

## 4.9 TRANSPORTATION AND CIRCULATION

The following information is based primarily and summarized from the East Cat Canyon Oil Field Redevelopment Project Traffic and Circulation Study completed by Associated Transportation Engineers (2014) (Appendix M). The purpose of the report was to identify and analyze the potential transportation and circulation impacts associated with the Project.

### 4.9.1 Environmental Setting

Light crude oil will be imported and produced oil will be exported by truck during Phase I operations. The East Cat Canyon Oil Field Redevelopment Project will utilize a combination of one (or more) of three local optional roadway routes (referred to as Option 1 through Option 3 for transport of these materials). Table 4.9-1 – Crude Oil Import/Export Trucking Route Options includes a summary of these options. Figure 4.9-1 - Proposed Trucking Routes to Highway 101 Detail depicts the local road network that will be utilized between the Project site and U.S. Highway 101.

**Table 4.9-1. Crude Oil Import/Export Trucking Route (Local Roadway) Options**

Route Option	Route Description	Approximate Distances/Travel Times to U.S. Highway 101
Option 1	U.S. Highway 101 to Clark Avenue to Dominion Road to Palmer Road to Cat Canyon Road for inbound trucks and the reverse for outbound.	14.6 miles 24 minutes
Option 2	U.S. Highway 101 to Betteravia Road to Telephone Road to Clark Avenue to Dominion Road to Palmer Road to Cat Canyon Road. Outbound trucks will use the same route in reverse.	13.5 miles 25 minutes
Option 3	U.S. Highway 101 to Betteravia Road to Dominion Road to Palmer Road to Cat Canyon Road. Outbound trucks will use the same route in reverse.	13.5 miles 24 minutes

Light crude sources are targeted to come from Aera’s Belridge Producing Complex (South Belridge Oil Field) located approximately 45 miles west/northwest of Bakersfield in Kern County, California (Figure 4.9-2 – Regional Roadway Map). Produced oil, which will be a mixture of light crude and produced oil, will be trucked to Aera’s Belridge Producing Complex by utilizing a portion of the returning trucks bringing light crude oil. Approximately 76 percent of the truck trips will be roundtrip (produced oil delivered to Belridge and light crude backhauled to the Project site) and 24 percent will be one-way (produced crude delivered to Belridge with no backhaul). The approximate travel distance (one-way) from the Project site to the South Belridge Oil Field is 133.8 miles.

#### 4.9.1.1 Site-Specific Setting

The following information is based primarily and summarized from the East Cat Canyon Oil Field Redevelopment Project Traffic and Circulation Study completed by Associated Transportation Engineers (2014) (Appendix M). The Traffic and Circulation Study provides information relative to existing and future traffic conditions within the Project area and included a

detailed analysis of potential traffic and circulation impacts associated with the Project. The Traffic and Circulation Study evaluated the potential traffic impacts associated with the Project under existing and future conditions using County of Santa Barbara impact criteria. The Traffic and Circulation Study also included an analysis of the Project's potential impacts to the Santa Barbara County Association of Governments Congestion Management Program facilities in the Project area.

**Regional Highways.** U.S. Highway 101, State Route 46, and State Route 33 are the primary regional highways located within the vicinity of the Project site. Table 4.9-2 – Regional Highways within the Project Area, provides a description of each of these regional roadways.

