SECTION CONTENTS

6.11 TRAFFIC AND TRANSPORTATION 6.11-1

6.11.1 EXISTING CONDITIONS 6.11-1
6.11.1.1 Regional Setting 6.11-2
6.11.1.2 Local Setting 6.11-4
6.11.1.3 Planned Transportation Facilities 6.11-6

6.11.2 IMPACTS 6.11-9
6.11.2.1 Significance Criteria 6.11-9
6.11.2.2 Construction Impacts 6.11-11
6.11.2.3 Operations and Maintenance Impacts 6.11-19
6.11.2.4 Cumulative Impacts 6.11-23
6.11.2.5 Project Design Features to Avoid or Minimize Impacts 6.11-28

6.11.3 MITIGATION MEASURES 6.11-28

6.11.4 SIGNIFICANT UNAVOIDABLE ADVERSE IMPACTS 6.11-28

6.11.5 LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS) 6.11-29

6.11.6 REFERENCES 6.11-32

SECTION TABLES

Table 6.11 1 – Roads & Highways in the Vicinity of the Project 6.11-4
Table 6.11 2 – Average Daily Traffic (ADT) Volumes on the Existing Road System 6.11-4
Table 6.11 3 – Existing and No Project LOS 6.11-6
Table 6.11 4 – Existing and No Project LOS at Ramp Intersections 6.11-6
Table 6.11-5 - Summary of Water Haul Characteristics 6.11-8
Table 6.11-6 - Average Daily Traffic for Streets/Segments Along Water Haul Routes 6.11-8
Table 6.11-7 - County of San Diego LOS Thresholds for Roadway Segments (short-term) 6.11-10
Table 6.11 8 – Local Recommended LOS Requirements 6.11-11
Table 6.11-9 - Daily Project Trips During Construction 6.11-12
Table 6.11-10 - Hourly Peak Construction Trips 6.11-12
Table 6.11 11 – Projected LOS - Construction 6.11-13
Table 6.11 12 – Projected Ramp Intersection Capacity - Construction 6.11-14
Table 6.11-13 - Comparison of Actual to Required Sight Distances 6.11-18
Table 6.11-14 - Project Trips During Operation 6.11-19
Table 6.11-15 - Peak Operation Trips 6.11-20
Table 6.11 16 – Projected LOS - Operation 6.11-20
Table 6.11 17 – Projected Ramp Intersection Capacity – Operation 6.11-21
Table 6.11 18 – Traffic and Transportation LORS Compliance 6.11-30

Table 6.11 19 –Agency Contacts 6.11-32

SECTION FIGURES

Figure 6.11-1A – Regional Transportation Infrastructure ..... End of Section
Figure 6.11-1B – Sub-Regional Transportation Infrastructure ..... End of Section
Figure 6-11-2 – Local Transportation Infrastructure ..... End of Section
Figure 6.11-3 – Water Pickup Locations and Haul Routes..... End of Section
Figure 6.11-4 – Distribution of Construction and Operation Trips ..... End of Section
Figure 6.11-5 – Trip Volumes at Key Intersections – With Project (Construction) ..... End of Section
Figure 6.11-6 – Trip Volumes at Key Intersections – With Project (Operation)..... End of Section

SECTION APPENDICES

APPENDIX 6.11-A Existing LOS Worksheets
APPENDIX 6.11-B No Project LOS Worksheets
APPENDIX 6.11-C Construction LOS Worksheets
APPENDIX 6.11-D Operations LOS Worksheets
APPENDIX 6.11-E School Bus Stop Locations/Routes
APPENDIX 6.11-F WB50 Truck Profile Schematic

SECTION ACRONYMS/ABBREVIATIONS

ACRONYM/ ABBREVIATION	DEFINITION
ADT	Average Daily Traffic
AFC	Application for Certification
BUSD	Bonsall Union School District
Caltrans	California Department of Transportation
CCR	California Code of Regulations
CFR	Code of Federal Regulations
CHP	California Highway Patrol
CVC	California Vehicle Code
DPLU	San Diego County Department of Planning and Land Use
DPW	Department of Public Works
EB	Eastbound
F&E	Freeway and Expressway
FHWA	Federal Highway Administration
FREF	Fallbrook Renewable Energy Facility
gpm	Gallons per Minute
HCM	Highway Capacity Manual
HCS	Highway Capacity Software
HDM	Highway Design Manual
I	Interstate
ILV/hr	Intersecting Lane Vehicles per hour
ITE	Institute of Transportation Engineers
LORS	Laws, Ordinances, Regulations and Standards
LOS	Level of Service
MCAS	Marine Corps Air Station
MOE	Measures of Effectiveness
MUTCD	Manual on Uniform Traffic Control Devices
Orange Grove Energy	Orange Grove Energy, L.P.
PCS	Personal communication services
Project	Subject of this AFC, Orange Grove Project

ACRONYM/ ABBREVIATION	DEFINITION
Project Site	Approximately 8.5 acre parcel to be leased for the power plant Site (a.k.a. “Site”)
RMWD	Rainbow Municipal Water District
RTP	Regional Transportation Plan
SANDAG	San Diego Association of Governments
SDG&E	San Diego Gas and Electric
SDNR	San Diego Northern Railway
Site	Approximately 8.5 acre parcel to be leased for the power plant Site (a.k.a. “Site”)
SR	State Route
TMP	Traffic Management Plan
WB	westbound

6.11 TRAFFIC AND TRANSPORTATION

This section presents an evaluation of the existing traffic and transportation systems in the Project region and the potential effects of the Project on these systems. The Site is located within the Pala-Pauma Community Plan area of San Diego County, approximately 2.0 miles west of the community of Pala. Access to the Site would be via Pala del Norte Road, which is located west of the Site. The Site is located north of, and is adjacent to, State Route (SR) 76 approximately 4 road miles east of Interstate (I) 15. The nearby interstate provides convenient access to the Site for equipment and materials delivered from distant locations.

The traffic and transportation section of this Application for Certification (AFC) discusses potential impacts of the Project on the existing transportation system. Traffic due to construction activities and the operation of the facility are included. A description of the existing transportation system and level of service (LOS) are presented, along with an analysis of potential impacts.

The traffic analysis for the Project was prepared by TPG Consulting, Inc., and is summarized in this section. Additional details of the analysis are provided in Appendix 6.11-A through Appendix 6.11-F. Two-lane roadway segment LOS were calculated using the *2000 Highway Capacity Manual* (*HCM 2000*) methodologies contained in the *Highway Capacity Software* (*HCS+*). Unsignalized and signalized intersection LOS were calculated using *Synchro 6.0* software which also incorporates *HCM 2000* methodologies. Ramp merge/diverge and freeway segment levels of service were analyzed using the *HCS+*. In addition to the above LOS requirements, California Department of Transportation (Caltrans) staff has also requested that ramp intersection capacity analysis be conducted for the SR 76 at I-15 ramp intersections. The ramp intersection capacity analyses were prepared according to the methodologies presented in the *Highway Design Manual*, Topic 406.

The LOS analysis is based on Project-specific traffic counts taken in March 2007, including heavy duty vehicle percentage counts. Heavy duty vehicle adjustment factors were applied to the LOS analysis traffic volumes for each facility type (freeway, highway, etc.) based on the methodology presented in the *2000 Highway Capacity Manual (HCM2000)*. As such, the impacts of heavy vehicles were included in all LOS analysis.

6.11.1 Existing Conditions

The following is a description of existing traffic and transportation facilities in the Project region including roads, highways, freeways, rail lines, bike trails, airports, bus routes, pipelines and canals. Regional traffic and transportation facilities are discussed in Section 6.11.1.1. Local traffic and transportation facilities are described in Section 6.11.1.2. Planned transportation facilities in the Project area by either San Diego County or Caltrans are discussed in Section 6.11.1.3.

6.11.1.1 Regional Setting

Figures 6.11-1.A and 1.B show the regional traffic and transportation facilities in the area of the Project site. The Site is located in the northeast portion of San Diego County, approximately 4 miles east of I-15 north of SR 76. The Project area is rural residential with some agriculture uses. The community of Pala, located on the Pala Reservation, is about 2 miles east of the Site. Figure 6.11-2 illustrates the existing road system near the Project. There are no existing public transit or bicycle routes in the area.

6.11.1.1.1 Roads and Highways

The major highways and roads in the Project vicinity are shown in Figures 6.11-1.A and 1.B SR 76 (Pala Road) is located just south of the Site, and runs east-west between I-15 and SR 79. I-15 runs north and south between the City of San Diego and the United States/Canada International Border. Characteristics of these and other relevant roads and highways in the area are presented in the local traffic and transportation facilities discussion in Section 6.11.1.2.

The Site itself will be accessed from Pala del Norte Road off SR 76. The existing roadway is a private road not maintained by the County of San Diego. The portion that will be used to access the Site owned by San Diego Gas & Electric (SDG&E) and is a 2-lane road approximately 22-feet-wide with no striping and no paved shoulders. There are no posted speed limits, and traffic volumes have historically been too low to accurately measure prevailing speeds. Pala del Norte Road serves the SDG&E Pala substation, an SDG&E a maintenance storage yard, and several rural single family residences located in the mountains north of the Site. Based on these uses, an average of fewer than 100 trips per day are estimated to use Pala del Norte Road.

6.11.1.1.2 Rail Service

There are no rail lines in the vicinity of the Site. The nearest rail line is owned and operated by the San Diego Northern Railway (SDNR) and runs from Oceanside to Escondido, through Vista and San Marcos. The nearest junction on this line is approximately 15 miles from the Site.

6.11.1.1.3 Air Service

Public and private airports located within approximately 30 miles of the Site include: McClellan-Palomar Airport, located approximately 20 miles to the southwest, Ramona Airport, located approximately 24 miles to the southeast, Oceanside Municipal Airport, located approximately 18 miles to the southwest, Marine Corps Air Station (MCAS) Camp Pendleton, located approximately 17 miles to the west, French Valley Airport, located approximately 15 miles to the north, and Fallbrook Community Airpark, located approximately 8 miles to the west. There are no airports within 20,000 feet of the Site, and no heliports within 5,000 feet of the Site.

6.11.1.1.4 Public Transit

There are no public transit facilities in the vicinity of the Site.

There are two school bus stops on SR 76 between I-15 and the Project site, the closest of which is approximately 2 miles to the west, just east of Couser Canyon Road. The other bus stop is further west, at Pankey Road and Shearer Road. These buses are middle and elementary school buses, arriving early in the morning and late in the afternoon, to pick up and drop off children. These buses are operated by the Bonsall Union School District (BUSD). School bus stop locations and schedules are included in Appendix 6.11-E.

6.11.1.1.5 Waterways

There are no navigable waterways in the Project area.

6.11.1.1.6 Truck Routes, Weight, and Load Limitations

Caltrans weight and load limitations for state highways apply to all state and local roadways. The weight and load limitations are specified in the California Vehicle Code (CVC) sections 35550 to 35559. The following provisions, from the California Vehicle Code, apply to all roadways and are, therefore, applicable to the Project.

General Provisions

- The gross weight imposed upon the highway by the wheels on any axle of a vehicle shall not exceed 20,000 pounds and the gross weight upon any one wheel, or wheels, supporting one end of an axle, and resting upon the roadway, shall not exceed 10,500 pounds.
- The maximum wheel load is the lesser of the following: (a) the load limit established by the tire manufacturer; or (b) a load of 620 pounds per lateral inch of tire width, as determined by the manufacturer's rated tire width.

Vehicles with Trailers or Semi-Trailers

- The gross weight imposed upon the highway by the wheels on any one axle of a vehicle shall not exceed 18,000 pounds and the gross weight upon any one wheel, or wheels, supporting one end of an axle and resting upon the roadway, shall not exceed 9,500 pounds, except that the gross weight imposed upon the highway by the wheels on any front steering axle of a motor vehicle shall not exceed 12,500 pounds.

6.11.1.1.7 Other Transportation Facilities

A number of pipeline systems occur in the region. The San Diego Aqueduct runs in a north-south direction between the Site and I-15 (Figure 6.11-2). SDG&E operates a natural gas pipeline that parallels Rice Canyon Road. The Project will connect to the SDG&E pipeline near its intersection with SR 76. The Rainbow Municipal Water District (RMWD) operates a water pipeline system in areas to the north and west of the Site.

6.11.1.2 Local Setting

The roads and highways in the Site area are shown in Figure 6.11-2. As shown, the roadway system includes I-15 and SR 76. Pala del Norte Road is a private road that intersects SR 76 just south of the Site. The classification and design capacity for roads and highways in the Site vicinity are listed in Table 6.11-1.

