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August 16, 2011

VIA EMAIL

Mr. Eric Solorio, Siting Project Manager
California Energy Commission
1516 Ninth Street
Sacramento, California 95814

Re: Pio Pico Energy Center Project (11-AFC-01)
Supplemental Responses to Data Requests Related to Traffic and Transportation

Dear Mr. Solorio:

On behalf of Pio Pico Energy Center, LLC, please find enclosed for docketing supplemental responses to data requests related to the Traffic and Transportation resource topic. Specifically, the enclosed information responds to the August 1, 2011 requests of California Energy Commission Staff member Kristin Ford.

Should you have any questions or concerns regarding this information, please contact me.

Respectfully submitted,

Melissa A. Foster

MAF:kjh
Enclosures
cc: See Proof of Service List

PIO PICO ENERGY CENTER PROJECT
11-AFC-01

Supplemental Responses to Traffic and Transportation Data Requests
Responses to Email Correspondence from Kristin Ford, August 1, 2011

1a. First, in the AFC, on page 5.11-17, under Table 5.11-7, peak project construction trip generation estimates are stated. However, there is no description of which roads these trips are based from.

The purpose of Table 5.11-7 is to summarize and present the project construction trip generation assumptions. The trips were not based from specific roads, but were based on the Applicant's estimates of project construction traffic. The traffic model was then used to assign the Table 5.11-7 trip summaries into the traffic model network representing the traffic study area. The traffic model network is comprised of links (representing roadways), nodes (representing intersections), zones (representing trip generators such as the proposed project), and gates (representing inbound trip origins or outbound trip destinations). The "zone" interacts with the "gate" destination or origin of the trips (i.e. SR-125 North is identified as a gate destination). Based on the traffic model trip assignment and interactions between gates and zones, project added trips at the link level (roadway) or node level (intersection) are factored into the traffic impact analysis calculations resulting in Level of Service (LOS) forecast for the study roadway's or intersection's operational performance with and without the proposed project.

The project trip assignment with respect to the roadways is provided in the February 2011 AFC page 5.11-19, on Table 5.11-11, Roadway Segment LOS - Year 2013 Peak Project Construction Conditions. Table 5.11-11 presents the project construction trip generation estimates identified for the specific study roadway segments (on a daily trip basis as required by the traffic study methodology), and reports the traffic analysis modeling results for the project construction impacts.

1b. The paragraph on page 5.11-16 states project distribution is 20% to and from the north of SR-125 north of Otay Mesa Road and 80% to and from the west on Otay Mesa Road (SR-905) west of SR-125. For clarification, is the above distribution route what was used for Table 5.11-7? If so, are the roadways (Otay Mesa Road to SR 905 and Sanyo, Sanyo and Enrico Fermi, Enrico Fermi and Alta and Otay Mesa and Paseo De La Fuente) included in the 80%?

To clarify the question, is the above distribution route what was used for Table 5.11-7? We have two answers as it pertains to the context of how "used for Table 5.11-7" could be implied in the question. No, it (trip distribution) was not used for the creation or development of Table 5.11-7, but yes, it (trip distribution) was used for the assignment of trips from Table 5.11-7.

Regarding the project distribution on the aforementioned roadways (Otay Mesa Road to SR 905 and Sanyo, Sanyo and Enrico Fermi, Enrico Fermi and Alta and Otay Mesa and Paseo De La Fuente), the response is yes, these were included in the 80 percent assignment and the 20 percent assignments, as these roadways segments are located on the east side of SR-125 before the trip distributions were split coming from the project site with 20 percent assigned to SR-125 and 80 percent assigned to Otay Mesa Road to the west of SR-125.

PIO PICO ENERGY CENTER PROJECT
11-AFC-01

Supplemental Responses to Traffic and Transportation Data Requests
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2. Table 5.11-9, 5.11-11, 5.11-13, 5.11-15 does not analyze peak am and pm hour trips. Please provide me the respective information and the LOS change, if any.

The AFC traffic analysis was conducted in accordance with County of San Diego and City of San Diego requirements, which only require daily roadway segment LOS analysis and peak hour intersection analysis. The peak AM and PM hour analysis for intersections presented in Tables 5.11-4, 5.11-10, 5.11-12, 5.11-14 and 5.11-16 provide a more realistic indication of roadway performance as it provides a more comprehensive operational performance of the roadway system including the effects of the intersecting roadways. The findings from the peak intersection analysis indicate that all study intersections are forecasted to operate at acceptable LOS (i.e., LOS D or better), resulting in no significant intersection traffic impacts during both project construction and operation scenarios.

In response to this data request, peak hour roadway segment analysis was conducted and the results, including project added peak AM and PM hour trips, are summarized in the attached Table 5.11-21 (new table; refer to Attachment 1 for the associated modeling documentation).

Consistent with the results of the AM and PM peak intersection analysis conducted for the project construction and operations, the results of the requested peak hour roadway segment analysis indicate that all study roadway segments are forecasted to operate at acceptable LOS (LOS D or better), resulting in no significant roadway traffic impacts during both project construction and operation scenarios.

3. In the Data Response Traf-48, the AGL is at approximately 2500 feet. Can you explain why the AGL is so high in comparison to other analysis's I have read?

