delivery of hazardous materials would comply with Caltrans, CHP, and California Vehicle Code (CVC) (CESF 2007a, p. 5.11-12).

Specific sections of the CVC and the California Streets and Highways Code ensure that the transportation and handling of hazardous materials is done in a manner that protects public safety. Enforcement of these statutes is under the jurisdiction of the CHP.

The California Department of Motor Vehicles specifically licenses all drivers who carry hazardous materials. Drivers are required to check weight limits and conduct periodic brake inspections. Commercial truck operators handling hazardous materials are required to take instruction in first aid and procedures on handling hazardous waste spills. Drivers transporting hazardous waste are required to carry a manifest, which is available for review by the CHP at inspection stations along major highways and interstates.

The applicant would be required to comply with all LORS governing the transport, storage, and use of hazardous materials. For a more detailed discussion on the handling and disposal of hazardous substances, see the **Hazardous Materials and Waste Management** sections of this Staff Assessment.

CUMULATIVE IMPACTS AND MITIGATION

A project may result in a significant adverse cumulative impact where its effects are cumulatively considerable. Cumulatively considerable means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects (California Code of Regulations, Title 14, section 15130).

As noted in the AFC, nearly all existing and proposed projects in the vicinity of the CESF site are residential dwellings, and of the 41 planned and approved projects, 6 propose new residential construction. Additional projects include minor construction

plans and renovations. These projects are relatively small in scale and would result in negligible additional trips to the local and regional roadway system.

However, since filing of the AFC, two additional major solar energy generation projects have been proposed within the CESF site vicinity, the Topaz Solar Farm (TSF) Project proposed by First Solar (previously Optisolar), and the California Valley Solar Ranch (CVSR) proposed by SunPower. The 550-MW TSF would be constructed on 4,100 acres adjacent to the north, east and west boundaries of the CESF (SLOC 2009). The Topaz Solar Farm is expected to begin power delivery in 2011 and be fully operational by 2013. The 250-MW CVSR would be located approximately 6.5 miles southwest of the proposed project in the community of California Valley (PG&E 2008). The Sun Power Solar Project is expected to begin power delivery in 2010 and be fully operational in 2012.

Because of the relative proximity of these two projects to the CESF site and their scheduled dates of completion, it is reasonable to assume that construction and operational traffic from the TSF and the CVSR would travel the same roadways at approximately the same time as traffic from the CESF.

Construction Traffic

Trip generation information included in the application for the TSF indicates that of the 250 workers required for construction, 200 would be transported to and from the site in 10 shuttle buses, and 50 workers would travel to the site in personal vehicles (OptiSolar 2008). Project construction would also require approximately 35 deliveries per day as well as 135 construction trucks. Construction and operation workers for the TSF are expected to travel to the project site between 6:00 a.m. and 9:00 a.m. and would leave the project site between 3:00 p.m. and 6:00 p.m. (OptiSolar 2008). Delivery vehicles would arrive and depart at various times between 6:00 a.m. and 6:00 p.m. (OptiSolar 2008). The main access for delivery trucks to the TSF would be off of Bitterwater Road via Highway 46 (OptiSolar 2008). This analysis assumes 75 percent of truck travel would occur on Bitterwater Road and 25 percent of truck travel would occur from Highway 58. Construction workers may arrive from either the east or the west on Highway 58 or from the north on Bitterwater Road (OptiSolar 2008). The TSF applicant anticipates that a significant portion of the workforce would come from San Luis Obispo County (OptiSolar 2008).

The estimated construction traffic for the TSF is presented below in **Traffic and Transportation Table 9**.

**Traffic and Transportation Table 9
Topaz Solar Farm Estimated Construction Traffic**

Trip Type	Daily Trips	AM Peak Hour			PM Peak Hour		
		In	Out*	Total	In	Out**	Total
Construction Buses	40	10	10	20	10	10	20
Vehicles	100	50	0	50	0	50	50
Construction Trucks	440	67	33	100	0	41	41
Total Trips	580	127	43	170	10	101	111

* Trips arriving the site in the AM peak hour do not necessarily depart in the AM or PM peak hour.

** Trips leaving the site in the PM peak hour do not necessarily arrive in the PM peak hour.

Up to 276 construction workers would travel to the CVSR (SunPower, 2009). Workers would travel in shuttle buses from a dedicated service originating from San Luis Obispo, Paso Robles and Bakersfield, with up to five shuttles running from each location. Construction of the CVSR would require an average of 129 daily truck deliveries (SunPower, 2009). The majority of traffic for this project would travel to the site via Shell Creek Road or Bitterwater Road. This cumulative analysis assumes one third each of SunPower's construction-related traffic would travel to the site via each Bitterwater Road, Shell Creek Road, and westbound SR-58.

**Traffic and Transportation Table 10
California Valley Solar Ranch Estimated Construction Traffic**

Trip Type	Daily Trips	AM Peak Hour			PM Peak Hour		
		In	Out*	Total	In	Out**	Total
Construction Buses	60	15	15	30	15	15	30
Vehicles	0	0	0	0	0	0	0
Construction Trucks	260	39	20	59	0	26	26
Total Trips	320	54	35	89	15	41	56

* Trips arriving the site in the AM peak hour do not necessarily depart in the AM or PM peak hour.

** Trips leaving the site in the PM peak hour do not necessarily arrive in the PM peak hour.

The estimated construction traffic for CESF and both the Solar PV projects, TSF and CVSR, is presented below in **Traffic and Transportation Table 11**. Additionally, **Traffic and Transportation Table 12** shows the estimated peak construction trip generation from the two Solar PV projects based on the passenger car equivalent factor of three cars per truck or bus. The passenger car equivalent of three cars per truck or bus is used to convert a mixed vehicle flow into an equivalent passenger car flow.

**Traffic and Transportation Table 11
Solar PV Projects Estimated Construction Traffic For All Roads**

Trip Type	Daily Trips	AM Peak Hour			PM Peak Hour		
		In	Out*	Total	In	Out**	Total
Construction Buses	100	25	25	50	25	25	50
Vehicles	100	50	0	50	0	50	50
Construction Trucks	700	106	53	159	0	67	67
Total Trips	900	181	78	259	25	142	167

* Trips arriving the site in the AM peak hour do not necessarily depart in the AM or PM peak hour.

** Trips leaving the site in the PM peak hour do not necessarily arrive in the PM peak hour.

Traffic and Transportation Table 12
Car Equivalent Solar PV Projects Estimated Construction Trip Generation for All Roads

Trip Type	Peak Daily Trips*	AM Peak Hour			PM Peak Hour		
		In	Out**	Total	In	Out***	Total
Construction Buses	300	75	75	150	75	75	150
Vehicles	100	50	0	50	0	50	50
Construction Trucks	2,100	318	159	477	0	201	201
Total Trips	2,500	443	234	677	75	326	401

* a passenger car equivalent factor of 3.0 was used for all bus and truck trips

** Trips arriving the site in the AM peak hour do not necessarily depart in the AM or PM peak hour.

*** Trips leaving the site in the PM peak hour do not necessarily arrive in the PM peak hour.

To assess the potential cumulative impact of construction traffic on area roadways in the AM and PM peak hours, the peak hour trips presented above in **Traffic and Transportation Table 12** were combined with the mitigated AM and PM peak hour conditions for the CESF of 21 construction buses in each the AM and PM peak hours (multiplied by a passenger car equivalent of factor of 3.0) and no CESF truck deliveries in the peak hours. The cumulative construction conditions are presented below in **Traffic and Transportation Table 13**.