Table 6.11-1 – Roads & Highways in the Vicinity of the Project

STREET	CLASSIFICATION	NO. OF LANES	DAILY DESIGN CAPACITY (1)	POSTED SPEED LIMIT (MPH)	WEIGHT & LOAD LIMITATIONS
Interstate 15	Interstate/Freeway	8	115,000(2)	70	Legal load
SR 76	Freeway/Expressway(1) Major Road	2	15,400(2)	55	Legal load
Pala del Norte Road	Not Classified(3)	2	---(3)	NPS(3)	Not Classified(3)

NPS = No Posted Speed
(1) SR 76 is a part of the Freeway & Expressway (F&E) system west of I-15.
(2) Capacity shown was taken from the County of San Diego General Plan 2020 Circulation Element Framework using closest applicable roadway classification. Caltrans has jurisdiction over the roadway.
(3) Pala del Norte Road of a local/private road not included in the list of County maintained roads.

Table 6.11-2 shows average daily and peak hour traffic volumes, and percentages of passenger vehicles, buses and heavy duty vehicles (trucks) for key road segments in the vicinity of the Site.

Trucks are allowed on all State Routes, and San Diego County highways and roads in the vicinity of the Project.

As discussed above, traffic counts on key road segments, intersections and on- and off-ramps in the Site area were performed in March 2007. Based on expected hours of operation, peak hour periods studied were from 6:00 a.m. to 8:00 a.m. and 4:00 p.m. to 6:00 p.m. The existing weekday LOS and ramp intersections capacity analysis for the study locations during the peak hours are shown in Table 6.11-3 (LOS) and Table 6.11-4 (ramp intersection capacity analysis).

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Table 6.11-2 – Average Daily Traffic (ADT) Volumes on the Existing Road System

STREET/SEGMENT	AVERAGE DAILY TRAFFIC	PEAK HOUR TRAFFIC	PERCENT OF DAILY TRAFFIC		
			Passenger Vehicles (Percent)	Buses (Percent)	Heavy Vehicles (Percent)
Interstate 15					
South of SR 76	128,000	8,839	90	--- (1)	10
North of SR 76	121,000	7,764	92	--- (1)	8
SR 76					
West of Old Highway 395	19,145	1,390 / 1,962(2)	90	0.5	9.5
East of Interstate 15	9,439	524 / 986(2)	94	0.5	5.5
East of Rice Canyon Road	8,987	494 / 701(2)	94	0.5	5.5

Source: Annual ADT volumes, peak hour and percentages are shown for I-15 and were taken from the Caltrans *2005 Peak Hour Volumes Data Report* and the Caltrans *2005 Annual Average Daily Truck Traffic on the California State Highway System.* ADT volumes, peak hour and percentages for the remaining segments are based on field data.

(1) Bus percentages are not available for I-15
(2) AM/PM peak hour volumes

Table 6.11-3 and 6.11-4 also show the projections for LOS and ramp intersection capacity analysis for the road segments, intersections and ramps in the Project area for 2009 without the Project. To be conservative, the No Project LOS assumes a 5 percent yearly growth rate for traffic volumes on all road segments, ramps and intersections, and adds the peak hour traffic from the Rosemary's Mountain Quarry and the Pauma Casino Expansion projects further described in Section 6.11.2.4. The 5 percent growth factor is based on 5 years of Caltrans count data on I-15 and SR 76 in the study area. The Rosemary's Mountain Quarry and Pauma Casino Expansion project have been added to the 5 percent growth rate because the Rosemary's Mountain Quarry project started after the 2007 traffic counts were taken, and because the Pauma Casino expansion project has not started yet, but the schedule for the casino expansion indicates construction work will run concurrent with power plant construction.

Table 6.11-3 presents the LOS existing conditions, as of 2007, at segments, intersections and ramps in the vicinity of the Project area. The table also presents the LOS conditions at these intersections in 2009 under a No Project scenario. Table 6.11-4 presents the existing and No Project LOS ramp intersection capacity at southbound and northbound ramp intersections at SR 76 and I-15.

Table 6.11-3 – Existing and 2009 No Project LOS

SEGMENT/INTERSECTION/RAMP	EXISTING (2007) LOS (AM/PM)	2009 NO PROJECT LOS (AM/PM)
SR 76 at I-15 SB Ramps	B/E	C/F
SR 76 at I-15 NB Ramps	B/D	C/F
SR 76 at Rice Canyon Road		

SEGMENT/INTERSECTION/RAMP	EXISTING (2007) LOS (AM/PM)	2009 NO PROJECT LOS (AM/PM)
EB Approach	A/A	A/A
WB Approach	A/A	A/A
SB Approach	B/B	B/B
SR 76 at Pala del Norte Road		
EB Approach	A/A	A/A
WB Approach	A/A	A/A
SB Approach	A/B	A/C
Freeway Segments		
I-15 south of SR 76		
NB	A/D	A/D
SB	D/A	D/A
I-15 north of SR 76		
NB	A/D	A/D
SB	D/A	D/A
Highway Segments		
SR 76 – west of Old Highway 395	E/E	E/E
SR 76 – I-15 NB Ramps to Rice Canyon Road	C/D	
EB	A/A	A/A
WB	A/A	A/A
SR 76 – Rice Canyon Road to Project	C/C	C/D
RAMPS		
I-15 NB Off-Ramp	A/D	B/E
I-15 NB On-Ramp	A/D	A/D
I-15 SB Off-Ramp	D/B	E/B
I-15 SB On-Ramp	C/B	D/B

Table 6.11-4 – Existing and 2009 No Project Ramp Intersections Capacity

INTERSECTION	EXISTING (2007) (AM/PM)	2009 NO PROJECT (AM/PM)
SR 76 at I-15 SB Ramps	1,207/1,619	1,406/1,821
SR 76 at I-15 NB Ramps	821/1,528	999/1,687

6.11.1.3 Water Haul Routes

Orange Grove Energy, L.P. (Orange Grove Energy) will purchase new approximately 6,500 gallon capacity single-trailer semi trucks for hauling the operations water supply to the Site. As described in detail in Section 2.6.2.4, Water Trucking, the water supply is planned to be obtained using both a reclaim water pickup station and a fresh water pickup station. The fresh water and reclaimed water pickup station locations and haul routes are shown in Figure 6.11-3.

The peak rate of water hauling will entail approximately 1 truck per hour for fresh water and 1 truck per hour for reclaim water. The average water hauling frequency will be 0.4 truck for reclaim water and 0.9 truck for fresh water for each hour that the plant is operating at summer design conditions. Based on expected use of the plant, water hauling is expected to typically occur about 60 days per year. The plant will typically run the most during summer months and onsite storage will provide substantial storage capacity for peak operating days. Table 6.11-5 provides a summary of the haul route characteristics, and Table 6.11-6 shows the existing average daily and peak hour traffic along the haul routes.

Reclaim Water

The reclaim water one-way haul distance is 15.6 miles. The reclaim water haul route from the FPUD property will be north on Alturas Road, then east on Ammunition Road, then south on Mission Road, then east on SR 76, then north on Pala del Norte Road to the Site. The return route will use these same roads.

The instantaneous water use rate for the cooling system with both turbines running at summer design conditions is 65.7 gallons per minute (gpm). Due to the Project being a peaking plant, operations would normally occur only during hours of high demand, typically 12 hours or less each day that the plant operates. For 12 hours of operation at summer design conditions, the daily cooling water demand would be 47,300 gallons (65.7 gpm x 60 minutes per hour x 12 hours = 47,300 gallons). The cycle time for the 31.2 mile round trip haul, including travel, loading and unloading, will be approximately 1 hour. Based on use of a 6,500 gallon water truck, operations for a 12-hour day at summer design conditions will require a total of 7.3 reclaim water haul round trips. Based on typical peaker plant usage in the SDG&E service area, water hauling is only expected to occur about 60 days per year.

Fresh Water

The operations phase fresh water trucking one-way haul distance is 9.0 miles. The operations fresh water haul route from the FPUD fresh water pickup station will be east on Mission Road, south on I-15, then east on SR 76, then north on Pala del Norte Road to the Site. The return route will use these same roads.

With both turbines running at summer design conditions, the plant fresh water demand will be approximately 101 gpm. Due to the Project being a peaking plant, operations would normally occur only during hours of high demand, typically 12 hours or less each day that the plant operates. For 12 hours of operation at summer design conditions, the daily demineralizer feed demand will be 72,720 gallons (101 gpm x 60 minutes per hour x 12 hours = 72,720 gallons). Based on use of a 6,500 gallon water truck, operations for a 12-hour day at summer design conditions will require a total of 11.2 fresh water haul round trips. The cycle time for the 18 mile round trip haul, including travel, loading and unloading, will be approximately 1 hour. Based on typical peaker plant usage in the SDG&E service area, water hauling is only expected to occur about 60 days per year.

Table 6.11-5 provides a summary of the water haul route characteristics, and Table 6.11-6 shows the existing average daily and the peak hour traffic along the water haul routes.

TABLE 6.11-5 - Summary of Water Haul Route Characteristics

HAUL ROUTE	CLASSIFICATION	NUMBER OF LANES (2-DIR)	LANE WIDTH (FT)	POST SPEED LIMIT (MPH)
Alturas Road	Not Classified	2	10-12	35
South of Ammunition Road	Minor Urban	2	11-13	
Ammunition Road				
Alturas Road to Mission Road	Collector Urban	2-3(1)	12-27	40
Mission Road				
Ammunition Road to Rocky Crest Road	Arterial Urban	4(1)	11-20	35
Rocky Crest Road to Stage Coach Lane	Arterial Urban	2-4	11-13	50
Stage Coach Lane to SR 76	Arterial Urban/Rural	2-4	13	50
East Mission Road				
East of Live Oak	Arterial Rural	2	15	45

NPS – No posted speed
(1) Continuous left-turn lane

TABLE 6.11-6 - Average Daily Traffic for Streets/Segments Along Water Haul Routes

STREET/SEGMENT	AVERAGE DAILY TRAFFIC	PEAK HOUR TRAFFIC	PERCENT OF DAILY TRAFFIC	
			Passenger Vehicles (Percent)	Heavy Vehicles (Percent)
Alturas Road				
South of Ammunition Road	3,948	345	98.0	2.0
Ammunition Road				
Alturas Road to Mission Road	12,430	1,742	97.0	3.0
Mission Road				
Ammunition Road to Rocky Crest Road	23,977	1,832	---	---
Rocky Crest Road to Stage Coach Lane	23,361	1,687	---	---
Stage Coach Lane to SR 76	18,981	1,497	---	---
East Mission Road				
East of Live Oak Road	20,567	1,955	97.5	2.5

Source: ADT volumes, peak hour and percentages are based on field data collected in June 2008.

6.11.1.4 Planned Transportation Facilities

Long-term planning for SR 76 improvements vary depending on different agency concepts. According to the Caltrans *SR 76 Transportation Concept Report*, SR 76 is planned as a 4-lane conventional highway. According to the County of San Diego *General Plan 2020*, SR 76 between I-15 and Pala-Pauma Road, located east of the Site, should be downgraded from a Major Road to a 2-lane Community Collector with intermittent turn lanes. The improvement of SR 76 to four lanes past the Site area is not reasonably foreseeable since Caltrans does not have a

road design, funding or environmental review. The only improvements to SR 76 between I-15 and the Pala that are considered foreseeable for the purposes of this environmental analysis are individual improvements to portions of the road resulting from specific projects including Rosemary's Mountain Quarry, a planned new Community College campus, and the Gregory Canyon Landfill, as explained in following paragraphs and further described in Section 6.11.2.4, Cumulative Impacts.

As of the writing of this AFC application, the widening of SR 76 from I-15 to Rosemary's Mountain Quarry is planned from 2 to 4 lanes to accommodate the proposed Rosemary's Quarry project. Construction startup for this road work is imminent and road work is expected to be substantially completed by the time that the Orange Grove Project begins construction, as described in Section 6.1.2. The 2009 baseline traffic and construction traffic analysis for the Orange Grove Project reflects the widening of the road and the associated new traffic introduced by the quarry project.

The proposed Palomar Community College campus construction will include widening of SR 76 to six lanes and improvements to the intersections for the I-15 ramps. These improvements are expected to relieve the existing traffic congestion at the I-15 ramp intersections. However, this construction is not expected to occur until some time after the Orange Grove Project is in operation, so this planned future improvement is not reflected in any of the LOS modeling performed for this AFC.

The Gregory Canyon Landfill project will include addition of acceleration/deceleration lanes on SR 76 at the entrance of the planned landfill. These lanes will not affect impacts of the Orange Grove Energy project traffic, but will help to minimize cumulative impacts of the Gregory Canyon Landfill project if and when that project is constructed.

6.11.2 Impacts

This section presents the analysis of potential Project impacts to traffic and transportation systems during both construction and operations.

6.11.2.1 Significance Criteria

Significance criteria were determined based on CEQA Guidelines, Appendix G, Environmental Checklist Form, and on performance standards or thresholds adopted by responsible agencies. An impact may be considered significant if the Project results in:

- 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).
- Exceeding a level of service standard established by the County for designated roads.
- A substantial increase in hazards to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses.