Several factors contribute to the height above ground level (AGL) at which the thermal plume velocity, under calm conditions, drops below the target of 4.2 m/s.

- Stack temperature: The exhaust temperature for simple cycle turbines is much higher than for combined cycle facilities. This results in greater plume buoyancy and higher plume velocities.
- Multiple stacks: PPEC has three stacks that are close enough to each other for the plumes to merge. Using the equations recommended by CEC, merged plumes get a significant boost to velocity (the factor for three stacks is $(3)^{.25} = 1.32$ higher than for a single stack).
- Larger plume momentum: The PPEC turbines are 100 MW each; more exhaust out a single stack means that the momentum of the exhaust plume is larger, and the plume velocity decreases more slowly with height than for a smaller turbine.

At PPEC, the maximum plume velocity for a single stack is below 4.2 m/s at 1200 ft AGL, which is also below the height at which the plumes merge. Once they merge at around 1300 ft AGL, the model kicks the combined velocity up to 5.3 m/sec. It falls once again to 4.2 m/sec at around 2500 ft.

TABLE 5.11-21
PROJECT CONSTRUCTION AND OPERATION PEAK HOUR ROADWAY SEGMENT ANALYSIS

				Year 2013 No Project Conditions				Year 2013 Plus Project Construction				Year 2014 No Project Condition				Year 2014 Project Operations			
				AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
Roadway	Segment	Lane Type	Direction	Volume	LOS	Volume	LOS	Volume	LOS	Volume	LOS	Volume	LOS	Volume	LOS	Volume	LOS	Volume	LOS
SR 125[1]	North of SR 905	2-Divided Expressway	NB	106	B	492	B	107	B	554	B	110	B	510	B	110	B	512	B
			SB	779	B	194	B	840	B	194	B	806	B	201	B	808	B	201	B
SR 905[1]	La Media Road and Piper Ranch Road	2-Divided	EB	1608	C	1747	C	1850	C	1747	C	1664	C	1810	C	1674	C	1810	C
		3-Divided	WB	1141	B	1740	B	1147	B	1987	B	1183	B	1803	B	1183	B	1813	B
Otay Mesa Road[2]	SR 905 and Sanyo Avenue	1-Undivided	EB	1042	D	261	D	1345	D	261	D	1079	D	270	D	1091	D	270	D
			WB	235		941		242		1256		244		975		244		987	
Otay Mesa Road[2]	Sanyo Avenue and Enrico Fermi Drive	1-Undivided	EB	650	C	140	B	953	D	140	D	674	C	145	B	686	C	145	B
			WB	192	B	625	C	198		934		199	B	648	C	199	B	660	C
Otay Mesa Road[2]	Enrico Fermi Drive and Alta Road	1-Undivided	EB	586	C	83	B	889	C	83	B	607	C	86	B	619	C	86	B
			WB	105	B	456	B	112		765	C	109	B	472	B	109	B	484	B
Alta Road[2]	Otay Mesa Road and Paseo De La Puente	1-Undivided	NB	586	C	83	B	889	C	83	B	607	C	86	B	619	C	86	B
			SB	105	B	456	B	112		765	C	109	B	472	B	109	B	484	B

Notes:

1 - The peak hour roadway segment Level of Service (LOS) were evaluated using the 2009 Florida Department of Transportation (FDOT) Quality/Level of Service Handbook which provide LOS lookup tables (more popularly known as "Florida Tables") for peak hour volumes by facility type consistent with analysis procedures from the Highway Capacity Manual. The Florida Tables methodology and/or its modified variants have been extensively used by California Metropolitan Planning Organizations (MPOs) for roadway segment analyses in California and is also widely used and accepted throughout the United States. The tables provides quick look-up and comparison of roadway segment performance (rated by level of service (LOS)) based on the extensive data collection, calibration and testing conducted by Florida DOT and its consistency with the analysis procedures from the Highway Capacity Manual 2000.Manual.

2- Two-lane undivided roadways with volumes exceeding 880 directional volume per lane were out of the tabulated (Table 7) range and were calculated using Highway Capacity Software (HCS) Two-way Two-Lane Highway Segment analysis.

3 - Roadway volume on Alta Road north of Otay Mesa Road is the sarne as Otay Mesa Road between Enrico Fermi Drive and Alta Road.

Kristin Ford <KFord@energy.state.ca.us>
08/01/2011 02:08 PM

To <Noel_Casil@URSCorp.com>
cc
bcc
Subject Additional Pio Pico Questions

History: This message has been replied to.

Dear Noel,

I have a handful of questions regarding the Traffic section in the AFC and the respective data responses. Please feel free to call me if you need further clarification from me.

1. First, in the AFC, on page 5.1-17, under Table 5.11-7, peak project construction trip generation estimates are stated. However, there is no description of which roads these trips are based from. The paragraph on page 5.11-16 states project distribution is 20% to and from the north of SR-125 north of Otay Mesa Road and 80% to and from the west on Otay Mesa Road (SR-905) west of SR-125. For clarification, is the above distribution route what was used for Table 5.11-7? If so, are the roadways (Otay Mesa Road to SR 905 and Sanyo, Sanyo and Enrico Fermi, Enrico Fermi and Alta and Otay Mesa and Paseo De La Puente) included in the 80%?