Traffic and Transportation Table 13
Cumulative Construction Conditions

Roadway	Segment	Baseline	CESF*	Solar PV Projects	Total	LOS
AM Peak Hour						
SR-58	At Cammati Creek	96	30	134	260	B
SR-58	West of Soda Lake	60	30	134	224	A
Bitterwater Road	North of Bitterwater Valley	11	3	359	373	C
PM Peak Hour						
SR-58	At Cammati Creek	96	30	79	205	A
SR-58	West of Soda Lake	60	30	79	169	A
Bitterwater Road	North of Bitterwater Valley	11	3	194	208	B

* Includes baseline traffic and CESF peak construction traffic.

As shown above in **Traffic and Transportation Table 13**, even with the Solar PV project trips added to the peak CESF construction traffic, the level of service on area roadways would remain at acceptable levels (the LOS standards presented in Traffic and Transportation Table 1) during both the AM and PM peak hours. Therefore, traffic from the CESF, even when combined with traffic from other reasonably foreseeable projects, would not result in a cumulative significant impact during construction.

However, as described above for the CESF, it is likely that the two solar PV projects would require heavy haul deliveries, which could result in delays to commuter or school bus traffic. It is also likely that truck traffic from the two solar PV projects would be subject to similar mitigation measures as the CESF, which would result in substantially

reduced truck trips traveling area roadways during peak hours. Furthermore, according to applications submitted to San Luis Obispo County for both the TSF and CVSR projects, most construction traffic from these projects would travel to their respective project sites via Bitterwater Road and/or Shell Creek Road, which would reduce the potential for CESF-related traffic to combine with that of the two solar PV projects to result in a significant cumulative impact. Therefore, cumulative impacts are not anticipated to occur.

Operation of the CVSR would require 15 full-time workers. Operation of the TSF would require 12 full-time workers (OptiSolar 2008). To assess the potential cumulative impact of operational traffic on area roadways in the AM and PM peak hours, the 27 trips expected to be generated during operation of the two solar PV projects were combined with the AM and PM peak hour CESF operational conditions presented in **Traffic and Transportation Table 8**. The cumulative operation conditions are presented below in **Traffic and Transportation Table 14**.

**Traffic and Transportation Table 14
Cumulative Operational Conditions**

Roadway	Segment	Baseline	CESF*	Solar PV Projects	Total	LOS
AM Peak Hour						
SR-58	At Cammati Creek	96	19	13	128	A
SR-58	West of Soda Lake	60	38	6	104	A
Bitterwater Road	North of Bitterwater Valley	11	18	8	37	A
PM Peak Hour						
SR-58	At Cammati Creek	96	115	13	128	A
SR-58	West of Soda Lake	60	98	6	104	A
Bitterwater Road	North of Bitterwater Valley	11	29	8	37	A

* Includes baseline traffic and CESF operational traffic.

As shown above in **Traffic and Transportation Table 14**, even with the solar PV trips added to the baseline and peak CESF operational traffic, the level of service on area roadways would remain at acceptable levels during both the AM and PM peak hours. Therefore, traffic from the CESF would not combine with traffic from other reasonably foreseeable projects to result in a cumulative significant impact during operation.

COMPLIANCE WITH LAWS, ORDINANCES, REGULATIONS, AND STANDARDS

Traffic and Transportation Table 15 provides a general description of applicable statutes, regulations, and standards adopted by the federal government, the State of California, and Kern and San Luis Obispo Counties pertaining to traffic and transportation with which the project is required to comply. Conditions of certification have been proposed to ensure project consistency with a law, ordinance, regulation, or standard where it was not already mandated by federal or state regulations.

Traffic and Transportation Table 15
Project Compliance with Adopted Traffic and Transportation LORS

Applicable Law	LORS Description and Project Compliance Assessment
Federal	
Code of Federal Regulations (CFR), Title 14, section 77 (14 CFR 77)	Includes standards for determining physical obstructions to navigable airspace. Sets forth requirements for notice to the Federal Aviation Administration of certain proposed construction or alteration. Also provides for aeronautical studies of obstructions to air navigation to determine their effect on the safe and efficient use of airspace (including temporary flight restrictions).
	The project does not have any structures exceeding 200 feet in height and is beyond restricted airspace of airports in the region; therefore no notification to the FAA is required.
CFR, Title 49, Subtitle B	Includes procedures and regulations pertaining to interstate and intrastate transport (includes hazardous materials program procedures) and specifies safety measures for motor carriers and motor vehicles that operate on public highways.
	Enforcement is conducted by state and local law enforcement agencies and through state agency licensing and ministerial permitting (e.g., California Department of Motor Vehicles licensing, Caltrans permits), and/or local agency permitting.
State	
California Vehicle Code, Division 2, Chapter. 2.5; Div. 6, Chap. 7; Div. 13, Chap. 5; Div. 14.1, Chap. 1 & 2; Div. 14.8; Div. 15	Includes regulations pertaining to licensing, size, weight, and load of vehicles operated on highways; safe operation of vehicles; and the transportation of hazardous materials.
	Enforcement is provided by state and local law enforcement agencies and through ministerial state agency licensing and permitting and/or local agency permitting.
California Streets and Highway Code, Division 1 & 2, Chapter 3 & Chapter 5.5	Includes regulations for the care and protection of state and county highways and provisions for the issuance of written permits.
	Enforcement is provided by state and local law enforcement and through ministerial state agency licensing and permitting and/or local agency permitting.
Caltrans Transportation Concept Report for State Route 58 in Caltrans District 5	The CESF would comply with the Caltrans District 5 minimum LOS D standard.
Caltrans Transportation Concept Report for State Route 58 in Caltrans District 6	The CESF would comply with the Caltrans District 6 minimum LOS C standard.
Local	
San Luis Obispo County Public	The County's LOS standard is to maintain roadway segment LOS C or better on County roadways.

Works Department, Minimum Roadway Segment LOS	The CESF would comply with the San Luis Obispo County minimum LOS C standard.
San Luis Obispo County Public Works Department, Minimum Roadway Segment LOS	The Circulation Element of the Kern County General Plan includes a goal to maintain a minimum Level of Service (LOS) D for all roads throughout the County
	The CESF would comply with the Kern County minimum LOS D standard.

NOTEWORTHY PUBLIC BENEFITS

Neither the applicant nor staff has identified any traffic-related benefits associated with the CESF.

RESPONSE TO AGENCY AND PUBLIC COMMENTS

Comments were provided verbally and in writing regarding the proposed CESF from agencies, organizations, and members of the public prior to the publication of the Preliminary Staff Assessment.

AGENCY COMMENTS – SAN LUIS OBISPO COUNTY

The San Luis Obispo Department of Department of Planning and Building provided comments on the **Traffic and Transportation** section of the Preliminary Staff Assessment. The comments and responses are presented in this section.