- Inadequate emergency access.
- Inadequate parking capacity.
- A conflict with adopted policies, plans or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks).
- A change in air traffic patterns.

6.11.2.1.1 San Diego LOS Thresholds

The *HCM 2000* defines six LOS for various transportation facility types. LOS is the term used to denote the different operating conditions that occur on a given roadway segment under various traffic volume loads. It is a qualitative measure of the effect of a number of factors, including roadway geometrics, speed, travel delay, freedom to maneuver, and safety. The LOS provides an index to the operational qualities of a roadway segment or an intersection. The six levels are given letter designations ranging from "A" to "F", with "A" representing the best operation conditions and "F" the worst. The County of San Diego goal for acceptable operating conditions is LOS D or better for intersections and roadway segments.

Table 6.11-7 illustrates the County of San Diego LOS threshold criteria for roadway segments (short-term).

Table 6.11-7 - County of San Diego LOS Thresholds for Roadway Segments (Short-Term)

CLASSIFICATION	LEVEL OF SERVICE				
	A	B	C	D	E
Prime Arterial	22,200	37,000	44,600	50,000	57,000
Major Road	14,800	24,700	29,600	33,400	37,000
Collector	13,700	22,800	27,400	30,800	34,200
Town Collector	3,000	6,000	9,500	13,500	19,000
Light Collector	1,900	4,100	7,100	10,900	16,200

Source: The County of San Diego Guidelines for Determining Significance.

The following LOS requirements are recommended by the County of San Diego and Caltrans for roads under their jurisdiction.

Table 6.11-8 – Local Recommended LOS Requirements

AGENCY	RECOMMENDATION
San Diego Association of Governments (SANDAG) 2006 Congestion Management Program Update	Minimum of LOS D for county roadways but if Existing LOS is worse than D, then the Existing LOS must be maintained.
Caltrans	Caltrans endeavors to maintain a target LOS at the transition between LOS C and LOS D on State highway facilities. If an existing State highway facility is operating at less than the appropriate target LOS, the existing measures of effectiveness (MOE) should be maintained.

In addition to the LOS analysis, at Caltrans' request the I-15 ramps at SR 76 were analyzed using the ramp intersection capacity analysis method. The ramp intersection capacity analysis method measures the capacity of ramp intersections based on intersecting lane vehicles per hour (ILV/hr), as shown in the *Highway Design Manual* (HDM). This analysis is a planning level analysis which generally coincides with the LOS analysis. Based on HDM methodologies, the following thresholds are defined for ramp intersection capacity analysis:

- < 1,200 ILV/hr – Stable flow with slight, but acceptable delay. Occasional signal loading may develop. Free midblock operations.
- 1,200 – 1,500 ILV/hr – Unstable flow with considerable delays possible. Some vehicles occasionally wait two or more cycles to pass through the intersection. Continuous backup occurs on some approaches.
- > 1,500 ILV/hr – Stop-and-go operation with severe delay and heavy congestion. Traffic volume is limited by maximum discharge rates of each phase. Continuous backup in varying degrees occurs on all approaches. Where downstream capacity is restrictive, mainline congestion can impede orderly discharge through the intersection.

6.11.2.2 Construction Impacts

Table 6.11-9 presents the construction-related trips attributed to the proposed project for both the average day during construction and for days when construction activities are at a peak during Month 5 of the six month construction schedule. Table 6.11-10 presents the peak hourly construction trips. Tables 6.11-11 and 6.11-12 show the correlating a.m. and p.m. peak hour LOS for transportation routes in the project study area, and the a.m. and p.m. peak hour ramp intersection capacity for the I-15 ramps at SR 76 intersections based on the number of trips.

Table 6.11-9 is a summary table of the project generated trips per workday during construction. The worker commute trips assume that the workers arrive at the site in the morning and leave late afternoon. No other worker commute trips are anticipated. The construction equipment, material and other deliveries includes the delivery of facility equipment, construction equipment and construction materials, and hauling of waste and recyclable materials from the Site.

Table 6.11-9 - Daily Project Trips During Construction

TRIP TYPE	AVERAGE ROUND TRIPS	PEAK ROUND TRIPS
Worker Commutes [(1)]	56/day	84/day
Equipment, Materials and other Deliveries	7/day	15/day

[(1)] The Project will include active measures to encourage carpooling, and these trip numbers include an anticipated 20% carpooling rate.

The Project trip generation information shown in Table 6.11-10 represents the average and peak conditions during construction. Over the duration of the construction Project, an average of 56 daily round trips, and a peak of 84 round trips will occur per week day. The average and peak

round trips for equipment, materials and other deliveries during construction will total approximately 7 round trips and 15 round trips per week day, respectively.

Table 6.11-10 - Peak Hourly Construction Trips

	AM		PM	
	ENTER (TRIPS)	EXIT (TRIPS)	ENTER (TRIPS)	EXIT (TRIPS)
Construction Trips				
Employee Trips	84	0	0	84
Equipment, Materials and other Deliveries	2	2	2	2
Total Construction Trips	86	2	2	86

6.11.2.2.1 Construction Worker Traffic

Construction of the proposed project is expected to take six months; from approximately April 2009 to September 2009. During that time, the average daily workforce will be 70 workers, with 105 workers required during the peak in August. The Project will have an ongoing program during construction to encourage carpooling with incentives for doing so. Considering this, an approximately 20 percent carpooling rate is assumed, which reduces the peak worker commute traffic to 84 round trips per week day, which is 168 one-way trips to and from the site. The construction labor pool will be derived from San Diego and Riverside counties. The worker commute peak morning period will be between 6:00 a.m. and 8:00 a.m., and the afternoon peak will be between 4:00 p.m. and 6:00 p.m., Monday through Friday Parking for construction personnel will be provided onsite, with no need for any offsite parking.

To analyze potential impacts for the Project, the peak worker commute month, with 105 workers, was used to determine impact on LOS. Peak hour background traffic loading that occurred between 6:00 a.m. to 8:00 a.m. and 4:00 p.m. to 6:00 p.m. was used on road segments, intersections and on- and off-ramps based on the construction workday schedule.

No specific employee access routes were identified for this Project. Instead, the commute routes and number of workers using these routes were estimated, taking into account the location of population centers where workers would most likely reside, and the distances to those population centers. The routes that the construction workers are expected to use commuting to and from the Site, and the percentages of workers using each route, are shown in Figure 6.11-4. The assignment of construction trip generation on local road segments and intersections is shown on Figure 6.11-5.

Other key assumptions that form the basis for the Project's construction work traffic analysis are as follows:

- Except for special circumstances, minimal offsite travel will occur during the work day.
- Each day, the construction shift will typically commence at 7:00 a.m and end between 4:30 and 5:30 p.m.

Table 6.11-11 – Projected LOS - Construction

SEGMENT/INTERSECTION/RAMP	EXISTING (2007) (AM/PM)	2009 NO PROJECT (AM/PM)	2009 WITH PROJECT (AM/PM)
SR 76 at I-15 SB Ramps	B/**E**	C/F	**C/F**
SR 76 at I-15 NB Ramps	B/**D**	C/F	**B/F**
SR 76 at Rice Canyon Road			
EB Approach	A/A	A/A	A/A
WB Approach	A/A	A/A	A/A
SB Approach	B/B	B/B	B/C
SR 76 at Pala del Norte Road			
EB Approach	A/A	A/A	A/A
WB Approach	A/A	A/A	A/A
SB Approach	A/B	A/C	A/C
Freeway Segments			
I-15 south of SR 76			
NB	A/**D**	A/D	A/**D**
SB	**D**/A	D/A	**D**/A
I-15 north of SR 76			
NB	A/**D**	A/D	A/**D**
SB	**D**/A	D/A	**D**/A
Highway Segments			
SR 76 – west of Old Highway 395	**E/E**	E/E	**E/E**
SR 76 – I-15 NB Ramps to Rice Canyon Road	C/**D**		
EB	A/A	A/A	A/A
WB	A/A	A/A	A/A
SR 76 – Rice Canyon Road to Project	C/C	C/D	**D/D**
Ramps			
I-15 NB Off-Ramp	A/**D**	B/E	**B/E**
I-15 NB On-Ramp	A/**D**	A/D	A/**D**
I-15 SB Off-Ramp	**D**/B	E/B	**E**/B
I-15 SB On-Ramp	C/B	D/B	D/B

Table 6.11-12 – Projected Ramp Intersection Capacity - Construction

INTERSECTION	EXISTING (2007) (AM/PM)	2009 NO PROJECT (AM/PM)	2009 WITH PROJECT (AM/PM)
SR 76 at I-15 SB Ramps	1,207/**1,619**	1,406/1,821	**1,420/1,860**

INTERSECTION	EXISTING (2007) (AM/PM)	2009 NO PROJECT (AM/PM)	2009 WITH PROJECT (AM/PM)
SR 76 at I-15 NB Ramps	821/**1,528**	999/1,687	**1,064/1,739**

Construction worker traffic will be short-term, and will occur over a six month period, with the peak activities occurring for one month. Due to the relatively low number of worker commute trips, over a short period of time, which reveal minimal impacts on the level of service on roadways in the vicinity of the project site, the impacts of project-related construction worker traffic will be less than significant. .

6.11.2.2.2 Construction Equipment and Material Deliveries

Equipment materials and other deliveries to and from the construction site will primarily use Interstate I-15, SR 76, Pala Del Norte Road and the southern project driveway for ingress/egress to the Site during construction. Daily and monthly truck traffic will vary. Over the 6-month construction period, the estimated number of deliveries is 7 per week day on average, with up to 15 per week day maximum.

The proposed construction laydown area for the project will be located onsite, and additional construction laydown areas will occur south of SR 76 along the gas pipeline construction route. A project construction traffic management plan will be developed for the Site using Pala Del Norte Road and the southern project driveway to loop equipment, materials and other deliveries in a one-way pattern to facilitate traffic flow. Either Pala Del Norte Road or the southern Project driveway will provide adequate turn-out space so that there will be no backup of trucks on SR 76. Construction equipment and materials will be stored and stockpiled within the laydown areas. Construction safety measures for the appropriate transportation (e.g., movement) of equipment and materials in, and around, the project site from the laydown area is the responsibility of the construction contractor. The contractor will implement an onsite program to ensure worker safety, spill control and containment within the laydown area and during the movement of equipment and materials for the duration of construction.

The transportation of water is included in the equipment, materials and other deliveries accounted for during construction. The maximum daily water use during construction is estimated to be 5,000 gallons so approximately 2 truck loads of water will be needed per day during the peak of water use during grading. (Typical construction water truck capacities are in the range of 3,000 gallons.)

Equipment, materials and other deliveries will generally be spread through the day. The LOS and Ramp Intersection Capacity analyses are based on two shipments/deliveries occurring with the peak hourly worker commute.

6.11.2.2.3 Gas Pipeline and Water Pickup Station Construction Traffic Controls

The Project includes construction of an underground natural gas pipeline from the Site to an existing SDG&E 16-inch gas line located near Rice Canyon Road. The natural gas pipeline will be designed to minimize new ground disturbance to the extent practical. Leaving the site, the

pipeline will be co-located in a trench with a transmission line following Pala Del Norte Road. The gas pipeline also will cross SR 76 at two locations, and will be constructed adjacent to SR 76 near Rice Canyon Road. The pipeline construction activities will take approximately three months and be completed prior to startup of the Orange Grove facility. The construction will involve the opening of a narrow trench, laying pipe, and backfilling the trench, as further described in Section 2.13. Where the gas pipeline crosses SR 76, it will be bored beneath SR 76 so as not to disrupt traffic flow on the roadway.

Traffic control for pipeline construction will be in accordance with Caltrans and the California Manual on Uniform Traffic Control Devices (MUTCD). Temporary traffic control will be required for the western approximately 2,000 feet of the gas pipeline due to this segment of pipeline being constructed within Caltrans' ROW. This is a straight and flat segment of SR 76 and the traffic control plan will be developed in consultation with Caltrans to satisfy relevant safety requirements while minimizing impact on traffic flow. Temporary traffic control in all locations will be provided per Figures and Sections 6H-1 *Work Beyond the Shoulder,* 6H-6 *Shoulder Work with Minor Encroachment, and 6H-11 Lane Closure on Two-Land Road with Low Traffic Volume, MUTCD.* Traffic control warning and regulatory signage and barricades will be provided during the gas pipeline construction. SR 76 traffic control will not be required in any other locations along the gas pipeline route.

Considering the short term nature of the pipeline construction, and the strict adherence to an approved traffic control plan, it is expected that construction of the natural gas pipeline will have a less than significant impact on traffic and transportation.

The Project also includes the construction of two offsite water pickup stations; one for access to fresh water, and one to access reclaimed water (see Figure 6.11-3). These water pickup stations are located in Fallbrook and will be constructed, owned and operated by FPUD. The reclaim water pickup station is located within an existing waste water treatment plan, and the fresh water reclaim station is located in a disturbed and undeveloped lot adjacent to Mission Road. These facilities will require only minor construction as described in Section 2.6. With the small scale of the improvements required and construction occurring off of roadways, construction for these water pickup locations is minimal, and will have a less than significant impact on traffic or transportation.