2. Table 5.11-9, 5.11-11,5.11-13, 5.11-15 doe not analyze peak am and pm hour trips. Please provide me the respective information and the LOS change, if any.

3. In the Data Response Traf-48, the AGL is at approximately 2500 feet. Can you explain why the AGL is so high in comparison to other analysis's I have read?

Thanks,

Kristin

Kristin Ford
Environmental Planner
p 916.654.4658
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California Energy Commission
Siting, Transmission and Environmental Protection Division
1516 9th Street, MS 40
Sacramento, CA 95814

ATTACHMENT 1

Phone: Fax:
E-Mail:

Two-Way Two-Lane Highway Segment Analysis

Analyst	NVC
Agency/Co.	SD County
Date Performed	8/10/2011
Analysis Time Period	AM
Highway	Otay Mesa Road
From/To	SR 905 to Sanyo
Jurisdiction	SD County
Analysis Year	2013 No Project
Description	Pio Pico Energy Center

Input Data

Highway class	Class 1				
Shoulder width	6.0	ft	Peak-hour factor, PHF	0.88	
Lane width	12.0	ft	% Trucks and buses	14	%
Segment length	0.0	mi	% Recreational vehicles	4	%
Terrain type	Level		% No-passing zones	0	%
Grade: Length		mi	Access points/mi	8	/mi
Up/down		%			

Two-way hourly volume, V veh/h
Directional split 82 / 18 %

Average Travel Speed

Grade adjustment factor, fG	1.00	
PCE for trucks, ET	1.1	
PCE for RVs, ER	1.0	
Heavy-vehicle adjustment factor,	0.986	
Two-way flow rate, (note-1) vp	1524	pc/h
Highest directional split proportion (note-2)	1250	pc/h
Free-Flow Speed from Field Measurement:		
Field measured speed, SFM	-	mi/h
Observed volume, Vf	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed, BFFS	60.0	mi/h
Adj. for lane and shoulder width, fLS	0.0	mi/h
Adj. for access points, fA	2.0	mi/h
Free-flow speed, FFS	58.0	mi/h
Adjustment for no-passing zones, fnp	0.0	mi/h
Average travel speed, ATS	46.2	mi/h

Percent Time-Spent-Following

Grade adjustment factor, fG	1.00	
PCE for trucks, ET	1.0	
PCE for RVs, ER	1.0	
Heavy-vehicle adjustment factor, fHV	1.000	
Two-way flow rate,(note-1) vp	1503	pc/h
Highest directional split proportion (note-2)	1232	
Base percent time-spent-following, BPTSF	73.3	%
Adj.for directional distribution and no-passing zones, fd/np	0.0	
Percent time-spent-following, PTSF	73.3	%

Level of Service and Other Performance Measures

Level of service, LOS	D	
Volume to capacity ratio, v/c	0.48	
Peak 15-min vehicle-miles of travel, VMT15	0	veh-mi
Peak-hour vehicle-miles of travel, VMT60	0	veh-mi
Peak 15-min total travel time, TT15	0.0	veh-h

Notes:
1. If vp >= 3200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split vp >= 1700 pc/h, terminate analysis-the LOS is F.

Phone: Fax:
E-Mail:

Two-Way Two-Lane Highway Segment Analysis

Analyst	NVC
Agency/Co.	SD County
Date Performed	8/10/2011
Analysis Time Period	PM
Highway	Otay Mesa Road
From/To	SR 905 to Sanyo
Jurisdiction	SD County
Analysis Year	2013 No Project
Description	Pio Pico Energy Center

Input Data

Highway class	Class 1				
Shoulder width	6.0	ft	Peak-hour factor, PHF	0.88	
Lane width	12.0	ft	% Trucks and buses	14	%
Segment length	0.0	mi	% Recreational vehicles	4	%
Terrain type	Level		% No-passing zones	0	%
Grade: Length		mi	Access points/mi	8	/mi
Up/down		%			

Two-way hourly volume, V	1202	veh/h	
Directional split	79 / 21	%	

Average Travel Speed

Grade adjustment factor, fG	1.00	
PCE for trucks, ET	1.1	
PCE for RVs, ER	1.0	
Heavy-vehicle adjustment factor,	0.986	
Two-way flow rate,(note-1) vp	1385	pc/h
Highest directional split proportion (note-2)	1094	pc/h
Free-Flow Speed from Field Measurement:		
Field measured speed, SFM	-	mi/h
Observed volume, Vf	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed, BFFS	60.0	mi/h
Adj. for lane and shoulder width, fLS	0.0	mi/h
Adj. for access points, fA	2.0	mi/h
Free-flow speed, FFS	58.0	mi/h
Adjustment for no-passing zones, fnp	0.0	mi/h
Average travel speed, ATS	47.3	mi/h

Percent Time-Spent-Following

Grade adjustment factor, fG	1.00	
PCE for trucks, ET	1.0	
PCE for RVs, ER	1.0	
Heavy-vehicle adjustment factor, fHV	1.000	
Two-way flow rate,(note-1) vp	1366	pc/h
Highest directional split proportion (note-2)	1079	
Base percent time-spent-following, BPTSF	69.9	%
Adj.for directional distribution and no-passing zones, fd/np	0.0	
Percent time-spent-following, PTSF	69.9	%

Level of Service and Other Performance Measures

Level of service, LOS	D	
Volume to capacity ratio, v/c	0.43	
Peak 15-min vehicle-miles of travel, VMT15	0	veh-mi
Peak-hour vehicle-miles of travel, VMT60	0	veh-mi
Peak 15-min total travel time, TT15	0.0	veh-h

Notes:
1. If vp >= 3200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split vp >= 1700 pc/h, terminate analysis-the LOS is F.