Agency Comment 1: Department of Planning (SLOC 2008). Adequate Analysis. San Luis Obispo County indicated that the LOS analysis for SR-58 and Bitterwater and the issues regarding traffic safety appear to be adequately addressed in the PSA.

Agency Response 1: Thank you for your comment.

Agency Comment 2: Department of Planning (SLOC 2008). Truck Routes. The County recommends that a Truck Haul Route be specified on an applicable set of plans and that all truck drivers are made aware of this route and required to use it for all deliveries, and are subject to fines as established by CEC for non-compliance.

Agency Response 2: As discussed in the **Traffic and Transportation** section of the Final Staff Assessment, Condition of Certification **TRANS-1** requires the project owner to prepare a traffic haul route plan and to ensure that all bus and truck drivers are informed of and follow the designated routes. Although the Energy Commission has the authority to issue monetary fines for non-compliance of conditions of certification, the compliance unit would first conduct immediate discussions with the project proponent to resolve the issue(s). If the problem continues unresolved, notices of violation, notices of fines, official warnings, and citations would be initiated by the Energy Commission. Please see the **General Conditions** section of this FSA under the heading “Enforcement” for more information regarding how the Energy Commission enforces conditions of certification.

Agency Comment 3: Department of Planning (SLOC 2008). Bitterwater Road. The comments regarding use of Bitterwater Road for construction traffic included the following four issues:

- Use of Bitterwater Road may result in jurisdictional problems with Kern County.
- Conflicts between the applicant and property owners may result if privately maintained cattle guards located along Bitterwater Road are damaged by construction traffic.
- The pavement along portions of Bitterwater Road is in poor condition. Project-related traffic may accelerate deterioration of road conditions. Additionally, this road is subject to frequent movement and subsequent road closure due to seismic activity along the nearby San Andres Fault.
- Recommend the applicant evaluates an alternate route which may include SR-41/46 to SR-41 to San Juan Road to Shell Creek Road to SR-58. The County portions of this route are in better shape than Bitterwater Road and result in a shorter haul route on County-maintained roads by approximately 20 miles (compared to use of Bitterwater Road).

Agency Response 3: As discussed in the Traffic Mitigation Plan, Bitterwater Road would only be used for CESF's time-critical loads in the event of weather-related closures of SR-58; therefore, it is not expected that Bitterwater Road would be used heavily by project-related construction traffic. Condition of Certification **TRANS-2** requires the project owner to record the condition of public rights of way that would be utilized by construction-related traffic and repair or replace any damage to those rights of way, including cattle guards within the rights of way, within 60 calendar days after completion of construction.

CURE'S COMMENTS

The California Unions for Reliable Energy (CURE) provided one comment on the **Traffic and Transportation** section of the Preliminary Staff Assessment, which is presented below with a corresponding response (**CURE 2009**).

CURE Comment 1: . Deferred Mitigation. The Preliminary Staff Assessment concludes that traffic generated during construction would result in significant, adverse direct and cumulative impacts and recommends Condition of Certification **TRANS-1** to reduce impacts. However, Condition of Certification **TRANS-1** is deferred to a future date, and therefore deprives the public with the opportunity to review and comment on the measure, as required by CEQA. Rather, a traffic control and implementation plan must be prepared now, prior to Project approval, and circulated for public comment

CURE Response 1: Since publication of the Preliminary Staff Assessment, the applicant has prepared and submitted the Draft Traffic Mitigation Plan required by Condition of Certification **TRANS-1**. As discussed in detail in the Final Staff Assessment, with implementation of the Traffic Mitigation Plan, construction of the CESF is not anticipated to result in any significant adverse project-level or cumulative impacts related to Traffic and Transportation.

PUBLIC COMMENTS

December 15, 2008 Preliminary Staff Assessment (PSA) Workshop

Several comments on the **Traffic and Transportation** section of the PSA were presented to staff orally by community members at the public PSA workshop held on December 15, 2008.

Public Comment 1: Turning Movement Analysis. A commenter at the PSA workshop asked if the new road that would be constructed as part of the project would be analyzed in the traffic section as part of the turning movement analysis.

Public Response 1: The **Traffic and Transportation** section of the Final Staff Assessment has been revised to address access to the construction laydown area. Condition of Certification **TRANS-3** requires the project owner to ensure that all access driveways to the CESF site and construction laydown area are at least 30 feet wide to facilitate safe turning movements for trucks into these areas.

Public Comment 2: Vehicle Parking Capacity. A commenter at the PSA workshop stated that on Page 4.10-13 of the PSA, the paved parking area is not really addressed.

Public Response 2: The operational parking analysis in the **Traffic and Transportation** section of the Preliminary and Final Staff Assessments used conservative assumptions to analyze operational parking capacity. As presented in the analysis, using a conservative assumption of 10 feet by 20 feet of area required for one parking space, the applicant would need an area of at least 15,000 square feet (0.34 acre) to accommodate 75 vehicles. The proposed parking lot at the CESF comprises an area of approximately 20,000 square feet (0.46 acre), which would provide adequate space for 75 vehicles.

Public Comment 3: Truck Movements on SR-58. In response to the assertion presented in the **Traffic and Transportation** section of the Preliminary Staff Assessment that large load trucks would result in 30 minute delays to other traffic, a commenter at the public workshop suggested that all trucks would result in delays to other traffic.

Public Response 3: The analysis determined that oversize (heavy haul) trucks would travel at an average speed of 25 mph. It is assumed that other trucks would travel at rates consistent with posted speed limits. Therefore, with the exception of the 30 heavy haul trips that would require pilot vehicle and/or CHP escorts, project-related construction traffic is not anticipated to result in substantial delays to non-project traffic. Condition of Certification TRANS-1 would limit heavy haul trips to off-peak hours between 9 a.m. – 4 p.m. to minimize the impact from traffic delays.

Public Comment 4: (John Ruskovich). Impacts to California Valley Airport. Mr. Ruskovich presented the following comments at the PSA workshop in regard to the California Valley Airport.

- The distance of the California Valley Airport from the project site presented in the Preliminary Staff Assessment is incorrect.

- The length of the runway of the California Valley Airport presented in the Preliminary Staff Assessment is incorrect.
- Thermal plumes from the project may affect aircraft.

Public Response 4: The **Traffic and Transportation** section of the Final Staff Assessment has been revised to include the correct length of the runway at the California Valley Airport (4,200 feet) and its distance to the CESF project site (20,500 feet, or 3.9 miles).

The **Traffic and Transportation** section of the Final Staff Assessment has been revised to include an analysis of potential effects of thermal plumes. When the CESF is operating, heat exhaust from the air cooled condenser (ACC) will have the potential to cause turbulence to low flying aircraft (less than 500 feet). The intensity of turbulence produced by the ACC is a function of wind speed and solar radiation and will therefore vary depending on these conditions. Turbulence will be likely during calm or low wind conditions and would not occur at night. Therefore, in order to prevent hazards to low flying aircraft, staff recommends Condition of Certification **TRANS-4**. This measure would require the project owner to notify the California Valley Airport that aircraft accessing the airport should avoid direct overflight of the CESF during daylight hours.