6.11.2.2.4 Oversize Loads

Large equipment deliveries (i.e., oversize or heavy loads) will be required during construction. These loads will arrive at the site using I-15 and SR 76. The vehicles used to transport heavy equipment and construction materials will require transportation permits when they exceed the size, weight, width, or length thresholds set forth in Section 35780 of the California Vehicle Code, sections 117 and 660-711 of the California Streets and Highways Code, and sections 1411.1 and 1411.6 of the California Code of Regulations. See Section 6.11.1.1.6 for a discussion on "Truck Routes, Weight and Load Limitations." Affected vehicles will be required to obtain transportation permits from Caltrans. Given that the impacts from these deliveries are temporary, and are managed by special local and/or state permits, effects to roads and highways from movement of heavy/oversize loads are not projected to be significant.

The turns on SR 76 in the Site vicinity been evaluated to determine the size of trucks that can use SR 76 without crossing the centerline. Results of this evaluation show that a WB-50 truck is the largest truck that can use SR 76 in the project vicinity without crossing the centerline with a nominal load. A schematic for a WB-50 truck is provided in Appendix 6.11-F. A total of four deliveries are expected during construction that will be on trucks requiring a larger turning radius than SR 76 provides. These deliveries will be the two stacks, and the two turbines. These loads will have to cross the center line and will be hauled in accordance with oversize load permits. Other equipment that will fit on a WB-50 truck will still require oversize load permits, including gas compressors, chiller package components and SCR components.

6.11.2.2.4 Construction Hazardous Materials Transportation

Hazardous materials that will be transported for construction will include fuels, lubricants, paints, sealers, adhesives, solvents, batteries, compressed gasses, solvents, and other materials used for construction. Most of these materials will be consumed. Small amounts will be used and then transported off-site as hazardous waste. Hazardous materials will be transported to and from the site via I-15 and SR 76. Proper containers and transportation procedures that conform to applicable DOT requirements will be used for all material and waste shipments (i.e., 49 Code of Federal Regulations [CFR] Chapters II, III; California Vehicle Code section 31300, et seq.,).

Hazardous materials are routinely transported over California highways throughout the state each day in accordance with applicable federal, state and local regulations. Project deliveries for hazardous materials will be required to comply with all applicable federal, state, and local regulations for the transportation of hazardous materials. As a result, impacts from hazardous material transportation will not be significant.

6.11.2.2.5 Construction Debris and Non-Hazardous Waste

Construction debris and other non-hazardous wastes will be generated during construction. This construction waste can be described as scrap wood, steel, paper, mixed trash, and general construction debris. During construction a minimal number of truck trips per month will be required to haul this non-hazardous waste for disposal. These trips are included in the equipment, materials and other deliveries shown in Table 6.11-9.

Further, Project grading is designed for a cut and fill balance, so there will not be any material traffic for the project related to importing or exporting common soil. Traffic for importing construction materials such as gravel and for hauling away unacceptable material (e.g., soil mixed with debris) is accounted for in Table 6.11-11.

6.11.2.2.6 Hazards Due to Existing Transportation Design Features

SR 76, from I-15 to Pala Del Norte Road, is a two-lane undivided expressway in rolling terrain. The road is predominantly bordered by a rock slope on the north side and heavy vegetation on the south side. The typical section of SR 76 has one 12-foot lane in each direction, separated by a double yellow stripe, and a 2-foot shoulder width. The expressway has several sight deficiencies caused by either short vertical crest curves or sharp horizontal curves around the

rock wall. These sight deficiencies prohibit vehicle passing; however, intermittent vehicle pullouts are provided along the route. Sight deficiencies would be more prominent at night due to absence of roadway lighting. The asphalt pavement structure of SR 76 is in good condition and does not appear to require roadway rehabilitation. There are no visible posted speed limit signs for the expressway, but advisory warning signs and associated speed reduction signs are present to warn motorists of upcoming sharp curves. The sharpest horizontal curve in the Project vicinity is signed for 20 mph.

From SR 76, the Site is accessed from Pala Del Norte Road. Pala Del Norte Road is an asphalt road in visually good condition and does not appear to require rehabilitation. The intersection of Pala Del Norte Road and SR 76 is a non-signalized tee-intersection.

A second driveway into the site will be constructed from SR 76 during construction. The driveway will be used for access during construction, but only for emergency ingress/egress once the facility becomes operational.

6.11.2.2.7 Sight Distance Evaluation

TPG Consulting performed a sight distance evaluation at the SR 76 at Pala del Norte Road intersection and the proposed Project driveway on SR 76 (approximately 950 feet east of Pala del Norte Road). Stopping sight distance was measured for vehicles traveling on SR 76 approaching the intersections. Corner sight distance was measured for vehicles stopped on Pala del Norte Road and the Project driveway attempting to turn onto SR 76. Table 6.11-12 shows the measured and required stopping and corner sight distances for the study intersections. In the study area, the SR 76 speed limit is unposted, but assumed to have a maximum speed limit of 55 mph. However due to the horizontal curvature of SR 76 in the Project vicinity advisory speed signs of 35 mph and 25 mph are posted on curves near the two (2) study locations. There is currently a 35 mph speed limit sign posted (located between Pala del Norte Road and the Project driveway) for traffic traveling westbound (WB) on SR 76 approaching Pala del Norte Road. Traffic traveling eastbound (EB) is approaching from a series of switchback curves posted at 25 mph, but are not assumed to be limited to 25 mph at the study locations. This analysis assumes an approach speed of 55 mph for all approaches and should be considered a worst-case.

The EB approach stopping and corner sight distance limiting factor for the SR 76 at Pala del Norte Road intersection is a combination of a steep embankment on the north side of SR 76, a horizontal curve, and a crest vertical curve. The WB approach stopping and corner sight distances are limited by a slow crest vertical curve. The EB approach corner and stopping sight distance limiting factor for the SR 76 at Project driveway intersection is a horizontal curve. The WB approach stopping and corner sight distance is limited by a horizontal curve at Pala del Norte Road and a large tree and other vegetation on the south side of SR 76.

Table 6.11-13 - Comparison of Actual to Required Sight Distances

INTERSECTION	MEASURED STOPPING SIGHT DISTANCE (FT)	REQUIRED STOPPING SIGHT DISTANCE (1) (FT)	MEASURED CORNER SIGHT DISTANCE (FT)	REQUIRED CORNER SIGHT DISTANCE (2) (FT)
SR-76 at Pala Del Norte Road				
Eastbound Approach	920	500	920	605
Westbound Approach	1,150	500	1,200	605
SR-76 at Project Driveway				
Eastbound Approach	960	500	960	605
Westbound Approach	925	500	925	605

(1) Caltrans Highway Design Manual, Table 201.1
(2) Caltrans Highway Design Manual, Table 405.1A
Note: SR 76 is assumed as the east-west road for purposes of the traffic analysis.

As shown in Table 6.11-13, there is sufficient stopping and corner sight distances on SR 76 at its intersections with Pala del Norte Road and the proposed Project driveway.

6.11.2.2.8 Hazards to Pedestrians or Bicyclists

Pedestrian walkways and bicycle facilities are limited in the study area. Pedestrians are permitted on the north side of SR 76 at the I-15 interchange, but limited sidewalk access is available. Pedestrian signals are provided at both ramp intersections, but pedestrians are not permitted to cross SR 76 at the I-15 ramps. I-15 north and south of SR 76, and SR 76 west of I-15, are designated as regional bikeway corridors according to the San Diego County Regional Transportation Plan (RTP), *Mobility 2030*. There are no pedestrian walkways or bike facilities at the remaining study locations east of I-15. Since there are limited pedestrian and bike facilities located in the study area, impacts to pedestrians or bicyclists as a result of construction will not be significant. No significance criteria for pedestrian or bicycle facilities are identified in either the current *San Diego County General Plan* or *General Plan 2020*. Therefore, the Project does not create significant conflicts with current policies regarding pedestrian and bicycle travel.

6.11.2.2.9 Parking Capacity

Parking for the construction laborers and supervisors, equipment, and deliveries will be provided at the project site. Specific areas within the project site will be identified for worker parking and construction laydown. No offsite parking will be required. As a result, project-related construction activities will have a less than significant impact on parking in or around the vicinity of the project area.

6.11.2.2.10 School Bus Traffic

The Bonsall Union School District provides elementary and middle school bus service to and from Pala on SR 76. There are two bus stops on SR 76 between I-15 and the project site, the closest of which is approximately 2 miles to the west, just east of Couser Canyon Road. The other bus stop is further west, at Pankey road and Shearer Road. It is assumed that Project-related construction workers will arrive at the site in the morning before 7:00 a.m. and leave after 4:00

p.m. without interfering with school bus service and the pickup and drop off of school children. Therefore, the impact of construction to school bus traffic will be less than significant. .School bus stop locations and bus route times are provided in Appendix 6.11-E.

6.11.2.3 Operations Impacts

Table 6.11-14 presents the daily operational-related trips attributed to the proposed project for both average and peak activity conditions. Table 6.11-15 shows the hourly peak operational trips. Table 6.11-16 shows the correlating projected LOS once the proposed project is operational for transportation routes in the project study area. Table 6.11-17 shows the projected ramp intersection capacity analysis once the project is operational at SR 76 and I-15 SB and NB ramps, based on the peak number of trips.

Table 6.11-14 is a summary table of the project generated trips during operation. The nine full-time commute trips for the average day is based on six facility personnel arriving at the site in the morning and leave in the evening, with half leaving and returning once during the day. The peak of 12 commute trips is based on this same scenario, plus three additional employees arriving at the Site for a second work shift shortly before the day shift is ended. Once operational, the equipment and material deliveries to the facility are significantly reduced from those of the deliveries during construction, and only include minimal services deliveries to support the operation of the facility.

Table 6.11-14 - Project Trips during operation

TRIP TYPE	AVERAGE ROUND TRIP	PEAK ROUND TRIP
Full-Time Employees	9/day(1)	12/day(2)
Equipment, Materials and other Deliveries (3)	3/day	5/day
Reclaimed Water Deliveries	2.3/day(4)	7.3/day
Fresh Water Deliveries	2.9/day(5)	11.2/day

(1) This number assumes six full-time employees, who arrive in the morning, and depart in the evening, with half leaving and returning once during the day [6 x 1.5 = 9 trips/day].
(2) This number assumes six full-time employees, who arrive in the morning, and depart in the evening, with half leaving and returning once during the day, plus 3 employees arriving at the end of the day shift and leaving late at night.
(3) Equipment, material deliveries includes deliveries of equipment and materials for operations, couriers for administrative packages, non-hazardous and hazardous waste disposal, material recycling and other routine operational traffic.
(4) Based on "Expected Use Case" for reclaimed water in Table 2.6-1b averaged over 365 days.
(5) Based on "Expected Use Case" for fresh water in Table 2.6-1a averaged over 365 days.

The Project trip generation information shown in Table 6.11-15 represents the worst-case peak conditions during operations. No carpooling rate was assumed for employees once the facility becomes operational.

Table 6.11-15 - Peak operation trips

	AM		PM	
	Enter (trips)	Exit (trips)	Enter (trips)	Exit (trips)
Operation Trips				
Employee Trips	6	0	3	6
Equipment, Materials and Deliveries	1	1	1	1
Reclaimed Water Delivery	1	1	1	1
Fresh Water Delivery	1	1	1	1
Total Operation Trips	**9**	**3**	**6**	**9**

6.11.2.3.1 Operations Personnel and Deliveries

The proposed facility will be operated and maintained by approximately nine full-time employees, with no more than six on a typical work shift. The worst case daily traffic scenario for operations employee traffic is six employees commuting simultaneously at the start and end of a day shift, and the remaining three employees commuting to the site for a second shift during the same hour that the day shift ends.

Day-shift facility personnel are assumed to arrive to work each morning between 6:00 a.m. and 8:00 a.m., and leave between 4:00 and 6:00 p.m. The assignment of peak operations trips on local road segments, ramps and intersections is shown on Figure 6.11-6.

The impact of operations facility personnel and deliveries on the LOS in the study area is shown in Table 6.11-16. Due to the small number of employees and delivery trips, the LOS on all roadways remains the same at all study locations as projected for the No Project. The Project operational traffic will be far below thresholds that San Diego County Department of Planning and Land Use DPLU has determined to cause noticeable change on roads that are congested (DPLU, 2006). Furthermore, Project operations will not result in any LOS dropping to an unacceptable level. The project will add traffic to SR 76 at the I-15 ramps in the PM peak hour, where the level of service is projected to go to "F" without the Project. Even though the Project will add little additional traffic, the Project impact could be considered significant if not mitigated because the Project will add traffic to an LOS that is already below traffic flow goals. The Project will mitigate this impact through the payment of traffic impact fees to the County (in accordance with County policies), which will mitigate the Project's traffic impact to a level that is less than significant. If and when the Palomar Community College campus is constructed, improvements to the ramp intersections will occur before the college is opened. It is expected that this would relieve the unacceptable level of congestion that is expected to occur at these locations irrespective of the Project.