Phone: Fax:
E-Mail:

Two-Way Two-Lane Highway Segment Analysis

Analyst	NVC
Agency/Co.	SD County
Date Performed	8/10/2011
Analysis Time Period	AM
Highway	Otay Mesa Road
From/To	SR 905 tc Sanyo
Jurisdiction	SD County
Analysis Year	2013 with Project
Description	Pio Pico Energy Center

Input Data

Highway class	Class 1				
Shoulder width	6.0	ft	Peak-hour factor, PHF	0.88	
Lane width	12.0	ft	% Trucks and buses	14	%
Segment length	0.0	mi	% Recreational vehicles	4	%
Terrain type	Level		% No-passing zones	0	%
Grade: Length		mi	Access points/mi	8	/mi
Up/down		%			

Two-way hourly volume, V	1587	veh/h	
Directional split	85 / 15	%	

Average Travel Speed

Grade adjustment factor, fG	1.00	
PCE for trucks, ET	1.1	
PCE for RVs, ER	1.0	
Heavy-vehicle adjustment factor,	0.986	
Two-way flow rate, (note-1) vp	1829	pc/h
Highest directional split proportion (note-2)	1555	pc/h
Free-Flow Speed from Field Measurement:		
Field measured speed, SFM	-	mi/h
Observed volume, Vf	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed, BFFS	60.0	mi/h
Adj. for lane and shoulder width, fLS	0.0	mi/h
Adj. for access points, fA	2.0	mi/h
Free-flow speed, FFS	58.0	mi/h
Adjustment for no-passing zones, fnp	0.0	mi/h
Average travel speed, ATS	43.8	mi/h

Percent Time-Spent-Following

Grade adjustment factor, fG	1.00	
PCE for trucks, ET	1.0	
PCE for RVs, ER	1.0	
Heavy-vehicle adjustment factor, fHV	1.000	
Two-way flow rate,(note-1) vp	1803	pc/h
Highest directional split proportion (note-2)	1533	
Base percent time-spent-following, BPTSF	79.5	%
Adj.for directional distribution and no-passing zones, fd/np	0.0	
Percent time-spent-following, PTSF	79.5	%

Level of Service and Other Performance Measures

Level of service, LOS	D	
Volume to capacity ratio, v/c	0.57	
Peak 15-min vehicle-miles of travel, VMT15	0	veh-mi
Peak-hour vehicle-miles of travel, VMT60	0	veh-mi
Peak 15-min total travel time, TT15	0.0	veh-h

Notes:
1. If vp >= 3200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split vp >= 1700 pc/h, terminate analysis-the LOS is F.

Phone: Fax:
E-Mail:

Two-Way Two-Lane Highway Segment Analysis

Analyst	NVC
Agency/Co.	SD County
Date Performed	8/10/2011
Analysis Time Period	PM
Highway	Otay Mesa Road
From/To	SR 905 to Sanyo
Jurisdiction	SD County
Analysis Year	2013 with Project
Description	Pio Pico Energy Center

Input Data

Highway class	Class 1				
Shoulder width	6.0	ft	Peak-hour factor, PHF	0.88	
Lane width	12.0	ft	% Trucks and buses	14	%
Segment length	0.0	mi	% Recreational vehicles	4	%
Terrain type	Level		% No-passing zones	0	%
Grade: Length		mi	Access points/mi	8	/mi
Up/down		%			

Two-way hourly volume, V 1517 veh/h
Directional split 83 / 17 %

Average Travel Speed

Grade adjustment factor, fG	1.00	
PCE for trucks, ET	1.1	
PCE for RVs, ER	1.0	
Heavy-vehicle adjustment factor,	0.986	
Two-way flow rate, (note-1) vp	1748	pc/h
Highest directional split proportion (note-2)	1451	pc/h
Free-Flow Speed from Field Measurement:		
Field measured speed, SFM	-	mi/h
Observed volume, Vf	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed, BFFS	60.0	mi/h
Adj. for lane and shoulder width, fLS	0.0	mi/h
Adj. for access points, fA	2.0	mi/h
Free-flow speed, FFS	58.0	mi/h
Adjustment for no-passing zones, fnp	0.0	mi/h
Average travel speed, ATS	44.4	mi/h