Public Comment 5: Patty Nolan, et al. Traffic Safety and Emergency Response. Ms. Nolan and others presented several comments with regard to traffic safety and emergency response.

- Ice, fog, and snow present hazards in winter.
- With limited cell phone reception in the project area, emergency response times are slow.
- If the local fire station is closed, emergency response times can be up to an hour.
- SR-58 carries a lot of fast driving cars and motorcycles.

Public Response 5: Condition of Certification **TRANS-1**, as presented in the **Traffic and Transportation** section of the Preliminary and Final Staff Assessments, includes several measures to increase traffic safety during project construction. These measures require the project owner to:

- limit the number of construction trucks traveling to the site to 20 trucks per day in order to reduce traffic on SR-58;
- post signs along SR-58 to notify drivers along SR-58 of increased traffic from construction of the CESF;
- inform all construction truck and bus drivers of road conditions along SR-58;
- inform all construction truck and bus drivers of, and require them to follow, the traffic haul route plan;
- fund at least two additional CHP units or CHP Commercial Officers to patrol SR-58 through the entire construction duration;
- inform all construction truck and bus drivers of the additional CHP patrols;

- provide one dedicated crossing point between the CESF site and the construction laydown area to eliminate multiple crossings across SR-58; and
- implement Caltrans' recommendations to prevent off-tracking along SR-58.

Each of these measures is intended to decrease the likelihood of conflicts between vehicle traffic on project area roadways. One or both of the additional CHP patrols required by Condition of Certification **TRANS-1** would likely be the first responder in the event of a traffic accident. In addition, Worker Safety and Fire Protection Condition of Certification **WORKER SAFETY-7** would require the applicant to fund entirely or its prorated share with the solar PV project developers an amount of \$230,000 per year during the three-year period of construction to assure adequacy of fire protection and emergency services when traffic would increase most significantly.

Public Comment 6: Glare. A commenter at the public workshop asked about glare from the CESF.

Public Response 6: The **Traffic and Transportation** section of the Final Staff Assessment has been revised to include the following discussion about glare:

The CESF would consist of rows of mirrors that would reflect sunlight to a receiver structure. During operation, concentrated light from CESF reflectors will be directed at the absorber pipes in the receiver structure, which is approximately 56 feet from ground level. As reflectors move from a stow position into tracking position with light focused on absorber pipes, there is a possibility of a concentrated beam being directed horizontally to the east or west of the CESF boundary or spilling out to the north. However, because the reflectors would be oriented such that sunlight would not be reflected toward the south, drivers along SR-58 would not be subjected to reflected glare from the facility.

With regard to vertical glare, the mirrors are designed to reflect light directly at the receivers. However, there is a potential for vertical glare at the site during the four minute period in the morning when the reflectors are moved from their storage position to collection position, but based on the low intensity of sunlight at this time of day and the limited duration, glare is not expected to pose a problem to aircraft. For more information on the analysis of potential glare, please refer to the **Visual Resources** section of this FSA.

Public Comment 7: Delays to School Buses. A commenter at the public workshop stated that construction truck traffic poses the potential to delay school buses traveling to and from the project area to Atascadero.

Public Response 7: The **Traffic and Transportation** section of the Final Staff Assessment has been revised to include an analysis of how school bus traffic from the Atascadero Unified School District would be affected by construction traffic. As presented in the Final Staff Assessment, most construction truck and bus traffic would not travel along SR-58 at the same times as school buses. However, to ensure that construction traffic would not cause delays to school bus traffic, Condition of Certification **TRANS-1** requires buses transporting construction workers to the site to

wait on-site and delay their return trip until after 9:00 AM to avoid any conflicts with school buses.

Public Comments Received as Letters or Emails

Staff also received several written comments on the **Traffic and Transportation** section of the Preliminary Staff Assessment. The comments are presented below with corresponding responses.

Public Comment 8: E-mail from Jenny Cruz (12/18/08). Delays to School Buses. Ms. Cruz contacted staff via e-mail with concerns about how CESF construction traffic would affect school bus traffic.

Public Response 8 Response: Please see the response to Comment 7 above.

Public Comment 9: Letter from Jenny Cruz (3/08/09). Ms. Cruz contacted staff via mail with the following concerns about the Draft Traffic Mitigation Plan:

- The Draft Traffic Mitigation Plan does not present a channel for the public to complain about project-related traffic.
- With regard to trucks being limited to travel on SR-58 from 9:00 AM to 4:00 PM, where on the route can truck travel between these hours?
- Who will inform parents of children who attend school in Santa Margarita of increased traffic from construction?
- Project-related construction traffic will impact Santa Margarita School students walking to school between the hours of 7:30-8:15 AM and 2:40-3:30 PM.
- What is a “time-sensitive” load? Why are these loads not identified in the mitigation plan? What would prevent the project owner from saying all loads are time sensitive?
- Traffic from the three proposed solar projects on the Carrizo Plain will result in cumulative impacts.

Public Response 9: The **General Conditions** section of this Final Staff Assessment includes a Condition of Certification for Reporting of Complaints, Notices, and Citations (**COMPLIANCE-10**) which is as follows:

“Prior to the start of construction, the project owner must send a letter to property owners living within one mile of the project notifying them of a telephone number to contact project representatives with questions, complaints or concerns. If the telephone is not staffed 24 hours per day, it shall include automatic answering with date and time stamp recording. All recorded complaints shall be responded to within 24 hours. The telephone number shall be posted at the project site and made easily visible to passersby during construction and operation. The telephone number shall be provided to the CPM who will post it on the Energy Commission’s web page at:http://www.energy.ca.gov/sitingcases/power_plants_contacts.html.

Any changes to the telephone number shall be submitted immediately to the CPM, who will update the web page.

In addition to the monthly and annual compliance reporting requirements described above, the project owner shall report and provide copies to the CPM of all complaint forms, including noise and lighting complaints, notices of violation, notices of fines, official warnings, and citations, within 10 days of receipt. Complaints shall be logged and numbered. Noise complaints shall be recorded on the form provided in the **NOISE** conditions of certification. All other complaints shall be recorded on the complaint form (Attachment A).”

With regard to trucks being limited to traveling along SR-58 between the hours 9:00 AM and 4:00 PM, this means that construction-related trucks must complete their trips such that they would not access any portion of SR-58 prior to 9:00 AM or after 4:00 PM. Therefore, it is likely that most trucks would travel to the site along SR-58 between 9:00 AM and 12:00 PM in order to unload in time to begin the return trip by 3:00 PM to avoid travel on SR-58 after 4:00 PM. Additionally, as required by the Traffic Mitigation Plan, no more than 10 trucks would be permitted to travel to the site via each eastbound and westbound SR-58 (i.e. a total of 20 trucks) per day.

As discussed in the Final Staff Assessment and below, with implementation of Condition of Certification **TRANS-1**, construction-related traffic is not anticipated to impact students in Santa Margarita. However, as a courtesy, the project owner will be asked to notify the Atascadero USD of the timing of construction activities prior to their commencement.