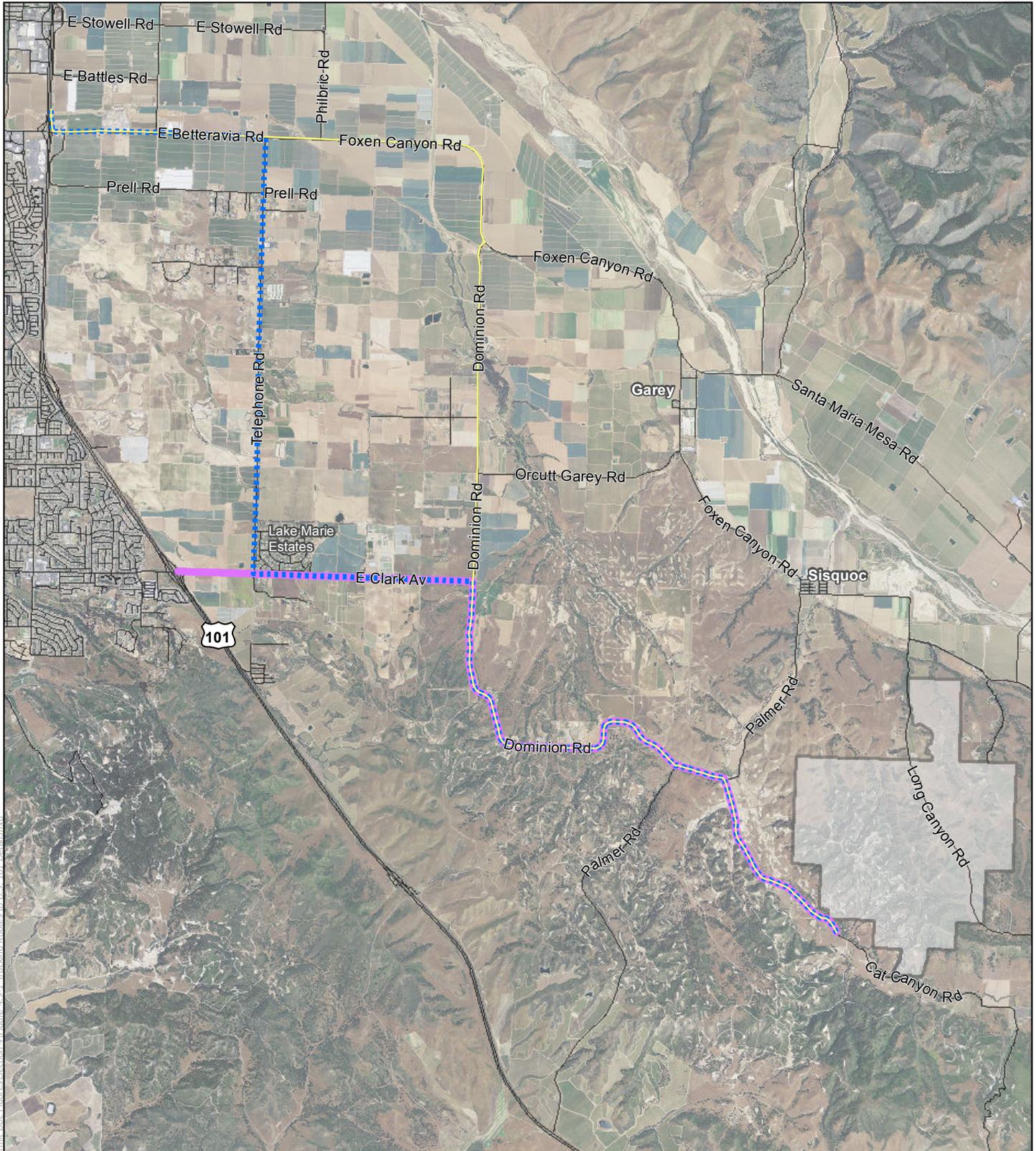
**Table 4.9-2. Regional Highways within the Project Area**

Roadway	Description
U.S. Highway 101	U.S. Highway 101 is a north-south freeway located west of the Project site that provides regional access to the Santa Maria-Orcutt area. U.S. Highway 101 contains two lanes in each direction on the segments north and south of Clark Avenue. The U.S. Highway 101/Clark Avenue interchange provides regional access to the Project site.
State Route 46	State Route 46 in the Project region begins at U.S. Highway 101 in San Luis Obispo County and continues east into Kern County.
State Route 33	State Route 33 diverges from State Route 46 in Kern County at Blackwell's Corner east of Lost Hills, and continues south to the South Belridge Oil Field.

Annual average daily traffic is the primary measure used by California Department of Transportation to evaluate traffic amounts for regional highways. Annual average daily traffic is the total volume for the year divided by 365 days. Annual Average daily traffic counts for the Project's regional roadway system are provided in Table 4.9-3 - Regional Roadway Traffic Volumes.