Percent Time-Spent-Following

Grade adjustment factor, fG	1.00	
PCE for trucks, ET	1.0	
PCE for RVs, ER	1.0	
Heavy-vehicle adjustment factor, fHV	1.000	
Two-way flow rate,(note-1) vp	1724	pc/h
Highest directional split proportion (note-2)	1431	
Base percent time-spent-following, BPTSF	78.0	%
Adj.for directional distribution and no-passing zones, fd/np	0.0	
Percent time-spent-following, PTSF	78.0	%

Level of Service and Other Performance Measures

Level of service, LOS	D	
Volume to capacity ratio, v/c	0.55	
Peak 15-min vehicle-miles of travel, VMT15	0	veh-mi
Peak-hour vehicle-miles of travel, VMT60	0	veh-mi
Peak 15-min total travel time, TT15	0.0	veh-h

Notes:
1. If vp >= 3200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split vp >= 1700 pc/h, terminate analysis-the LOS is F.

Phone: Fax:
E-Mail:

Two-Way Two-Lane Highway Segment Analysis

Analyst	NVC
Agency/Co.	SD County
Date Performed	8/10/2011
Analysis Time Period	AM
Highway	Otay Mesa Road
From/To	Sanyo to Enrico Fermi
Jurisdiction	SD County
Analysis Year	2013 with Project
Description	Pio Pico Energy Center

Input Data

Highway class	Class 1				
Shoulder width	6.0	ft	Peak-hour factor, PHF	0.88	
Lane width	12.0	ft	% Trucks and buses	14	%
Segment length	0.0	mi	% Recreational vehicles	4	%
Terrain type	Level		% No-passing zones	0	%
Grade: Length		mi	Access points/mi	8	/mi
Up/down		%			

Two-way hourly volume, V 1151 veh/h
Directional split 83 / 17 %

Average Travel Speed

Grade adjustment factor, fG	1.00	
PCE for trucks, ET	1.1	
PCE for RVs, ER	1.0	
Heavy-vehicle adjustment factor,	0.986	
Two-way flow rate, (note-1) vp	1326	pc/h
Highest directional split proportion (note-2)	1101	pc/h
Free-Flow Speed from Field Measurement:		
Field measured speed, SFM	-	mi/h
Observed volume, Vf	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed, BFFS	60.0	mi/h
Adj. for lane and shoulder width, fLS	0.0	mi/h
Adj. for access points, fA	2.0	mi/h
Free-flow speed, FFS	58.0	mi/h
Adjustment for no-passing zones, fnp	0.0	mi/h
Average travel speed, ATS	47.7	mi/h

Percent Time-Spent-Following

Grade adjustment factor, fG	1.00	
PCE for trucks, ET	1.0	
PCE for RVs, ER	1.0	
Heavy-vehicle adjustment factor, fHV	1.000	
Two-way flow rate,(note-1) vp	1308	pc/h
Highest directional split proportion (note-2)	1086	
Base percent time-spent-following, BPTSF	68.3	%
Adj.for directional distribution and no-passing zones, fd/np	0.0	
Percent time-spent-following, PTSF	68.3	%

Level of Service and Other Performance Measures

Level of service, LOS	D	
Volume to capacity ratio, v/c	0.41	
Peak 15-min vehicle-miles of travel, VMT15	0	veh-mi
Peak-hour vehicle-miles of travel, VMT60	0	veh-mi
Peak 15-min total travel time, TT15	0.0	veh-h

Notes:
1. If vp >= 3200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split vp >= 1700 pc/h, terminate analysis-the LOS is F.

HCS+: Two-Lane Highways Release 5.21

Phone: Fax:
E-Mail:

Two-Way Two-Lane Highway Segment Analysis

Analyst	NVC
Agency/Co.	SD County
Date Performed	8/10/2011
Analysis Time Period	PM
Highway	Otay Mesa Road
From/To	Sanyo to Enrico Fermi
Jurisdiction	SD County
Analysis Year	2013 with Project
Description	Pio Pico Energy Center

Input Data

Highway class	Class 1				
Shoulder width	6.0	ft	Peak-hour factor, PHF	0.88	
Lane width	12.0	ft	% Trucks and buses	14	%
Segment length	0.0	mi	% Recreational vehicles	4	%
Terrain type	Level		% No-passing zones	0	%
Grade: Length		mi	Access points/mi	8	/mi
Up/down		%			

Two-way hourly volume, V	1074	veh/h	
Directional split	87 / 13	%	

Average Travel Speed

Grade adjustment factor, fG	1.00	
PCE for trucks, ET	1.1	
PCE for RVs, ER	1.0	
Heavy-vehicle adjustment factor,	0.986	
Two-way flow rate,(note-1) vp	1238	pc/h
Highest directional split proportion (note-2)	1077	pc/h
Free-Flow Speed from Field Measurement:		
Field measured speed, SFM	-	mi/h
Observed volume, Vf	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed, BFFS	60.0	mi/h
Adj. for lane and shoulder width, fLS	0.0	mi/h
Adj. for access points, fA	2.0	mi/h
Free-flow speed, FFS	58.0	mi/h
Adjustment for no-passing zones, fnp	0.0	mi/h
Average travel speed, ATS	48.4	mi/h