With regard to project construction affecting students walking to school in Santa Margarita, with implementation of Condition of Certification **TRANS-1**, the number of construction-related trips traveling through Santa Margarita during school commute hours would be relatively low. Buses transporting construction workers to the site would be required to be onsite by 7:00 AM and would not be allowed to leave the site until 9:00 AM. Therefore, there would be no potential for these bus trips to affect students walking to school in Santa Margarita. Similarly, buses transporting construction workers from the site in the evening would travel through Santa Margarita in the late afternoon in order to arrive at the project site by 7:00 PM, and would therefore not have the potential to affect students walking from school in Santa Margarita.

As described above, the 10 construction-related trucks that would travel through Santa Margarita en route to the project site each day would do so after 9:00 AM and would therefore not have the potential to affect students walking to school in Santa Margarita. It is possible that construction trucks returning from the site in the afternoon would travel through Santa Margarita during the same time frame during which students would typically walk home from school. However, even if all project-related truck traffic were to pass through Santa Margarita during the hours that students would be walking home from school, this would represent an increase of a total of 10 trucks on this roadway. Staff does not consider this level of traffic to result in a substantial risk to pedestrians.

With regard to time sensitive loads, as described in section 1.1 of the Traffic Mitigation Plan, some exceptions to the measures provided in the plan “may include limited night construction activities that are considered time critical (such as concrete pours or assembly and fabrication activities) and may require extension of work hours based on

inherent process requirements or material driven characteristics.” It is presumed that the project owner will make a good faith effort to abide by this mitigation plan, however, to ensure that exceptions for time critical loads are not exploited, Condition of Certification **TRANS-1** includes a monitoring requirement to notify the Compliance Project Manager in advance of any planned time critical deliveries and within five business days after unanticipated time critical deliveries.

Cumulative impacts are addressed in this Final Staff Assessment under the section titled **CUMULATIVE IMPACTS AND MITIGATION**. As discussed in the Final Staff Assessment, it is likely that the two solar PV projects would require heavy haul deliveries, which could result in delays to commuter or school bus traffic. It is also likely that truck traffic from the two cumulative projects would be subject to similar mitigation measures as the CESF which would result in substantially reduced truck trips traveling area roadways during peak hours. Furthermore, according to applications submitted to San Luis Obispo County for both the TSF and CVSR projects, most construction traffic from these projects would travel to their respective project sites via Bitterwater Road and/or Shell Creek Road, which would reduce the potential for CESF-related traffic to combine with that of the two cumulative projects to result in significant cumulative impacts. Therefore, cumulative impacts are not anticipated to occur.

APPLICANT COMMENTS ON THE PSA

The Applicant (Carrizo Energy, LCC) provided minor comments on the **Traffic and Transportation** section of the Preliminary Staff Assessment, which are included below along with responses to each comment.

Applicant Comment 1: Carrizo Energy, LCC (CESF 2008d): Significant Impacts. The applicant expressed disagreement with the following significant impacts identified in the Preliminary Staff Assessment:

- Disagree with staff’s conclusion of significant adverse impacts. The Preliminary Staff Assessment states that CESF is consistent with all LORS.
- Disagree that "impacts during off-peak hours would remain and would be significant" based on the LOS argument presented above.
- Disagree with conclusion of significant cumulative impacts based on the fact that "the applicant has no specific traffic or transportation information from the SunPower Solar Farm project in which to do a cumulative impact analysis".

Applicant Response 1: As discussed in detail in the Final Staff Assessment, with implementation of the Traffic Mitigation Plan required by Condition of Certification **TRANS-1**, construction of the CESF is not anticipated to result in any significant adverse impacts related to Traffic and Transportation.

Applicant Comment 2: Carrizo Energy, LCC (CESF 2008d): Conditions of Certification. The applicant requested the following modifications and/or elimination of Conditions of Certification **TRANS-1** and **TRANS-2**.

- Would like staff to clarify the term "redirection" by replacing it with "rerouting" or "detour" if appropriate in **TRANS-1**.

- **TRANS-1** requirement for signs at 1-mile intervals on SR-58 seems to be excessive and possibly counterproductive. The applicant proposes warning signs be placed at the two state routes with signs closer to the site--no more than 5 miles in either direction.
- With regard to the **TRANS-1** requirement for placement of signage near Carrisa Plains School, Applicant states traffic signs for the school must comply with Part 7 of Traffic Control for School Areas of the CA Manual on Uniform Traffic Control Devices.
- The **TRANS-1** requirement to fund two (2) additional CHP units or CHP Commercial Officers should be evaluated in context for the need and potential cost sharing with other parties.

Applicant Response 2: As discussed in the Final Staff Assessment, the language of Conditions of Certification **TRANS-1** and **TRANS-2**, has been modified to incorporate the above comments.

Applicant Comment 3: Carrizo Energy, LCC (CESF 2008d): Conditions of Certification. The applicant stated that there may be exceptions to the requirements and timing of agency coordination for the Traffic Control Plan, such as agency review and turnaround dates beyond the applicant's control and suggested that condition should not be included in the Condition of Certification.

Applicant Response 3: The verification requirements of Condition of Certification **TRANS-1** require the project owner to send the Traffic Control Plan to public agencies for review and comment. It should be noted that *approval* of the plan is the authority of the Energy Commission. Therefore, agency turnaround times will not affect the timeframe for approval of the Traffic Control Plan.

Applicant Comment 4: Carrizo Energy, LCC (CESF 2008d): The applicant stated that the requirements of Condition of Certification **TRANS-2** to restore damaged roadways and easements, given the presence of other similar proposed developments within the project area, the elements of this condition should not be applied to the applicant alone. Therefore this condition should not be in the COC. The applicant will cooperate with San Luis Obispo County, Caltrans, and adjacent developers to develop a fair-share mitigation plan.

Applicant Response 4: Condition of Certification **TRANS-2** has been revised to allow for coordination with relevant agencies to coordinate cost-sharing as necessary should construction of additional projects in the immediate project vicinity overlap with CESF construction.

CONCLUSIONS

Staff has analyzed the project's potential construction and operational impacts to the regional and local traffic and transportation system, and concludes the following:

1. During construction, with implementation of the Traffic Mitigation Plan included in Condition of Certification **TRANS-1**, project-related construction traffic would not

result in substantial congestion or an unacceptable level of service along study area roadway segments or intersections, and therefore potential impacts created by workforce traffic and truck traffic would be less than significant.