Table 6.11-16 – Projected LOS – Operation

INTERSECTION	EXISTING (2007) LOS (AM/PM)	2009 NO PROJECT (AM/PM)	2009 WITH PROJECT OPERATION LOS (AM/PM)
SR 76 at I-15 SB Ramps	B/E	C/F	C/F
SR 76 at I-15 NB Ramps	B/D	C/F	C/F

INTERSECTION	EXISTING (2007) LOS (AM/PM)	2009 NO PROJECT (AM/PM)	2009 WITH PROJECT OPERATION LOS (AM/PM)
SR 76 at Rice Canyon Road			
EB Approach	A/A	A/A	A/A
WB Approach	A/A	A/A	A/A
SB Approach	B/B	B/B	B/B
SR 76 at Pala del Norte Road			
EB Approach	A/A	A/A	A/A
WB Approach	A/A	A/A	A/A
SB Approach	A/B	A/C	A/C
Freeway Segments			
I-15 south of SR 76			
NB	A/D	A/D	A/D
SB	D/A	D/A	D/A
I-15 north of SR 76			
NB	A/D	A/D	A/D
SB	D/A	D/A	D/A
Highway Segments			
SR 76 – west of Old Highway 395	E/E	E/E	E/E
SR 76 – I-15 NB Ramps to Rice Canyon Road	C/D		
EB	A/A	A/A	A/A
WB	A/A	A/A	A/A
SR 76 – Rice Canyon Road to Project	C/C	C/D	C/D
Ramps			
I-15 NB Off-Ramp	A/D	B/E	B/E
I-15 NB On-Ramp	A/D	A/D	A/D
I-15 SB Off-Ramp	D/B	E/B	E/B
I-15 SB On-Ramp	C/B	D/B	D/B

Table 6.11-17 – Projected Ramp Intersection Capacity - Operation

INTERSECTION	EXISTING (2007)LOS (AM/PM)	2009 NO PROJECT (AM/PM)	2009 WITH PROJECT OPERATION LOS (AM/PM)
SR 76 at I-15 SB Ramps	1,207/1,619	1,406/1,821	1,408/1,826
SR 76 at I-15 NB Ramps	821/1,528	999/1,687	1,005/1,692

6.11.2.3.2 Operational Hazardous Materials Transportation

Hazardous materials deliveries to the Site and hazardous waste transport from the Site will occur to support Project operations and maintenance. Section 6.15 – Hazardous Materials identifies the quantities of various hazardous materials and hazardous waste that will be transported for the Project. Hazardous materials that will be routinely delivered to the Site include aqueous ammonia, petroleum products and compressed gases. Hazardous material trips are accounted for in the peak of 5 round trips per day of estimated operations equipment, materials and deliveries. Hazardous materials and hazardous waste will be transported on SR 76 and I-15. Hazardous materials and hazardous waste transportation will occur in accordance with applicable federal, state and local regulations.

The types of hazardous materials and hazardous wastes that will be transported for the Project are routinely transported on roads and highways throughout the United States each day in accordance with applicable federal, state and local regulations. Project-related hazardous material and hazardous waste transport will be subject to the same federal, state and local regulations, and as such, impacts will be less than significant.

Aqueous ammonia will be transported in a 19.0 percent by weight solution of ammonia in water. At this concentration, it is not designated as an inhalation hazard under Section 32101 of the California Vehicle Code. Instead, aqueous ammonia is classified as corrosive. Trucks used to transport aqueous ammonia are subject to design requirements that assure their integrity to hold the material without leaking. These requirements are specified in 49 CFR 171-180. The trucks are subject to regular safety and integrity inspection according to the requirements of the Caltrans (Foose, 1999). The Enforcement Services Division of the California Highway Patrol (CHP) is responsible for enforcing the hazardous materials regulations. Aqueous ammonia will be delivered to the Site using a truck template that is equivalent to or smaller than WB 50 (Appendix 6.11-E) so there will be no need to cross the center line. In addition, deliveries of aqueous ammonia will be infrequent, typically once every other month. Section 6.15 – Hazardous Materials, includes specific mitigation measures designed to assure aqueous ammonia transport to the site is safe and does not result in a significant impact.

6.11.2.3.3 Other Impacts

School bus traffic is not expected to be impacted by operational traffic based on the minimal number of operational trips, and the estimated bus schedule. The project is expected to add 9 operational trips to SR 76 between I-15 and the Site, which is used by school bus traffic during morning and early afternoon periods. This amount of additional traffic is not expected to cause a significant impact on school bus traffic in the area. Appendix 6.11-E outlines the school bus schedule in the Site area.

Water trucks will add traffic between the Site and the fresh water and reclaim water pickup stations. The maximum water truck traffic count will be approximately one per hour for the fresh water haul route and one truck per hour for the reclaim water haul route. The plant is expected to operate typically between 2 and 8 hours per day, and less than 2,000 hours per year. For each hour of plant operations at summer design conditions, an average of 0.4 reclaim water

trucks and 0.9 fresh water haul trucks will be required. Water truck drivers will be required to hold a valid commercial drivers license, and to have specialized training on the use of the particular truck they are driving. All drivers used for the proposed project will be properly licensed and trained (e.g., qualified). The peak water truck count of one per hour from the reclaim water pickup station and one per hour from the fresh water pickup station will not measurably affect LOS. In addition, this traffic will not affect school buses that run approximately every 15 minutes during their morning and afternoon peak periods on portions of the same roads being used for water hauling (see Appendix 6.11-E). It is not expected that these water truck deliveries will have an impact on school bus traffic along the water haul routes once the Orange Grove Project is operational.

Due to the small number of trips generated by Project operations and maintenance, there will be no substantial increase in traffic. Project operations will not increase the hazard of existing road design feature. No vapor plumes are expected that could affect driver visibility on roads. The Project will provide emergency access with a primary driveway and a secondary driveway both designed to accommodate emergency response vehicles. The project will provide parking onsite and will not impact offsite parking. The project will be designed with adequate vehicle parking onsite for operations and maintenance in accordance with applicable zoning ordinance requirements. Project operations and maintenance will not conflict with transportation policies, plans or programs for alternative transportation. The closest airport is approximately 8 miles west and no air traffic will be impacted by the Project. The number of trips generated by Project operations and maintenance will be too low to result in a noticeable difference in congestion during school traffic hours. Considering these factors, Project operation and maintenance impacts related to transportation will be less than significant, except for incrementally contributing to traffic at the SR 76 intersection with the I-15 ramps, which are predicted to be functioning at LOS F for the PM peak hours. This unacceptable level of traffic congestion is predicted to occur independent of the Project and the Project will mitigate the incremental added traffic impact to a level that is less than significant through traffic impact fees to the County (in accordance with County policies).

6.11.2.4 Cumulative Impacts

Projects with potential for cumulative impacts are identified and described in Section 6.1.2. Of the projects identified in Section 6.1.2, the following were considered to have the potential for cumulative impacts:

- Pala Casino Expansion
- Pauma Casino Expansion
- Gregory Canyon Landfill
- Rosemary’s Mountain Quarry
- Warner Ranch Multiple Use Development Project
- Cingular Cell Tower #826
- Meadowood Residential Development
- Campus Park (Passerelle) Multiple Use Development

- Fallbrook Renewable Energy Facility
- Palomar Community College – North Education Center

Potential cumulative impacts are described separately below for construction-related cumulative impacts and operation-related cumulative impacts, because construction impacts are generally different in nature due to their character. Construction is short-term, while once a facility is operational, that affect is considered to be long-term.

6.11.2.4.1 Construction-Related Cumulative Impacts

The Rosemary's Mountain Quarry and the Pauma Casino Expansion are the only two projects identified likely to have relevant cumulative construction impacts with the Orange Grove Project. The Pala Casino Expansion construction will be nearly complete by the time the Orange Grove project construction begins, and peak construction activity will not overlap with the Orange Grove Project (See Section 6.1.2). Furthermore, because Orange Grove Project construction impacts are based on analysis of peak traffic occurring during Month 5 of the construction schedule, and the actual traffic will be much lower at the onset of construction and then will ramp upward, the minor overlap of the tail end of the Pala Casino Expansion construction with the beginning of the Orange Grove Project construction, the use of the peak month construction traffic for the Orange Grove Project is expected to still be representative of worst-case overlap conditions that are reasonably foreseeable. The Pala Casino Expansion project construction manager was consulted for the cumulative impacts assessment in this AFC and the planned schedule to complete the Pala Casino Expansion work approximately the same time as the Orange Grove construction work is scheduled to begin is considered reliable. The Orange Grove Project is expected to begin construction in April, with its peak in August. The Pala Casino Expansion construction is currently underway and expected to be completed in May or June.

The Rosemary's Mountain Quarry project is located approximately 1.3 miles east of I-15 and approximately two miles southwest of the Project Site on the north side of SR 76. The Rosemary's Mountain Quarry will be a 38-acre aggregate quarry that is projected to produce approximately 1.1 million tons of aggregate a year for 20 years. Construction of the quarry site broke ground in February 2008 and quarry development is expected to take approximately 3 years until fully operational. The first phase of the quarry project will be a widening and straightening improvement to SR 76 between the quarry site and I-15, and construction of the quarry will largely be concurrent with the SR 76 improvements construction. SR 76 will be widened to two lanes in each direction between the quarry site and I-15 (Figure 6.1-2).

The anticipated SR 76 construction schedule for Rosemary's Mountain Quarry is as follows:

- Approval of Traffic Management Plan (TMP) and permits: June 2008
- Start of Construction (Road Improvements): June 2008
- End of Road Improvements: March -June 2009

Widening of SR 76 is expected to start in mid-June 2008 and continue for 9 to 12 months. The SR 76 road improvement will be the initial construction activity for the project and the

construction will use material generated from quarry development. For the initial approximately 6 months of road improvement construction, material trucked offsite from the quarry will be exclusively used for the road construction project and may include up to 150 truckloads per day[1.] During the second half of the road improvement construction period, on days when material is not needed for the road improvement project, up to 180 trucks per day (360 trips) may occur on SR 76 between the quarry entrance and I-15 as material is removed from the site as part of site development. Truck traffic during the construction period will occur under the TMP. During the road construction, there will be periodic road closures of approximately 10 minutes between the hours of 9:00 am and 3:00 pm. In addition to truck traffic, construction will utilize 25 to 30 total construction workers. Employee trips would be approximately 27 round-trips per day (54 one-way trips).

The Pauma Band of Mission Indians is planning to break ground on a casino expansion project in the Pauma Valley east of Pala. The casino expansion will include a 400-room hotel, parking, wells and water storage. The project is expected to begin construction in fall 2008 with completion by summer Evaluations of this project in this AFC consider that the Pauma Casino expansion will be under construction during Orange Grove Project construction, and that it will be operational for the long-term.

Based on the above, both the Rosemary's Mountain Quarry and the Pauma Casino Expansion projects will be conducting construction activities at the same time as the Orange Grove project, including the straightening and widening of SR 76. The Pauma Casino Expansion construction will add traffic to SR 76 during the construction period. The Pauma Casino Expansion is expected to result in approximately 4,365 new average daily trips once the project is operating. The construction traffic is accounted for in the 2009 No Project LOS modeling results reported in Table 6.11-3. Therefore, the construction traffic the assessment of Orange Grove Project in Section 6.11.2.2 already accounts for this cumulative impact.

The Rosemary's Mountain Quarry construction activities, including the straightening and widening of SR 76 will be ongoing at the same time as the Orange Grove Project construction. When Orange Grove Project construction begins in April 2009, the widening and straightening of SR 76 associated with the Quarry project will be nearly complete. The Rosemary's Mountain construction will add traffic to SR 76 during the construction period, including mostly truck-haul traffic, and will provide SR 76 with additional traffic capacity once the new lanes are commissioned. The Rosemary's Mountain Quarry construction traffic is accounted for in the 2009 No Projected LOS modeling results reported in Table 6.11-3. Therefore, the construction traffic the assessment of Orange Grove Project in Section 6.11.2.2 already accounts for this cumulative impact.

6.11.2.4.2 Operation-Related Cumulative Impacts

Projects with potential for cumulative impacts with Orange Grove Project operations include:

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[1] Johnson, Gary. Granite Construction. Personal communication, September 19, 2007, updated October 3, 2007 and May 28, 2008.