Percent Time-Spent-Following

Grade adjustment factor, fG	1.00	
PCE for trucks, ET	1.0	
PCE for RVs, ER	1.0	
Heavy-vehicle adjustment factor, fHV	1.000	
Two-way flow rate,(note-1) vp	1220	pc/h
Highest directional split proportion (note-2)	1061	
Base percent time-spent-following, BPTSF	65.8	%
Adj.for directional distribution and no-passing zones, fd/np	0.0	
Percent time-spent-following, PTSF	65.8	%

Level of Service and Other Performance Measures

Level of service, LOS	D	
Volume to capacity ratio, v/c	0.39	
Peak 15-min vehicle-miles of travel, VMT15	0	veh-mi
Peak-hour vehicle-miles of travel, VMT60	0	veh-mi
Peak 15-min total travel time, TT15	0.0	veh-h

Notes:
1. If vp >= 3200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split vp >= 1700 pc/h, terminate analysis-the LOS is F.

HCS+: Two-Lane Highways Release 5.21

Phone: Fax:
E-Mail:

Two-Way Two-Lane Highway Segment Analysis

Analyst	NVC
Agency/Co.	SD County
Date Performed	8/10/2011
Analysis Time Period	AM
Highway	Otay Mesa Road
From/To	Enrico Fermi to Alta Road
Jurisdiction	SD County
Analysis Year	2013 with Project
Description	Pio Pico Energy Center

Input Data

Highway class	Class 1				
Shoulder width	6.0	ft	Peak-hour factor, PHF	0.88	
Lane width	12.0	ft	% Trucks and buses	14	%
Segment length	0.0	mi	% Recreational vehicles	4	%
Terrain type	Level		% No-passing zones	0	%
Grade: Length		mi	Access points/mi	8	/mi
Up/down		%			

Two-way hourly volume, V 1001 veh/h
Directional split 89 / 11 %

Average Travel Speed

Grade adjustment factor, fG	1.00	
PCE for trucks, ET	1.2	
PCE for RVs, ER	1.0	
Heavy-vehicle adjustment factor,	0.973	
Two-way flow rate, (note-1) vp	1169	pc/h
Highest directional split proportion (note-2)	1040	pc/h
Free-Flow Speed from Field Measurement:		
Field measured speed, SFM	-	mi/h
Observed volume, Vf	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed, BFFS	60.0	mi/h
Adj. for lane and shoulder width, fLS	0.0	mi/h
Adj. for access points, fA	2.0	mi/h
Free-flow speed, FFS	58.0	mi/h
Adjustment for no-passing zones, fnp	0.0	mi/h
Average travel speed, ATS	48.9	mi/h

Percent Time-Spent-Following

Grade adjustment factor, fG	1.00	
PCE for trucks, ET	1.1	
PCE for RVs, ER	1.0	
Heavy-vehicle adjustment factor, fHV	0.986	
Two-way flow rate,(note-1) vp	1153	pc/h
Highest directional split proportion (note-2)	1026	
Base percent time-spent-following, BPTSF	63.7	%
Adj.for directional distribution and no-passing zones, fd/np	0.0	
Percent time-spent-following, PTSF	63.7	%

Level of Service and Other Performance Measures

Level of service, LOS	C	
Volume to capacity ratio, v/c	0.37	
Peak 15-min vehicle-miles of travel, VMT15	0	veh-mi
Peak-hour vehicle-miles of travel, VMT60	0	veh-mi
Peak 15-min total travel time, TT15	0.0	veh-h

Notes:
1. If vp >= 3200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split vp >= 1700 pc/h, terminate analysis-the LOS is F.

Phone: Fax:
E-Mail:

Two-Way Two-Lane Highway Segment Analysis

Analyst	NVC
Agency/Co.	SD County
Date Performed	8/10/2011
Analysis Time Period	AM
Highway	Otay Mesa Road
From/To	SR 905 to Sanyo
Jurisdiction	SD County
Analysis Year	2014 No Project
Description	Pio Pico Energy Center

Input Data

Highway class	Class 1				
Shoulder width	6.0	ft	Peak-hour factor, PHF	0.88	
Lane width	12.0	ft	% Trucks and buses	14	%
Segment length	0.0	mi	% Recreational vehicles	4	%
Terrain type	Level		% No-passing zones	0	%
Grade: Length		mi	Access points/mi	8	/mi
Up/down		%			

Two-way hourly volume, V	1323	veh/h	
Directional split	82 / 18	%	

Average Travel Speed

Grade adjustment factor, fG	1.00	
PCE for trucks, ET	1.1	
PCE for RVs, ER	1.0	
Heavy-vehicle adjustment factor,	0.986	
Two-way flow rate,(note-1) vp	1524	pc/h
Highest directional split proportion (note-2)	1250	pc/h
Free-Flow Speed from Field Measurement:		
Field measured speed, SFM	-	mi/h
Observed volume, Vf	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed, BFFS	60.0	mi/h
Adj. for lane and shoulder width, fLS	0.0	mi/h
Adj. for access points, fA	2.0	mi/h
Free-flow speed, FFS	58.0	mi/h
Adjustment for no-passing zones, fnp	0.0	mi/h
Average travel speed, ATS	46.2	mi/h