2. During operation, project-related traffic would not result in substantial congestion or an unacceptable level of service along study area roadway segments or intersections; therefore, potential impacts created by workforce traffic and truck traffic would be less than significant.
3. CESF construction would generate truck traffic trips that would pass directly adjacent to a school facility; however, proposed Condition of Certification **TRANS-1** includes measures to improve traffic safety in the vicinity of the Carrisa Plains Elementary School with signage and by limiting truck and bus travel during student drop-off and pick-up hours.
4. During construction, with implementation of the Traffic Mitigation Plan included in Condition of Certification **TRANS-1**, CESF construction would not result in substantial delays to school bus traffic on area roadways.
5. During construction, the project would generate truck traffic trips along a designated bicycle route. However, staff proposed Condition of Certification **TRANS-1** includes measures to avoid construction traffic conflicts with pedestrians and bicyclists.
6. The potential exists for construction truck traffic to result in unexpected damage to roads within the project area. However, staff proposed Condition of Certification **TRANS-2** includes measures to ensure that any damage to local roadways would be repaired and would not be a safety hazard to motorists.
7. The applicant has not provided dimensions for the site access; however, staff has proposed Condition of Certification **TRANS-3** to ensure that access to the site and construction lay down area is of sufficient width (at least 30 feet) to safely facilitate truck turning movements onto the CESF site.
8. Construction and operation of the CESF would not result in inadequate parking capacity.
9. Sharp curves along SR-58 present a safety hazard to construction truck and bus drivers who are unfamiliar with the roadway. However, staff has proposed Condition of Certification **TRANS-1** to increase traffic safety along this roadway segment.
10. Heat exhaust from the CESF's air cooled condenser may cause turbulence to aircraft flying below 500 feet. However, staff has proposed Condition of Certification **TRANS-4** to notify local airports that aircraft accessing the airport should avoid direct overflight of the CESF during daylight hours.
11. Construction of linear facilities associated with the CESF would not result in adverse impacts to the traffic and transportation system.
12. CESF impacts related to substantial delays to existing traffic along SR-58 would not combine with impacts from the proposed Topaz Solar Farm and California Valley Solar Ranch to result in a significant cumulative impact.

If the Energy Commission elects to grant certification for this project, staff is proposing four conditions of certification.

PROPOSED CONDITIONS OF CERTIFICATION

TRAFFIC CONTROL AND IMPLEMENTATION PLAN

TRANS-1 Prior to construction of the CESF, the project owner shall prepare and implement a traffic control and implementation plan for the CESF construction traffic, containing:

- A. Traffic Mitigation Plan addressing the movement of vehicles and materials, that ensures:
 1. no more than 10 trucks per day would travel to the project site along eastbound SR-58 and no more than 10 trucks per day travel to the project site along westbound SR-58 (all types of trucks, including all tractor trailer trucks, dump trucks, cement trucks, and straight trucks. This restriction would not apply to passenger vehicle trucks such as pickup trucks, vans, and sport utility vehicles weighing less than 14,000 pounds);
 2. the rationale for any planned exceptions to the 10 trucks per day rule must be documented and forwarded to the Compliance Project Manager (CPM) for review and approval. The rationale for any unanticipated exceptions to this rule must be documented and forward to the CPM within 5 business days of occurring.
 3. buses transporting workers to the site are required to wait on-site and delay their return trip until after 9:00 AM to avoid conflicts with school bus routes and peak hour traffic;
 4. coordination with the Atascadero USD at least 30 days prior to the beginning of each school year to ensure that construction truck traffic does not conflict with school bus traffic to result in substantial delays to school bus routes;
 5. one dedicated crossing point between the CESF site and the construction laydown area to eliminate multiple crossings across SR-58;
 6. rerouting of construction traffic in the vicinity of the CESF site and construction laydown area with a flag person;
 7. signage, lighting, and traffic control device placement at the project construction site and laydown areas;
 8. signage placed along the south and north shoulders of SR-58 at appropriate intervals (as recommended in the Caltrans WATCH Manual) notifying drivers of increased construction traffic on SR-58 and the duration of the construction period;
 9. signage placed along the south and north shoulders of SR-58 at appropriate intervals (as recommended Part 7 of Traffic Control for

School Areas of the California Manual on Uniform Traffic Control Devices) in the vicinity of the Carissa Plains Elementary School notifying drivers of the school entrance and school traffic; and

10. implementation of Caltrans recommendations to prevent off-tracking along SR-58.
- B. A Heavy Haul Plan addressing the transport and delivery of heavy and oversized loads requiring permits from Caltrans or other state and federal agencies during off-peak hours.
- C. A Truck and Bus Safety Plan that ensures:
1. that construction material and equipment deliveries requiring pilot cars and/or CHP escorts are limited to traveling along SR-58 during off peak hours (between 9:00 a.m. and 4:00 p.m.)
 2. that designated pick-up and drop-off areas are located on site and do not result in construction-related buses parking or queuing along SR-58;
 3. all project-related construction traffic adheres to the California Legal Advisory of kingpin to rear axle less than 30 feet;
 4. all project-related construction traffic adheres to the prohibition of buses over 40 feet in length on SR-58;
 5. funding for at least two additional CHP units or CHP Commercial Officers to patrol SR-58 through the entire construction duration is provided to CHP (Applicant shall coordinate with CHP and San Luis Obispo County on an annual basis to ensure other projects contributing to traffic on SR-58 during the same time frame as the CESF would contribute fair share funds to CHP);
 6. all construction truck and bus drivers are informed of road conditions along SR-58;
 7. inform all construction truck and bus drivers of, and require them to follow, the traffic haul route plan;
 8. all construction truck and bus drivers are informed of the additional CHP patrols; and
 9. any truck travel along Bitterwater Road shall be restricted to daylight hours; exceptions must be documented in writing and forwarded to the CPM. Documentation shall clearly explain why travel along Bitterwater Road during daylight hours could not be achieved.
- D. A Travel Log documenting the arrival and departure time, and route travelled to and from the CESF site, for all trucks and buses weighing greater than or equal to 14,000 pounds.

The project owner shall consult with the County of San Luis Obispo and Caltrans in the preparation and implementation of the Traffic Control and Implementation Plan and shall submit the proposed Traffic Control Plan to the County of San Luis Obispo and Caltrans in sufficient time for review and comment and to the CPM for review and approval prior to the proposed start of construction and implementation of the plan. The project owner shall provide a copy of any written comments from the County of San Luis Obispo or Caltrans and any changes to the traffic control plan to the CPM prior to the proposed start of construction.

Verification: At least 90 calendar days prior to the start of construction, including any grading or site remediation on the project site or its associated easements, the project owner shall submit the proposed Traffic Control and Implementation Plan to the County of San Luis Obispo and Caltrans for review and comment and to the CPM for review and approval. The project owner shall also provide the CPM with a copy of the transmittal letter to the County of San Luis Obispo and Caltrans requesting review and comment.

At least 30 calendar days prior to the start of construction, the project owner shall provide copies of any comment letters received from either the County of San Luis Obispo or Caltrans, along with any changes to the proposed development plan to the CPM for review and approval.

During construction, the project owner shall maintain a Travel Log documenting the arrival time and departure time and the route traveled to and from the CESF site of all buses and trucks accessing the CESF site each day and weighing greater than or equal to 14,000 pounds. The reasons for any exceptions to the measures contained herein shall be documented and the schedule shall be submitted to the CPM each month in the Monthly Compliance Reports.

REPAIR OF PUBLIC RIGHT-OF-WAY

TRANS-2 The project owner shall restore all public roads, easements, and rights-of-way that have been damaged due to project-related construction activities to original or near-original condition in a timely manner.

Prior to the start of site mobilization, the project owner shall consult with the County of San Luis Obispo and Caltrans and notify them of the proposed schedule for project construction. The purpose of this notification is to request that the local jurisdiction and Caltrans consider postponement of public right-of-way repair or improvement activities in areas affected by project construction until construction is completed and to coordinate with the project owner regarding any concurrent construction-related activities that are planned or in progress and cannot be postponed (Applicant shall coordinate with Caltrans and San Luis Obispo County on an ongoing basis to ensure other projects contributing to traffic on SR-58, Bitterwater Road, and Shell Creek Road during the same time frame as the CESF would contribute to the repair of damaged rights of way).