**Table 4.9-3. Regional Roadway Traffic Volumes**

Roadway Segment	Annual Average Daily Traffic Volume <sup>(1)</sup>
U.S. Highway 101: Clark Avenue to Santa Barbara/San Luis Obispo County Line	56,628
U.S. Highway 101: Santa Barbara/San Luis Obispo County Line to State Route 46	56,625
State Route 46: U.S. Highway 101 to San Luis Obispo/Kern County Line	16,410
State Route 46: San Luis Obispo/Kern County Line to State Route 33	6,500
State Route 33: SR 46 to South Belridge Oil Field	3,333
Source: California Department of Transportation, 2013 Traffic Volumes Book	
(1) Includes an average of the roadway segments included.	



**LEGEND:**

- Aera Energy LLC Property
- Existing County Road
- Project Option 1
- Project Option 2
- Project Option 3



Source: DPSI 2013 Survey, NAIP 2012 Image, T.J. Cross, Santa Barbara County  
 Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet  
 Notes: This map was created for informational and display purposes only.

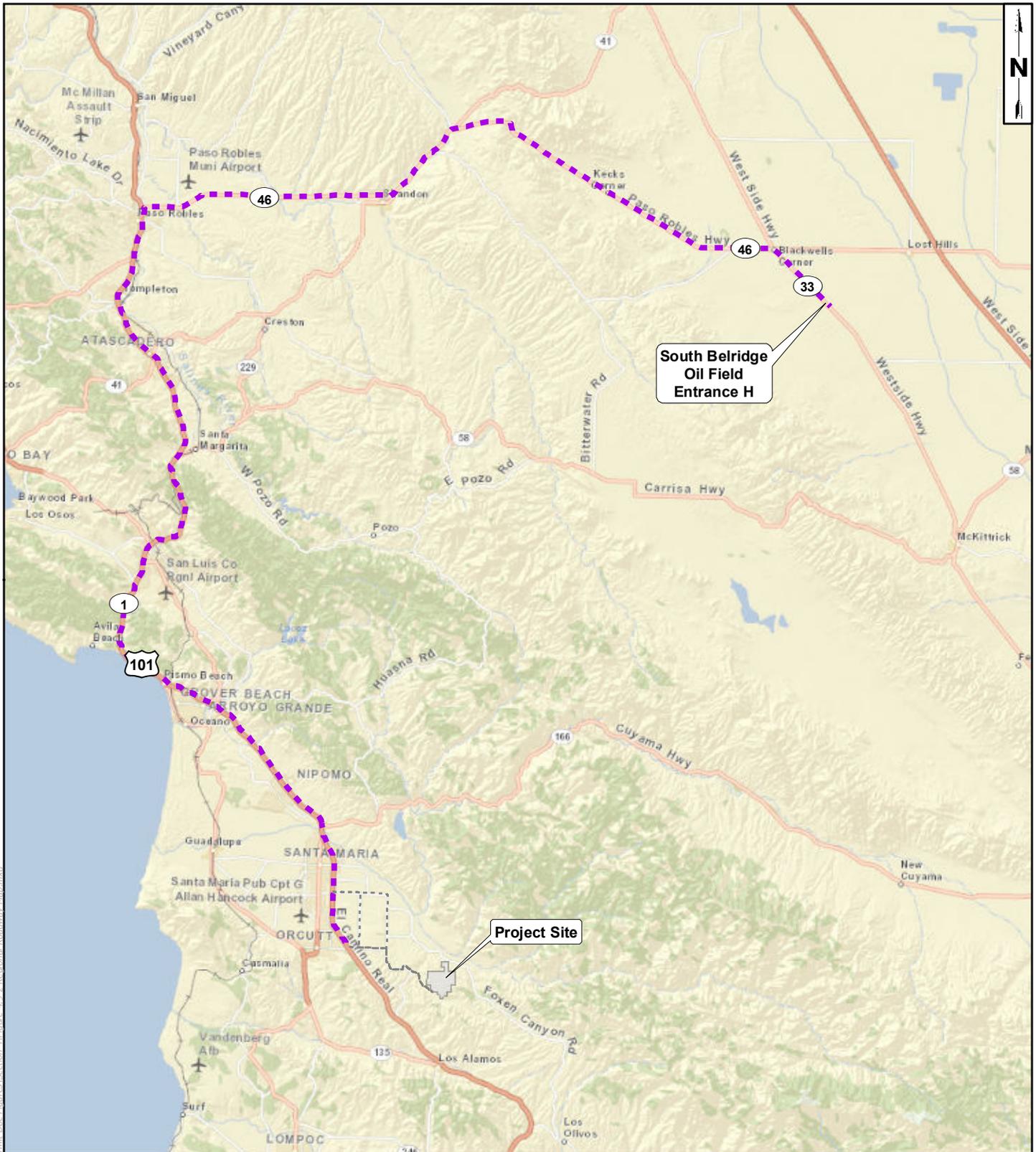
<b>PROJECT NAME:</b>	
<b>EAST CAT CANYON OIL FIELD REDEVELOPMENT PROJECT</b>	
<b>PROJECT NUMBER:</b>	<b>DATE:</b>
1002-0455	September 2014