Percent Time-Spent-Following

Grade adjustment factor, fG	1.00	
PCE for trucks, ET	1.0	
PCE for RVs, ER	1.0	
Heavy-vehicle adjustment factor, fHV	1.000	
Two-way flow rate,(note-1) vp	1503	pc/h
Highest directional split proportion (note-2)	1232	
Base percent time-spent-following, BPTSF	73.3	%
Adj.for directional distribution and no-passing zones, fd/np	0.0	
Percent time-spent-following, PTSF	73.3	%

Level of Service and Other Performance Measures

Level of service, LOS	D	
Volume to capacity ratio, v/c	0.48	
Peak 15-min vehicle-miles of travel, VMT15	0	veh-mi
Peak-hour vehicle-miles of travel, VMT60	0	veh-mi
Peak 15-min total travel time, TT15	0.0	veh-h

Notes:
1. If vp >= 3200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split vp >= 1700 pc/h, terminate analysis-the LOS is F.

Phone: Fax:
E-Mail:

Two-Way Two-Lane Highway Segment Analysis

Analyst	NVC
Agency/Co.	SD County
Date Performed	8/10/2011
Analysis Time Period	PM
Highway	Otay Mesa Road
From/To	SR 905 to Sanyo
Jurisdiction	SD County
Analysis Year	2014 No Project
Description	Pio Pico Energy Center

Input Data

Highway class	Class 1				
Shoulder width	6.0	ft	Peak-hour factor, PHF	0.88	
Lane width	12.0	ft	% Trucks and buses	14	%
Segment length	0.0	mi	% Recreational vehicles	4	%
Terrain type	Level		% No-passing zones	0	%
Grade: Length		mi	Access points/mi	8	/mi
Up/down		%			

Two-way hourly volume, V 1245 veh/h
Directional split 78 / 22 %

Average Travel Speed

Grade adjustment factor, fG	1.00	
PCE for trucks, ET	1.1	
PCE for RVs, ER	1.0	
Heavy-vehicle adjustment factor,	0.986	
Two-way flow rate, (note-1) vp	1435	pc/h
Highest directional split proportion (note-2)	1119	pc/h
Free-Flow Speed from Field Measurement:		
Field measured speed, SFM	-	mi/h
Observed volume, Vf	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed, BFFS	60.0	mi/h
Adj. for lane and shoulder width, fLS	0.0	mi/h
Adj. for access points, fA	2.0	mi/h
Free-flow speed, FFS	58.0	mi/h
Adjustment for no-passing zones, fnp	0.0	mi/h
Average travel speed, ATS	46.9	mi/h

Percent Time-Spent-Following

Grade adjustment factor, fG	1.00	
PCE for trucks, ET	1.0	
PCE for RVs, ER	1.0	
Heavy-vehicle adjustment factor, fHV	1.000	
Two-way flow rate,(note-1) vp	1415	pc/h
Highest directional split proportion (note-2)	1104	
Base percent time-spent-following, BPTSF	71.2	%
Adj.for directional distribution and no-passing zones, fd/np	0.0	
Percent time-spent-following, PTSF	71.2	%

Level of Service and Other Performance Measures

Level of service, LOS	D	
Volume to capacity ratio, v/c	0.45	
Peak 15-min vehicle-miles of travel, VMT15	0	veh-mi
Peak-hour vehicle-miles of travel, VMT60	0	veh-mi
Peak 15-min total travel time, TT15	0.0	veh-h

Notes:
1. If vp >= 3200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split vp >= 1700 pc/h, terminate analysis-the LOS is F.

Phone: Fax:
E-Mail:

Two-Way Two-Lane Highway Segment Analysis

Analyst	NVC
Agency/Co.	SD County
Date Performed	8/10/2011
Analysis Time Period	AM
Highway	Otay Mesa Road
From/To	SR 905 to Sanyo
Jurisdiction	SD County
Analysis Year	2014 with Project
Description	Pio Pico Energy Center

Input Data

Highway class	Class 1				
Shoulder width	6.0	ft	Peak-hour factor, PHF	0.88	
Lane width	12.0	ft	% Trucks and buses	14	%
Segment length	0.0	mi	% Recreational vehicles	4	%
Terrain type	Level		% No-passing zones	0	%
Grade: Length		mi	Access points/mi	8	/mi
Up/down		%			

Two-way hourly volume, V 1335 veh/h
Directional split 82 / 18 %

Average Travel Speed

Grade adjustment factor, fG	1.00	
PCE for trucks, ET	1.1	
PCE for RVs, ER	1.0	
Heavy-vehicle adjustment factor,	0.986	
Two-way flow rate, (note-1) vp	1538	pc/h
Highest directional split proportion (note-2)	1261	pc/h
Free-Flow Speed from Field Measurement:		
Field measured speed, SFM	-	mi/h
Observed volume, Vf	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed, BFFS	60.0	mi/h
Adj. for lane and shoulder width, fLS	0.0	mi/h
Adj. for access points, fA	2.0	mi/h
Free-flow speed, FFS	58.0	mi/h
Adjustment for no-passing zones, fnp	0.0	mi/h
Average travel speed, ATS	46.1	mi/h