Verification: At least 30 days prior to the start of mobilization, the project owner shall photograph or videotape all affected public roads, easements, and right-of-way segment(s), intersections, as well as cattle guards installed within public rights of way, and shall provide the Energy Commission Compliance Project Manager (CPM), the affected local jurisdiction(s) and Caltrans (if applicable) with a copy of these images.

Within 60 calendar days after completion of construction, the project owner shall meet with the CPM, the affected local jurisdiction(s) and Caltrans (if applicable) to identify sections of public right-of-way to be repaired. At that time, the project owner shall establish a schedule to complete the repairs and to receive approval for the action(s). Following completion of any public right-of-way repairs, the project owner shall provide a letter signed by the affected local jurisdiction(s) and Caltrans stating their satisfaction with the repairs to the CPM.

DESIGN OF SITE ACCESS

TRANS-3 The project owner shall coordinate with CPM to ensure that all access driveways to the CESF site and construction laydown area are at least 30 feet wide to facilitate safe turning movements for trucks into these areas.

Verification: At least 90 days prior to start of construction, the project owner shall provide scaled engineering drawings to the CPM that demonstrates the site access is of adequate width.

NOTIFY AIRPORT

TRANS-4 The project owner shall coordinate with owner of the California Valley Airport to ensure that aircraft accessing the airport should avoid direct overflight of the CESF at an altitude of 500 feet or less during daylight hours.

Verification: At least 90 days prior to start of construction, the project owner shall provide verification to the CPM that demonstrates the owner of the California Valley Airport has been informed of the potential turbulence hazard to low flying aircraft.

REFERENCES

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TRAFFIC AND TRANSPORTATION APPENDIX A

HIGHWAY CAPACITY MANUAL

The *Highway Capacity Manual* is prepared by the Transportation Research Board, Committee on Highway Capacity and Quality of Service. It represents a concentrated, multi-agency effort by the Transportation Research Board, the Federal Highway Administration, the American Association of Highway and Transportation Officials, and other traffic/transportation related agencies. It is the most widely used resource for traffic analysis. Several versions of the Highway Capacity Manual have been published. The current edition was published in 2000. It contains concepts, guidelines, and computational procedures for computing the capacity and quality of service of various highway facilities, including freeways, signalized and unsignalized intersections, rural highways, and the effects of transit, pedestrians, and bicycles on the performance of these systems.

LEVEL OF SERVICE

The description and procedures for calculating capacity and level of service are found in the *Highway Capacity Manual 2000*. The *Highway Capacity Manual 2000* represents the latest research on capacity and quality of service for transportation facilities.

Quality of service requires quantitative measures to characterize operational conditions within a traffic stream. Level of service is a quality measure describing operational conditions within a traffic stream, generally in terms of such service measures as speed and travel time, freedom to maneuver, traffic interruptions, and comfort and convenience.

Six levels of service are defined for each type of facility that has analysis procedures available. Letters designate each level, from A to F, with level of service A representing the best operating conditions and level of service F the worst. Each level of service represents a range of operating conditions and the driver's perception of these conditions. Safety is not included in the measures that establish service levels. A general description of service levels for various types of facilities is shown in **Table A-1**.

**TRAFFIC AND TRANSPORTATION Table A-1
Level of Service Description**

Facility Type	Uninterrupted Flow	Interrupted Flow
	Freeways Multi-Lane Highways Two-Lane Highways Urban Streets	Signalized Intersections Unsignalized Intersections - Two-Way Stop Control - All-Way Stop Control
Level of Service		
A	Free-flow	Very low delay
B	Stable flow. Presence of other users noticeable.	Low delay
C	Stable flow. Comfort and convenience starts to decline.	Acceptable delay
D	High density stable flow	Tolerable delay
E	Unstable flow	Limit of acceptable delay
F	Forced or breakdown flow	Unacceptable delay
Source: <i>Highway Capacity Manual 2000</i>		

Interrupted Flow

One of the more important elements limiting, and often interrupting, the flow of traffic on a highway is the intersection. Flow on an interrupted facility is usually dominated by points of fixed operation such as traffic signals and stop and yield signs. These all operate quite differently and have differing impacts on overall flow.

Signalized Intersections

The capacity of a highway is related primarily to the geometric characteristics of the facility, as well as to the composition of the traffic stream on the facility. Geometrics are a fixed, or non-varying, characteristic of a facility.

At the signalized intersection, an additional element is introduced into the concept of capacity: time allocation. A traffic signal essentially allocates time among conflicting traffic movements seeking use of the same physical space. The way in which time is allocated has a significant impact on the operation of the intersection and on the capacity of the intersection and its approaches.

Level of service for signalized intersections is defined in terms of control delay, which is a measure of driver discomfort, frustration, fuel consumption, and increased travel time. The delay experienced by a motorist is made up of a number of factors that relate to control, traffic, and incidents. Total delay is the difference between the travel time actually experienced and the reference travel time that would result during base conditions (i.e., in the absence of traffic control, geometric delay, any incidents, and any other vehicles). Specifically, level of service criteria for traffic signals is stated in terms of average control delay per vehicle, typically for a 15-minute analysis period. Delay is a complex measure and depends on a number of variables, including the quality of progression, the cycle length, the ratio of green time to cycle length and the volume-to-capacity ratio for the lane group.

For each intersection analyzed, the average control delay per vehicle per approach is determined for the peak hour. A weighted average of control delay per vehicle is then determined for the intersection. A level of service designation is given to the control delay to better describe the level of operation. Descriptions of levels of service for signalized intersections can be found in **Table A-2**.

TRAFFIC AND TRANSPORTATION Table A-2
Description of Level of Service for Signalized Intersections

Level of Service	Description
A	Very low control delay, up to 10 seconds per vehicle. Movement forward (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 a waiting line of 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 and 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: *Highway Capacity Manual 2000*

The use of control delay, often referred to as signal delay, was introduced in the 1997 update to the *Highway Capacity Manual*. It represents a departure from previous updates. In the third edition of the *Highway Capacity Manual*, published in 1985 and the 1994 update to the third edition, delay only included stop delay. Thus, the level of service criteria listed in Table B differs from earlier criteria.

Unsignalized Intersections

The current procedures on unsignalized intersections were first introduced in the 1997 update to the *Highway Capacity Manual* and represent a revision of the methodology published in the 1994 update to the 1985 *Highway Capacity Manual*. The revised procedures use control delay as a measure of effectiveness to determine level of service. Delay is a measure of driver discomfort, frustration, fuel consumption, and

increased travel time. The delay experienced by a motorist is made up of a number of factors that relate to control, traffic, and incidents. Total delay is the difference between the travel time actually experienced and the reference travel time that would result during base conditions (i.e., in the absence of traffic control, geometric delay, any incidents, and any other vehicles). Control delay is the increased time of travel for a vehicle approaching and passing through an unsignalized intersection, compared with a free-flow vehicle if it were not required to slow or stop at the intersection.