- Pala Casino Expansion
- Pauma Casino Expansion
- Gregory Canyon Landfill
- Rosemary's Mountain Quarry
- Warner Ranch Multiple Use Development Project
- Cingular Cell Tower #826
- Meadowood Residential Development
- Campus Park (Passerelle) Multiple Use Development
- Fallbrook Renewable Energy Facility
- Palomar Community College – North Education Center

A summary of the known information of these projects is provided below.

- The Pala Casino is located on SR 76 approximately 1.5 miles east of the Site. Following construction, the Pala Casino Expansion is expected to generate approximately 1,032 new average daily trips on SR 76 through the Site area, and 64 PM peak hour trips (32 inbound/32 outbound), with negligible impact on AM peak trips (Pala Band of Mission Indians, 2006).
- The Pauma Casino is located on SR 76 approximately 7 miles east of the Site. Following construction, the Pauma Casino expansion project is expected to generate approximately 4365 new average daily trips on SR 76 through the Site area, and 305 PM peak hour trips (144 inbound/161 outbound), with negligible impact on AM peak trips (Pauma Band of Mission Indians, 2008).
- The Gregory Canyon Landfill (Class III non-hazardous municipal refuse) is proposed to be located approximately 0.50 mile southwest of the Project Site and approximately 2.0 miles east of I-15. The Gregory Canyon Landfill project has been ongoing for over 10 years and project construction and completion dates remain uncertain. If constructed, this project will be limited by its facility permit to 2,085 passenger car equivalent trips per day.
- The Warner Ranch project is located approximately 1.5 miles northeast of the Project Site. The Warner Ranch project footprint borders the Pala Indian Reservation to the east and northeast and SR 76 to the south. The Warner Ranch project consists of over 800 plots consisting of multi-family and single family dwellings, a 5.5 acre commercial development, a new fire station, a community stable facility, a 1-acre clubhouse facility, and over 300 acres of open space. If and when constructed, this development eventually could be expected to generate approximately 3,200 average daily trips, assuming 4 trips per plot.
- Cingular is proposing to construct a new unmanned personal communications services (PCS) facility consisting of 12 new antennas mounted on a 40-foot monopine. The project is located north of SR 76 between the Site and the Pala reservation. This is a small project with little potential for cumulative impacts. Construction is expected to be completed before the Orange Grove Project construction starts, and operation of the cell tower will generate negligible traffic.

- The Meadowood residential development is a proposed 390-acre project that would include up to 393 single-family detached homes and a maximum of 1,248 total dwelling units. The Meadowood project is located approximately 0.50 mile east of I-15 and 2.75 miles southwest of the Site. The Meadowood project footprint begins from the north side of SR 76 and extends approximately 1.50 miles north to Pala Mesa Heights Drive. If and when constructed, this development eventually would be expected to generate approximately 2,496 trips per day, assuming 2 trips per dwelling unit.
- The Campus Park (Passerelle) Project is a proposed mixed use development project located immediately east of I-15, north of SR 76, and west of the Meadowood Project. Campus Park (Passerelle) is located approximately 2.6 miles southwest of the Site. The Campus Park (Passerelle) development would include approximately 1,400 dwelling units. The project is proposed to create an additional 40,000 average daily trips.
- The Fallbrook Renewable Energy Facility (FREF) project is a proposed 90 megawatt power generation facility located approximately 1 mile east of I-15 along the south side of SR 76 and approximately 2.5 miles southwest of the Project Site. The FREF would utilize biomass materials to fuel combustion units that would in turn produce thermal and electrical energy. Energy generated would be used to power the onsite biomass facility and the surplus would be available for sale to various energy suppliers. The FREF would consume approximately 600,000 tons per year of organic waste during the combustion processes. This amount of waste would represent approximately 15,000 truck trips a year.
- The Palomar Community College – North Education Center project is a proposed 80 acre development that will include approximately 380,000 to 533,000 square feet of development including parking facilities (2,125 spaces), instructional space, administrative services and office space, support and maintenance services space, library, and food services, as well as open space. The campus will also include three athletic fields and tennis courts. Full build-out is expected by the year 2030. Construction will be phased to correspond to enrollment, and will last decades. The student population at full build-out is expected be approximately 2,833 full-time equivalent enrolled students. Total generated daily trips for this project are projected to be 3,400, at full build-out.

Some of these projects are in early planning stages. Most of these projects either already do or are expected to include transportation improvements as a part of their development, and many will include fair share contributions that will be used toward future transportation improvements. As the above indicates, there is considerable large-scale development planned that will affect SR 76 and other roads in the Site area. These projects will contribute a significant volume of daily traffic that can only be mitigated and resolved with local and regional transportation programs. As a result of Orange Grove's contribution toward operational cumulative impacts, the project is expected to pay a "Transportation Impact Fee" as prescribed by the County of San Diego. The transportation impact fee will mitigate the Orange Grove Project's cumulative transportation impact to a level that is less than significant.

6.11.2.5 Project Design Features to Avoid or Minimize Impacts

The following Site characteristics and Project design features avoid or minimize Project impacts to traffic and transportation facilities:

- Parking for all construction personnel (during construction) and facility personnel (during operation) will be provided onsite. No offsite parking will be required, or necessary.
- A Traffic Control Plan/Traffic Management Plan will be prepared and implemented to ensure appropriate traffic control and safety measures are included as part of the construction activities. The construction TCP/CMP will addresses site entrances/exits, emergency access, signage, lighting, traffic control device placement, truck routes, the overall construction schedule, the timing of heavy equipment and material delivery, construction hours of operation, anticipated worker arrival and departure times, and any detours and/or lane closures.
- Water will be hauled using approximately 6,500 gallon capacity trucks to minimize trip generation.
- The Project will maintain an active program during construction to encourage carpooling. This program will include posting of a bulletin board on the construction site to encourage ridesharing and to facilitate exchange of construction worker commute information to facilitate ridesharing opportunities. In addition, incentives (e.g., raffle prizes) will be offered for ride sharing participants. These measures to encourage ride-sharing will be implemented through the Applicants contracts with construction contractors.
- Measures for safe delivery of aqueous ammonia will be implemented in accordance with Section 6.15, Hazardous Materials.
- The Applicant will pay transportation impact fees to mitigate traffic impacts.

6.11.3 Mitigation Measures

Since the Project design features will limit traffic and transportation impacts from construction and operation to a level that is less than significant no additional mitigation measures are required.

6.11.4 Significant Unavoidable Adverse Impacts

There are no significant unavoidable adverse impacts on traffic and transportation from either construction or operation of the Orange Grove Project.

6.11.5 Laws, Ordinances, Regulations and Standards (LORS)

Laws, ordinances, regulations and standards related to traffic and transportation are summarized in Table 6.11-18. Table 6.11-1921 identifies agency contacts related to transportation, and permits that will be required. The timing for obtaining these permits is shown in Figure 2.15-1.

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Table 6.11-18 – Traffic and Transportation LORS Compliance

JURIS-DICTION	AUTHORITY[1]	AGENCY	REQUIREMENTS	COMPLIANCE	AFC SECTIONS AND PAGES
Federal	49 CFR, Chapter II, Subchapter C; and Chapter III, Subchapter B.	Federal Highway Administration (FHWA) CHP	Regulations for the transportation of hazardous materials on public highways.	By meeting standards for the transportation of hazardous materials.	6.11.2.2 6.11.2.3 Pages 6.11-11 to 6.11-23
State	California Vehicle Code §35780; California Streets & Highways Code §117, 660-711; 21 California Code of Regulations (CCR) §1411.1-1411.6	California Department of Transportation	Regulations for the transportation of oversized loads over state highways; requires permit to transport over-size loads over State highways. Enforced by the California Highway Patrol.	By obtaining necessary permits from Caltrans.	6.11.2.4 Pages 6.11-23 to 6.1-28
	California Vehicle Code §31303-31309, 31600-31620, 32000-32004, 32050-32053, 32100-32109, & 34000-34100	California Department of Transportation	Regulations for the safe transportation of hazardous materials. .	By meeting standards for the transportation of hazardous materials.	6.11.2.2 6.11.2.3 Pages 6.11-11 to 6.11-23
	California Vehicle Code §35550	California Department of Transportation	Regulations for maximum weight of vehicles on highways; requires that vehicles on highways meet certain weight restrictions.	By meeting the necessary weight requirements for all Project related vehicles.	6.11.2.2 6.11.2.3 Pages 6.11-11 to 6.11-23

[1] Pursuant to 20 CCR Chapter 5 Appendix B Section (i)(1)(B): Each agency with jurisdiction to issue applicable permits and approvals or to enforce identified LORS and adopted local, regional and federal land use plans, and agencies which would have permit approval or enforcement authority, but for the exclusive authority of the CEC to certify sites and related facilities.

JURIS-DICTION	AUTHORITY[1]	AGENCY	REQUIREMENTS	COMPLIANCE	AFC SECTIONS AND PAGES
	California MUTCD, Chapter 6C	California Department of Transportation	Traffic control plans for construction near roadways; the needs and control of all road users through a temporary traffic control zone shall be an essential part of highway construction, utility work, maintenance operations, and the management of traffic incidents.	By preparing the necessary traffic control plans.	6.11.2.5 Pages 6.11-28
	California Department of Transportation	California Department of Transportation	Level of service standards for state facilities; Caltrans endeavors to maintain a target LOS at the transition between LOS C and LOS D on State Highway facilities. If an existing State highway facility is operating at less than the appropriate target LOS, the existing MOE should be maintained.	By not impacting Caltrans roadways such that LOS is decreased below target or existing LOS	6.11.2 Pages 6.11-9 to 6.11-28
Local	County of San Diego Congestion Management Program	County of San Diego/SANDAG	Level of service for local facilities; minimum of LOS D for county roadways but if existing LOS is worse than D, then the existing LOS must be maintained.	By not impacting County of San Diego roadways such that LOS is decreased below target or existing LOS.	6.11.2 Pages 6.11-9 to 6.11-28

Table 6.11-19 –Agency Contacts

AGENCY	AUTHORITY
Caltrans - Permit Office 2050 Taylor Street San Diego, California 92110 J. Markey (619) 688-6158	Heavy/Oversize Load Permit. Encroachment Permit.
SD County Department of Public Works (DPW) 5201 Ruffin Road, Suite D San Diego, CA 92123-4310 N. Areigat, P.E., DPW Project Manager Land Development Division (858) 495-5747	Advisory and Transportation Impact Fees.

6.11.6 References

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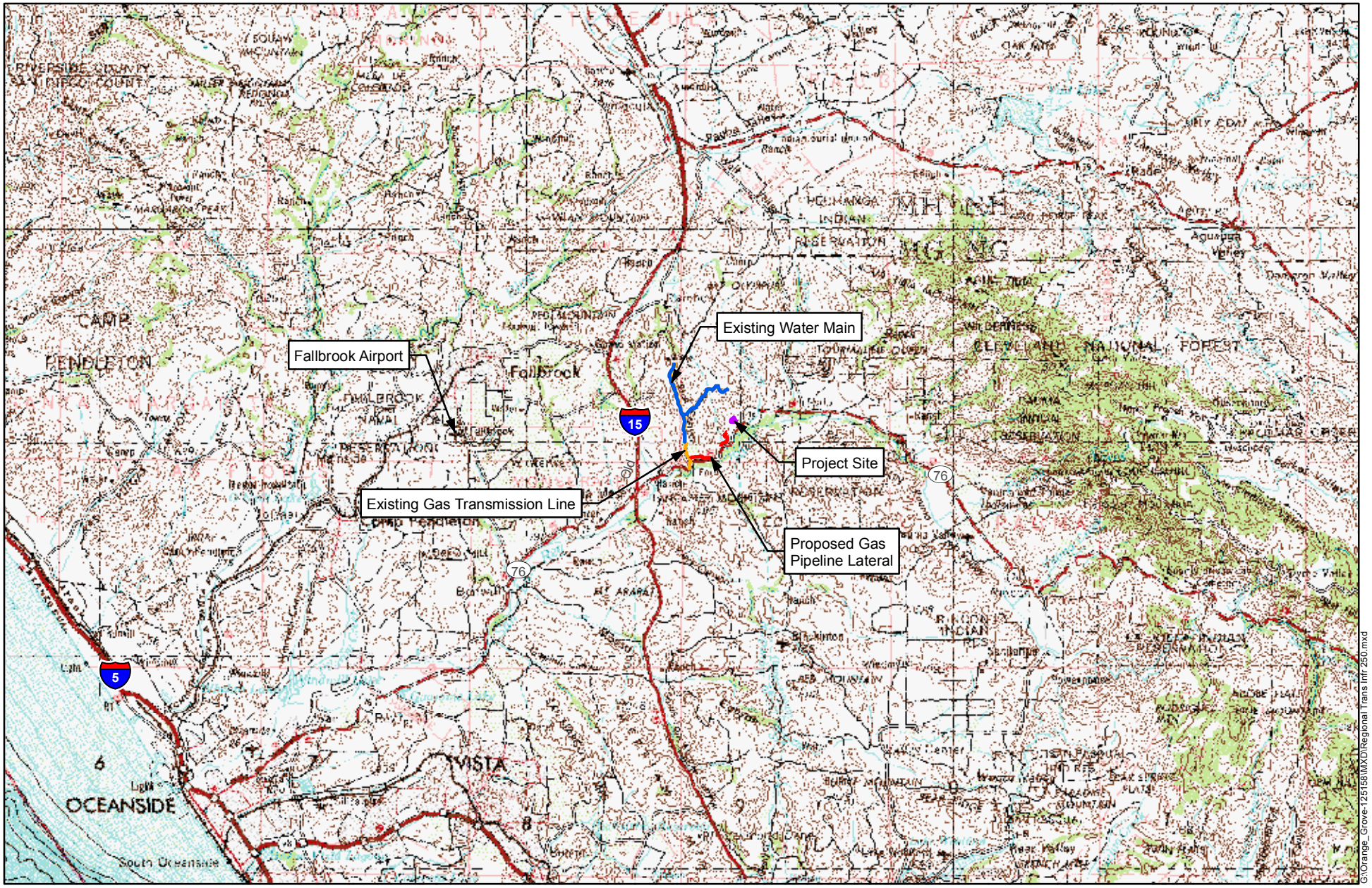