# PROPOSED TRUCKING ROUTES TO U.S. 101 DETAIL

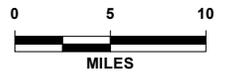
**FIGURE  
4.9-1**

Z:\Kristin\GIS Maps\Map Project\East\_Cat\_Canyon\Permit\_Doc Figures\Section 4 Figure 4.9-1 Trucking Routes to U.S. 101 Detail.mxd

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-  Aera Energy LLC Property
-  Proposed Route to Belridge
-  Proposed Route Option to U.S. Highway 101



Source: TJ Cross, ATE, ESRI Online Basemap  
 Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet  
 Notes: This map was created for informational and display purposes only

PROJECT NAME: <b>EAST CAT CANYON OIL FIELD REDEVELOPMENT PROJECT</b>	
PROJECT NUMBER: 1002-0455	DATE: March 2015

## REGIONAL ROADWAY MAP

FIGURE  
**4.9-2**

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**Local Roadways.** The primary local roadways within the Project area include Betteravia Road, Cat Canyon Road, Clark Avenue, Dominion Road, Foxen Canyon Road, Palmer Road, and Telephone Road. Table 4.9-4 Local Roadways within the Project area provides a description of each of these regional roadways.

**Table 4.9-4. Local Roadways within the Project Area**

Roadway	Description
Betteravia Road	Betteravia Road is a four lane arterial road between U.S. Highway 101 and Nicholson Avenue just east of U.S. Highway 101; and is a two lane arterial road between Nicholson Avenue and Telephone Road. The four lane segment east of U.S. Highway 101 serves a truck stop and service stations; and the two lane segment between Nicholson Avenue and Telephone Road serves mostly agricultural uses.
Cat Canyon Road	Cat Canyon Road is a two lane collector road that extends between Palmer Road on the north and U.S. Highway 101 on the south. This segment mostly serves oil facilities and ranch lands. Cat Canyon Road provides direct access to the Project site.
Clark Avenue	Clark Avenue is a two lane arterial that extends between Dominion Road on the east and U.S. Highway 101 on the west which serves primarily agricultural and residential uses. Clark Avenue also extends west of U.S. Highway 101, traversing the Orcutt Community.
Dominion Road	Dominion Road is a two lane collector road that extends between Foxen Canyon Road on the north and Palmer Road on the south. This segment mostly serves oil facilities and ranch lands.
Foxen Canyon Road	Foxen Canyon Road is a two lane collector road that extends east from Betteravia Road and then southeast where it connects to Palmer Road in Sisquoc. This segment serves agricultural uses as well as the Garey and Sisquoc communities.
Palmer Road	Palmer Road is a two lane collector road that extends between Foxen Canyon Road on the north and U.S. Highway 101 on the south. There is a short segment of Palmer Road that connects Dominion Road and Cat Canyon Road. This segment mostly serves oil facilities and ranch lands.
Telephone Road	Telephone Road is a two lane collector road between Betteravia Road and Clark Avenue. This segment mostly serves residential and agricultural uses.