Percent Time-Spent-Following

Grade adjustment factor, fG	1.00	
PCE for trucks, ET	1.0	
PCE for RVs, ER	1.0	
Heavy-vehicle adjustment factor, fHV	1.000	
Two-way flow rate,(note-1) vp	1517	pc/h
Highest directional split proportion (note-2)	1244	
Base percent time-spent-following, BPTSF	73.6	%
Adj.for directional distribution and no-passing zones, fd/np	0.0	
Percent time-spent-following, PTSF	73.6	%

Level of Service and Other Performance Measures

Level of service, LOS	D	
Volume to capacity ratio, v/c	0.48	
Peak 15-min vehicle-miles of travel, VMT15	0	veh-mi
Peak-hour vehicle-miles of travel, VMT60	0	veh-mi
Peak 15-min total travel time, TT15	0.0	veh-h

Notes:
1. If vp >= 3200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split vp >= 1700 pc/h, terminate analysis-the LOS is F.

Phone: Fax:
E-Mail:

Two-Way Two-Lane Highway Segment Analysis

Analyst	NVC
Agency/Co.	SD County
Date Performed	8/10/2011
Analysis Time Period	PM
Highway	Otay Mesa Road
From/To	SR 905 to Sanyo
Jurisdiction	SD County
Analysis Year	2014 with Project
Description	Pio Pico Energy Center

Input Data

Highway class	Class 1				
Shoulder width	6.0	ft	Peak-hour factor, PHF	0.88	
Lane width	12.0	ft	% Trucks and buses	14	%
Segment length	0.0	mi	% Recreational vehicles	4	%
Terrain type	Level		% No-passing zones	0	%
Grade: Length		mi	Access points/mi	8	/mi
Up/down		%			

Two-way hourly volume, V 1257 veh/h
Directional split 79 / 21 %

Average Travel Speed

Grade adjustment factor, fG	1.00	
PCE for trucks, ET	1.1	
PCE for RVs, ER	1.0	
Heavy-vehicle adjustment factor,	0.986	
Two-way flow rate, (note-1) vp	1448	pc/h
Highest directional split proportion (note-2)	1144	pc/h
Free-Flow Speed from Field Measurement:		
Field measured speed, SFM	-	mi/h
Observed volume, Vf	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed, BFFS	60.0	mi/h
Adj. for lane and shoulder width, fLS	0.0	mi/h
Adj. for access points, fA	2.0	mi/h
Free-flow speed, FFS	58.0	mi/h
Adjustment for no-passing zones, fnp	0.0	mi/h
Average travel speed, ATS	46.8	mi/h

Percent Time-Spent-Following

Grade adjustment factor, fG	1.00	
PCE for trucks, ET	1.0	
PCE for RVs, ER	1.0	
Heavy-vehicle adjustment factor, fHV	1.000	
Two-way flow rate,(note-1) vp	1428	pc/h
Highest directional split proportion (note-2)	1128	
Base percent time-spent-following, BPTSF	71.5	%
Adj.for directional distribution and no-passing zones, fd/np	0.0	
Percent time-spent-following, PTSF	71.5	%

Level of Service and Other Performance Measures

Level of service, LOS	D	
Volume to capacity ratio, v/c	0.45	
Peak 15-min vehicle-miles of travel, VMT15	0	veh-mi
Peak-hour vehicle-miles of travel, VMT60	0	veh-mi
Peak 15-min total travel time, TT15	0.0	veh-h

Notes:
1. If vp >= 3200 pc/h, terminate analysis-the LOS is F.
2. If highest directional split vp >= 1700 pc/h, terminate analysis-the LOS is F.

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 *PIO PICO ENERGY CENTER, LLC*	**Docket No. 11-AFC-1 PROOF OF SERVICE (Revised 5/12/11)**

Pio Pico Energy Center, LLC
Letter to Eric Solorio, Siting Project Manager, California Energy Commission, dated August 16, 2011 re Applicant's Supplemental Responses to Data Requests Related to Traffic and Transportation

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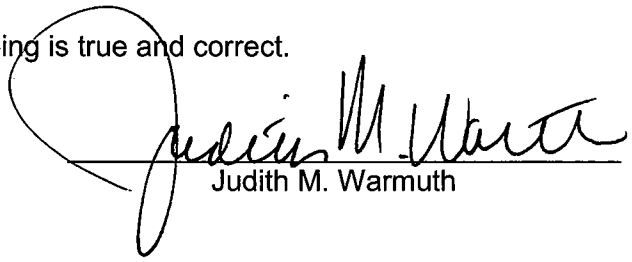
DECLARATION OF SERVICE

I, Judith M. Warmuth, declare that on August 16, 2011, I deposited copies of the aforementioned document in the United States mail at 500 Capitol Mall, Suite 1600, Sacramento, California 95814, with first-class postage thereon fully prepaid and addressed to those identified on the Proof of Service list above.

AND/OR

Transmission via electronic mail, personal delivery or first class U.S. mail were consistent with the requirements of California Code of Regulations, Title 20, sections 1209, 1209.5, and 1210. All electronic copies were sent to all those identified on the Proof of Service list above.

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



Judith M. Warmuth