6.11-1 A

Regional
Transportaion
Infrastructure
Orange Grove Project

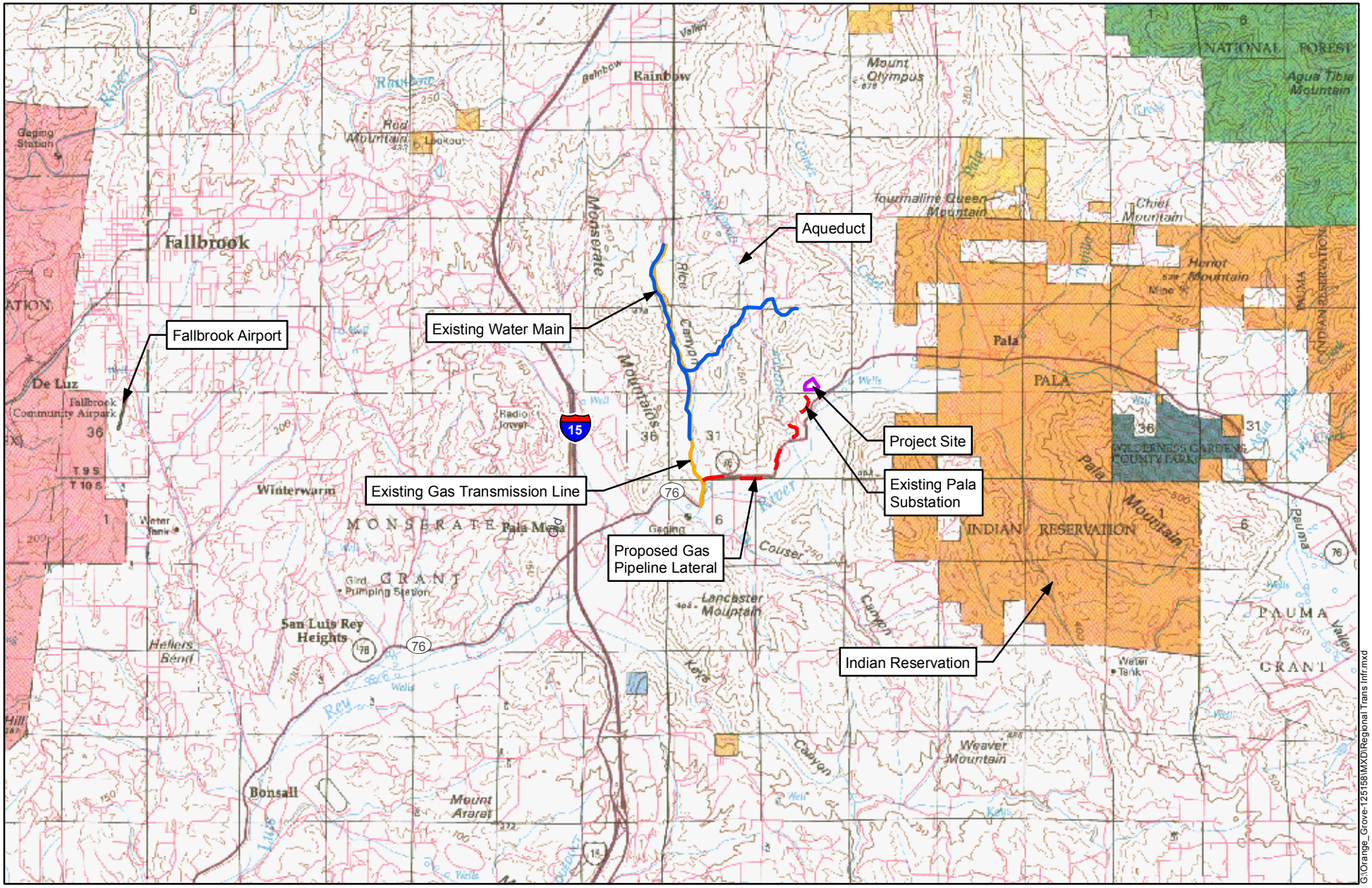
N

1:250,000

2 1 0 2 4 6 8 10 Miles

Source:
USGS Topographical Quadrangles: 1:250000 Santa Ana

TRC



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6.11-1 B

Sub-Regional Transportaion Infrastructure

Orange Grove Project

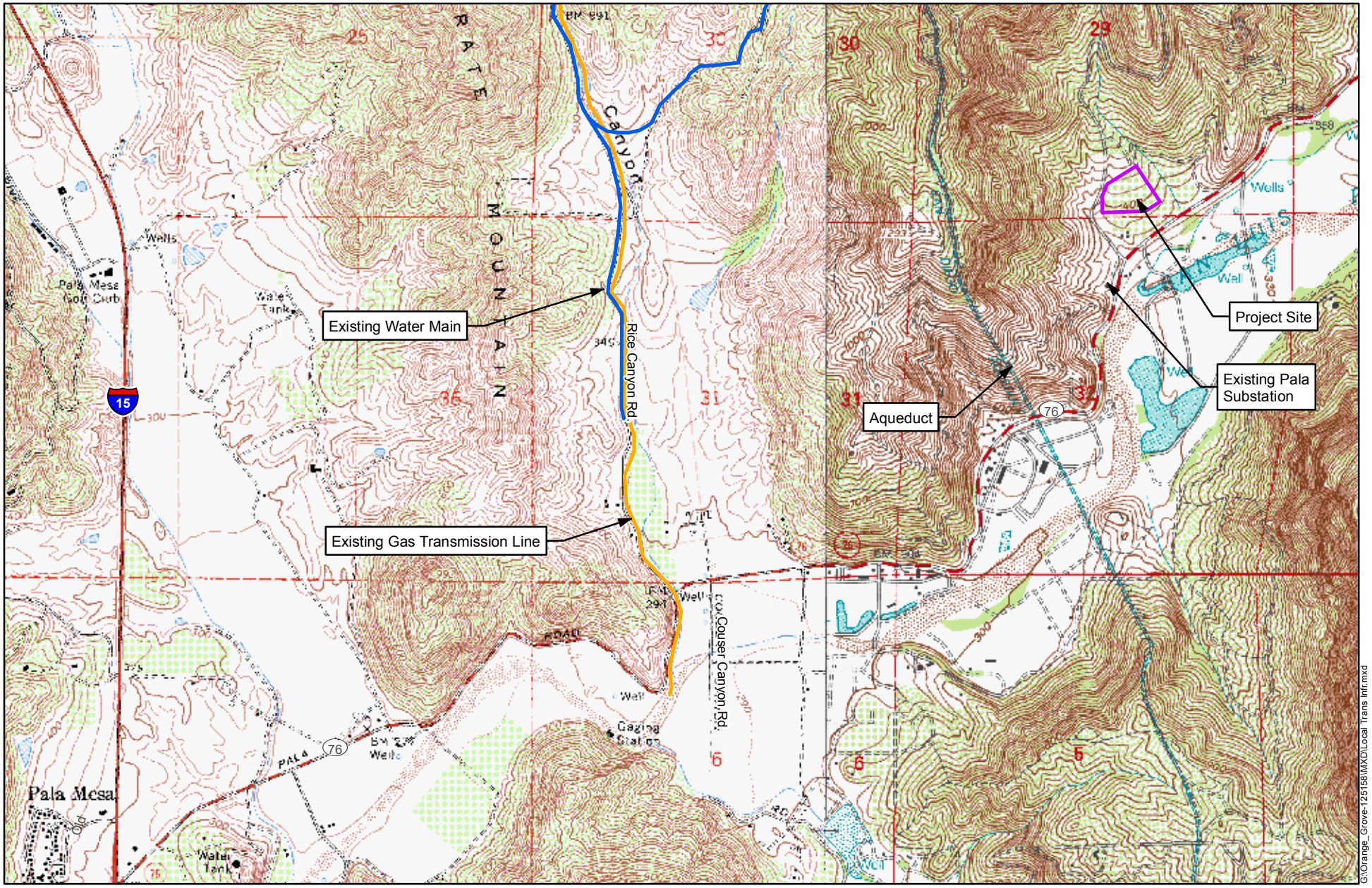
N

1:100,000

1 0.5 0 1 2 3 4 Miles

Source:
USGS Topographical Quadrangles: 1:100000 Oceanside

TRC



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6.11-2

Local Transportaion Infrastructure

Orange Grove Project

N

1:24000

1" = 2,000'

2,000 1,000 0 2,000 4,000 Feet

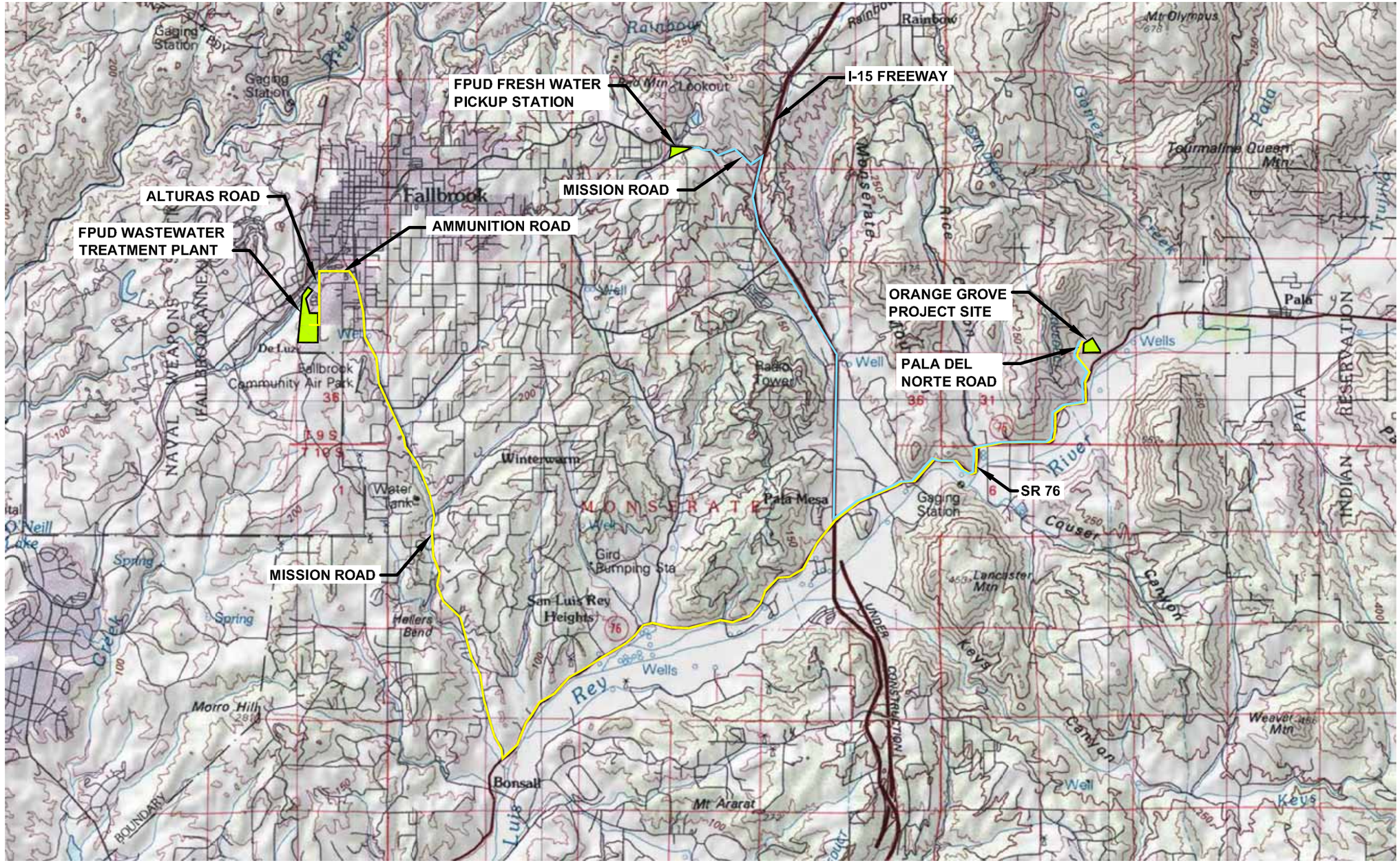
Source:
USGS Topographical Quadrangles: 1:24000 Bonsall and Pala