Level of service designations measure operational conditions of roadways, taking into consideration such factors as volume, speed, travel time, and delay. Level of service is represented by letter grades, A through F. Level of service A through C imply traffic flows with minimal delay, level of service D and E imply conditions that approach capacity, and level of service F implies unstable flow with potential for substantial delays (Transportation Research Board, 2000). Level of service standards are used to evaluate the transportation impacts of long-term growth. In order to monitor roadway operations, cities and counties adopt standards by which the minimum acceptable roadway operating conditions are determined. For the Project area, Santa Barbara County considers level of service C as the minimum acceptable operating standard. Existing level of service ratings are provided for the Project area in Table 4.9-5 – Local Roadway Operations.

**Table 4.9-5. Local Roadway Operations (Classifications, Volumes and Level of Service)**

Roadway Segment	Classification	Average Daily Traffic Volume	Existing Level of Service (LOS)
Clark Avenue east of U.S. Highway 101	Two Lane Arterial	5,180	LOS A
Clark Avenue east of Telephone Road	Two Lane Arterial	3,000	LOS A
Dominion Road south of Clark Avenue	Two Lane Collector	1,050	LOS A
Cat Canyon Road south of Palmer Road	Two Lane Collector	850	LOS A
Betteravia Road east of U.S. Highway 101	Four Lane Arterial	10,250	LOS A
Telephone Road north of Clark Avenue	Two Lane Collector	1,400	LOS A
Betteravia Road east of Telephone Road	Two Lane Collector	3,700	LOS A
Dominion Road north of Clark Avenue	Two Lane Collector	950	LOS A
Foxen Canyon Road east of Dominion Road	Two Lane Collector	2,900	LOS A
Foxen Canyon Road south of Orcutt Garey Road	Two Lane Collector	1,750	LOS A
Palmer Road north of Cat Canyon Road	Two Lane Collector	400	LOS A

**Intersection Operations and Peak Hour Traffic Counts.** Existing level of service ratings were collected for the Project area roadways in January 2014 (Appendix M - Traffic and Circulation Study), and are summarized in Table 4.9-6 – Existing Intersection Operations.

**Table 4.9-6. Existing Intersection Operations**

Intersection	Control	a.m. Peak Hour		p.m. Peak Hour	
		Intersection Capacity Utilization Method or Delay	Level of Service (LOS)	Intersection Capacity Utilization Method or Delay	Level of Service (LOS)
U.S. Highway 101 southbound Ramps/ Clark Avenue	Stop Sign	9.7 sec.	LOS A	8.8 sec.	LOS A
U.S. Highway 101 northbound Ramps/ Clark Avenue	Stop Sign	8.5 sec.	LOS A	9.1 sec.	LOS A
Telephone Road/ Clark Avenue	Stop Sign	8.9 sec.	LOS A	9.8 sec.	LOS A
U.S. Highway 101 southbound Ramps/ Clark Avenue	Stop Sign	9.7 sec.	LOS A	8.8 sec.	LOS A
U.S. Highway 101 northbound Ramps/ Clark Avenue	Stop Sign	8.5 sec.	LOS A	9.1 sec.	LOS A

**Table 4.9-6. Existing Intersection Operations**

Intersection	Control	a.m. Peak Hour		p.m. Peak Hour	
		Intersection Capacity Utilization Method or Delay	Level of Service (LOS)	Intersection Capacity Utilization Method or Delay	Level of Service (LOS)
Telephone Road/ Clark Avenue	Stop Sign	8.9 sec.	LOS A	9.8 sec.	LOS A
Dominion Road/ Clark Avenue	Stop Sign	8.5 sec.	LOS A	8.1 sec.	LOS A
Palmer Road/ Cat Canyon Road	Stop Sign	8.6 sec.	LOS A	8.8 sec.	LOS A
U.S. Highway 101 southbound Ramps/ Betteravia Road	Signal	0.48 sec	LOS A	0.59 sec	LOS A
U.S. Highway 101 north bound Ramps/ Betteravia Road	Signal	0.37 sec	LOS A	0.61 sec	LOS B
Telephone Road/ Betteravia Road	Stop Sign	10.1 sec.	LOS B	16.4 sec.	LOS C
Dominion Road/ Foxen Canyon Road	Stop Sign	9.4 sec.	LOS A	12.7 sec.	LOS B
Foxen Canyon Road/ Santa Maria Mesa Road	Stop Sign	8.8 sec.	LOS A	10.3 sec.	LOS B
Foxen Canyon Road/ Orcutt Garey Road	Stop Sign	8.2 sec.	LOS A	8.5 sec.	LOS A
Foxen Canyon Road/ Palmer Road	Stop Sign	8.0 sec.	LOS A	8.1 sec.	LOS A