Two-Way Stop Controlled Intersections

Two-way stop controlled intersections in which stop signs are used to assign the right-of-way, are the most prevalent type of intersection in the United States. At two-way stop-controlled intersections, the stop-controlled approaches are referred as the minor street approaches and can be either public streets or private driveways. The approaches that are not controlled by stop signs are referred to as the major street approaches.

The capacity of movements subject to delay is determined using the "critical gap" method of capacity analysis. Expected average control delay based on movement volume and movement capacity is calculated. A level of service designation is given to the expected control delay for each minor movement. Level of service is not defined for the intersection as a whole. Control delay is the increased time of travel for a vehicle approaching and passing through an all-way, stop-controlled intersection, compared with a free-flow vehicle if it were not required to slow or stop at the intersection. A description of levels of service for two-way stop-controlled intersections is found in **Table A-3**.

TRAFFIC AND TRANSPORTATION Table A-3
Description of Level of Service for Two-Way 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 delay greater than 10 and up to 15 seconds per vehicle for each movement subject to delay.
C	Acceptable control delay greater than 15 and up to 25 seconds per vehicle for each movement subject to delay.
D	Tolerable control delay greater than 25 and up to 35 seconds per vehicle for each movement subject to delay.
E	Limit of acceptable 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.
<i>Source: Highway Capacity Manual 2000</i>	

REFERENCE

Transportation Research Board. Highway Capacity Manual 2000. Washington, D.C.



**BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT
COMMISSION OF THE STATE OF CALIFORNIA
1516 NINTH STREET, SACRAMENTO, CA 95814
1-800-822-6228 – WWW.ENERGY.CA.GOV**

**APPLICATION FOR CERTIFICATION
FOR THE CARRIZO ENERGY
SOLAR FARM PROJECT**

**Docket No. 07-AFC-8
PROOF OF SERVICE
(Revised 6/5/2009)**

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DECLARATION OF SERVICE

I, Hilarie Anderson declare that on June 22, 2009, I served and filed copies of the attached Draft Traffic & Transportation FSA Section. The original document, filed with the Docket Unit, is accompanied by a copy of the most recent Proof of Service list, located on the web page for this project at:

[<http://www.energy.ca.gov/sitingcases/carrizo/index.html>]. The document has been sent to both the other parties in this proceeding (as shown on the Proof of Service list) and to the Commission's Docket Unit, in the following manner:

(Check all that Apply)

For service to all other parties:

x sent electronically to all email addresses on the Proof of Service list;

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AND

For filing with the Energy Commission:

x sending an original paper copy and one electronic copy, mailed and emailed respectively, to the address below **(preferred method)**;

OR

depositing in the mail an original and 12 paper copies, as follows:

CALIFORNIA ENERGY COMMISSION

Attn: Docket No. 07-AFC-8
1516 Ninth Street, MS-4
Sacramento, CA 95814-5512

docket@energy.state.ca.us

I declare under penalty of perjury that the foregoing is true and correct.

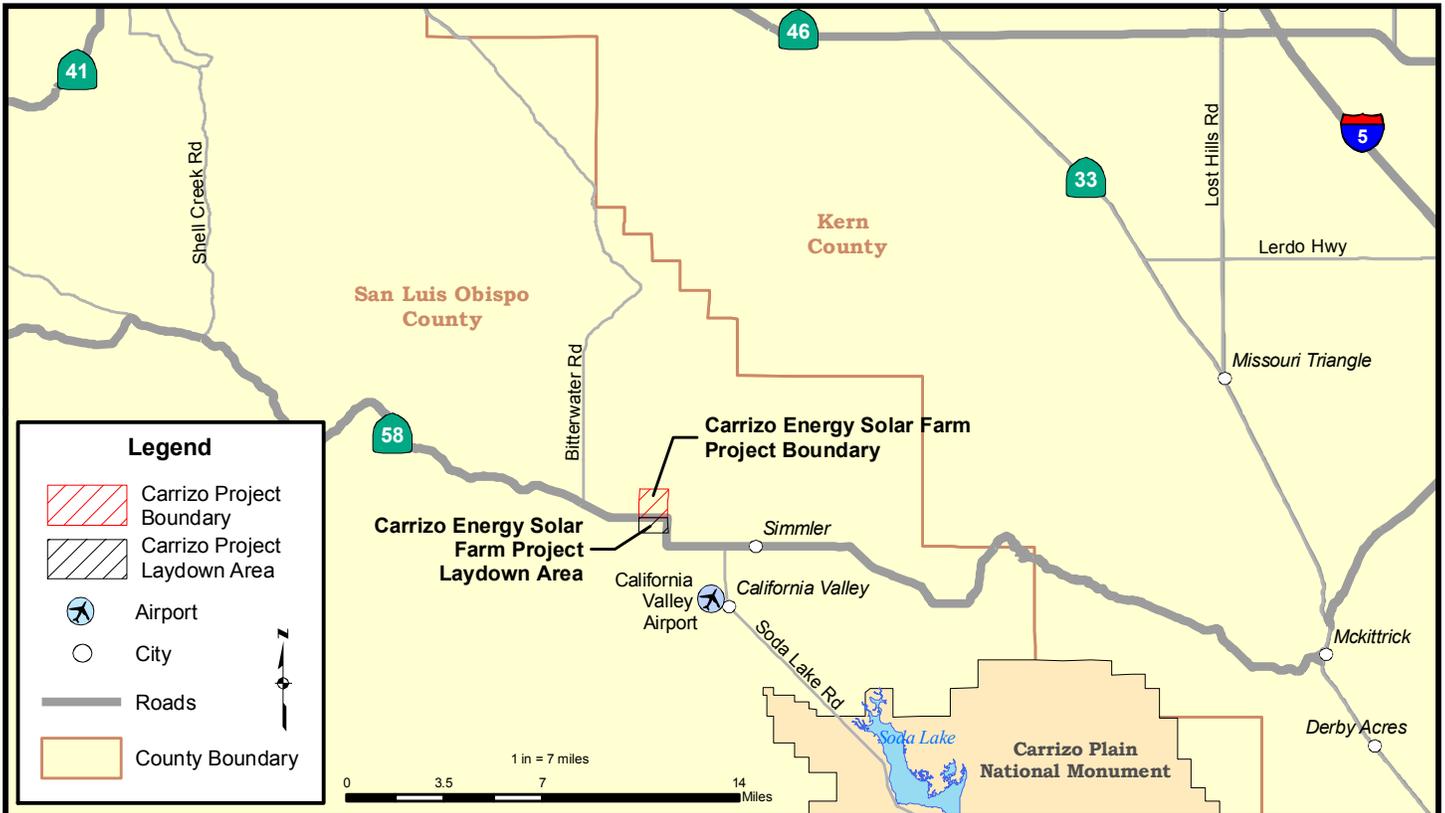
Original Signature in Dockets
Hilarie Anderson

TRAFFIC & TRANSPORTATION - FIGURE 1- A & B
 Carrizo Energy Solar Farm Project - Regional & Local Transportation System

A - Regional Transportation System



B - Local Transportation System



CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION, DECEMBER 2008
 SOURCE: California Energy Commission - Tele Atlas