TRC

LEGEND

RECLAIM WATER HAUL ROUTE

FRESH WATER HAUL ROUTE



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SOURCE:

United States Geological Survey 7.5 Minute Topographic Map, 2000: Morro Hill, Bonsall, Temecula, and Fallbrook Quadrangles

0 1 1/2 3 MILES

TRC

PROJECT: 125158

FACILITY:

ORANGE GROVE PROJECT
SAN DIEGO COUNTY, CALIFORNIA

WATER PICKUP LOCATIONS AND HAUL ROUTES

FIGURE 6.11-3

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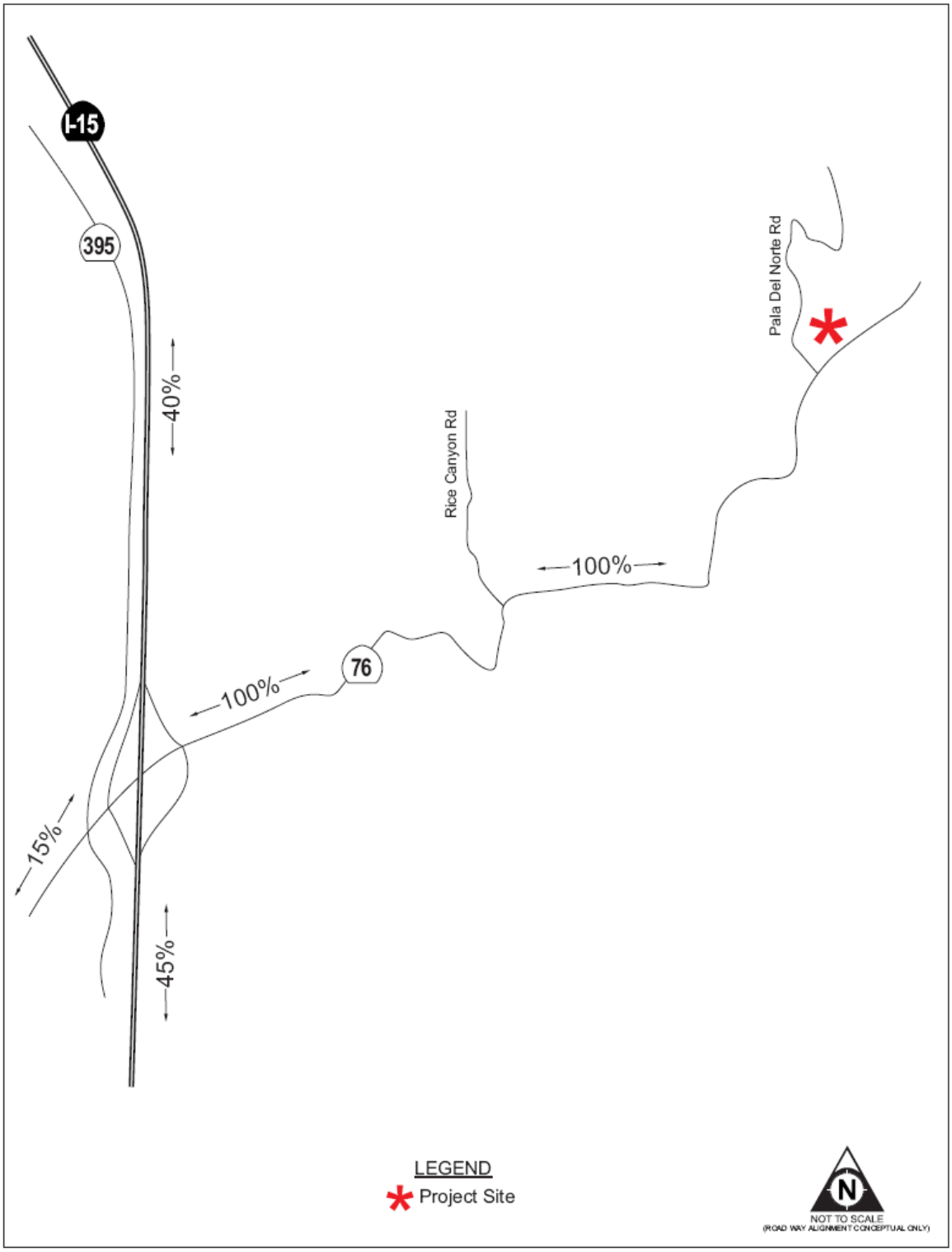
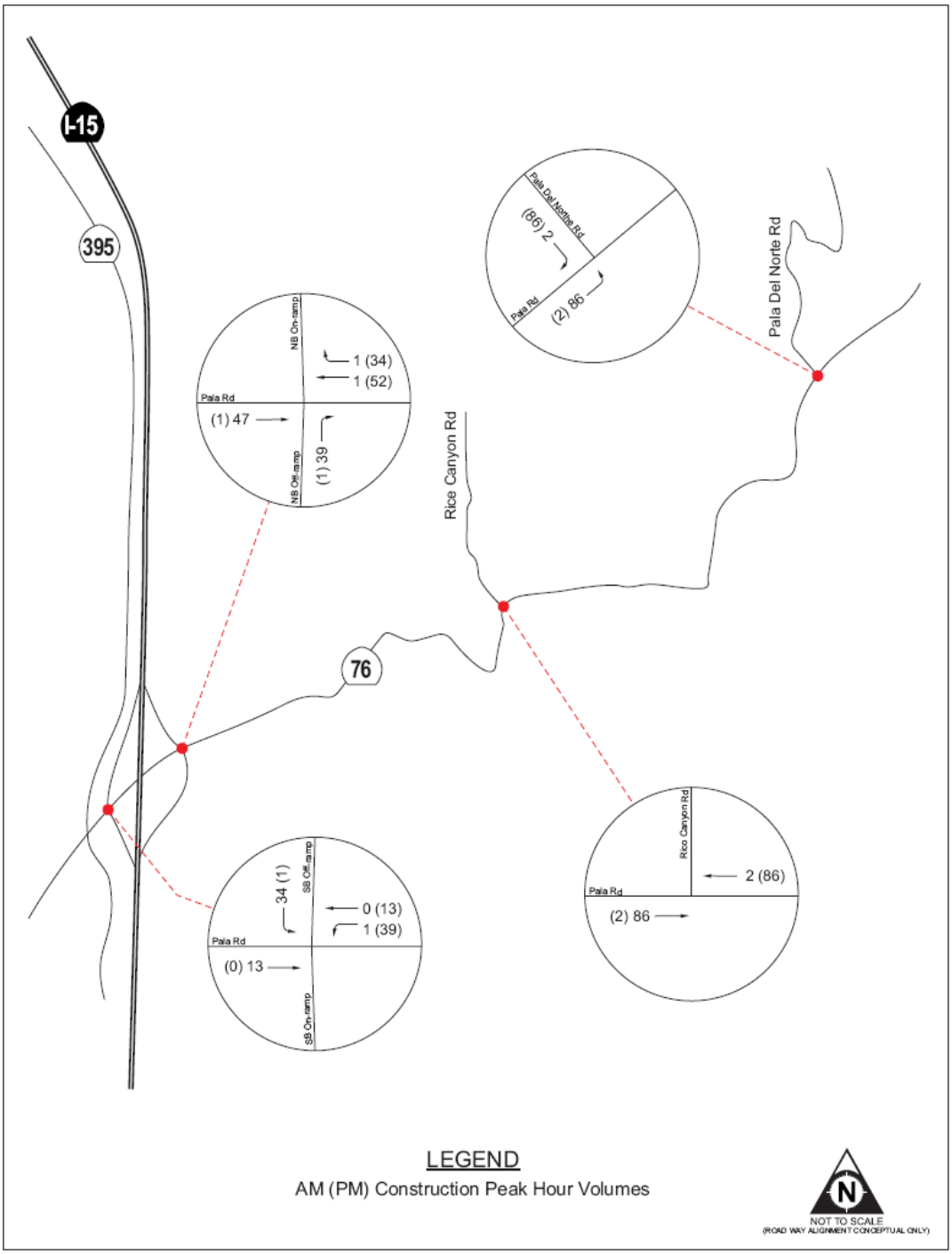
Figure 6.11-4 – Distribution of Construction and Operation Trips



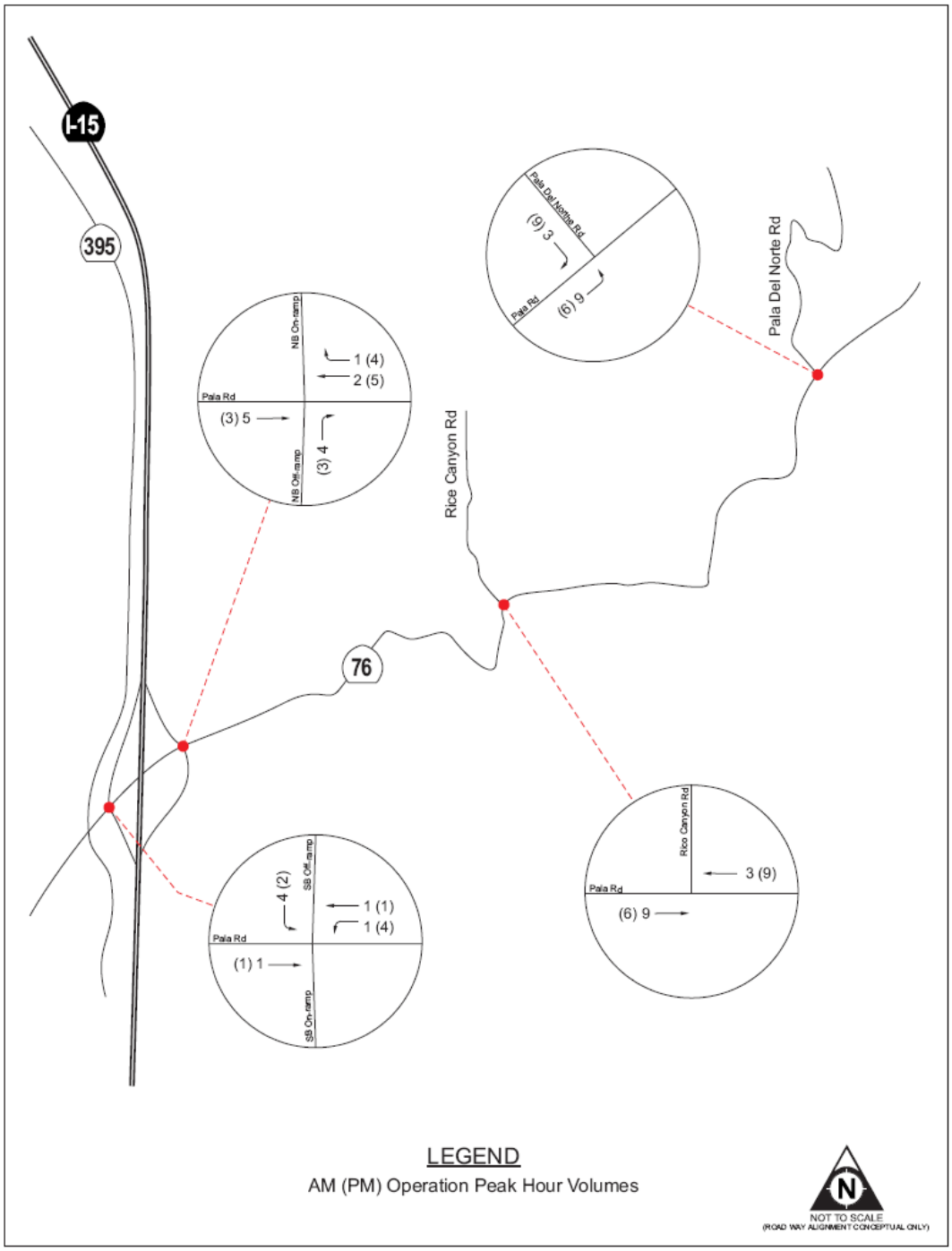
TRC	Project: **Orange Grove Project**
	Map Source: TPG, 2008.

Figure 6.11-5 – Trip Volumes at Key Intersections – With Project (Construction)



TRC	Project: **Orange Grove Project**
	Map Source: TPG, 2008.

Figure 6.11-6 – Trip Volumes at Key Intersections – With Project (Operation)



TRC	Project: **Orange Grove Project**
	Map Source: TPG, 2008