Note: Level of service based on average delay per vehicle in seconds pursuant to Highway Capacity Manual (Transportation Research Board, 2010) procedures as discussed within Appendix M - Traffic and Circulation Study Report.

## 4.9.2 Regulatory Setting

### 4.9.2.1 Federal Regulations

**U.S. Department of Transportation - Federal Highway Administration.** The U.S. Department of Transportation was established by an act of Congress in October, 1966 with the intent to ensure a fast, safe, efficient, accessible and convenient transportation system. Under the Department of Transportation, the Federal Highway Administration supports state and local governments in the design, construction, and maintenance of the Nation's highway system and various federally and tribal owned lands. Through financial and technical assistance to state and local governments, the Federal Highway Administration is responsible for ensuring the safety of America's roads and highways.

#### 4.9.2.2 State Regulations

**California Department of Transportation.** Maximum load limits for trucks and safety requirements for oversized vehicles are generally regulated by California Department of Transportation for operation on highways (cities and counties retain authority on their roads).

**California Proposition 111.** California Proposition 111 is a legislatively-referred constitutional amendment approved in 1990. Known as the Traffic Congestion Relief and Spending Limitation Act, the measure provides new revenues to be used to reduce traffic congestion by building state highways, local streets and roads, and public mass transit facilities. The proposition enacted a 55 percent increase in truck weight fees and a five-cent-per gallon increase in the State's fuel tax, with an additional one cent tax added in January over the following four years. It also changed several laws relating to transportation funding.

#### 4.9.2.3 Local Regulations

**Santa Barbara County Association of Governments.** The Santa Barbara County Association of Governments is a regional planning agency comprised of Santa Barbara County and eight incorporated cities within the county (Buellton, Carpinteria, Goleta, Guadalupe, Lompoc, Santa Barbara, Santa Maria, and Solvang). The Santa Barbara County Association of Governments distributes local, state, and federal transportation funds and acts as a forum for addressing regional and multi-jurisdictional issues.

The Santa Barbara County Association of Governments addresses transportation in the Project area under two primary documents; the 2040 Regional Transportation Plan and Sustainable Communities Strategy (2013) and the Congestion Management Program (2009). The 2040 Regional Transportation Plan and Sustainable Communities Strategy, adopted by Santa Barbara County Association of Governments in August of 2013, plans how the Santa Barbara County region should meet its transportation needs for the 30-year period from 2010 to 2040, considering existing and projected future land use patterns as well as forecast population and job growth.. The primary goals of the Regional Transportation Plan and Sustainable Communities Strategy include sustaining mobility, fostering economic development, enhancing the environment, reducing energy consumption, promoting transportation-friendly development patterns, and encouraging fair and equitable access to residents affected by socioeconomic, geographic and commercial limitations. In addition, the Regional Transportation Plan and Sustainable Communities Strategy expands on those goals to encompass transportation security.

The Congestion Management Program is required by law (California State Government Code, Section 65089), for all urban counties in the State. The Congestion Management Program for Santa Barbara County is administered with the goal to reduce or maintain current congestion levels through supply side measures, such as capital improvements, and demand side measures, such as travel demand management programs and coordinated local jurisdiction land use planning. To measure the effectiveness of the Congestion Management Program, certain key roadways are selected for regular monitoring. This designated roadway system includes all State Highways and principal arterials within the incorporated Cities and unincorporated area of Santa Barbara County. The County of Santa Barbara must maintain a certain level of service, or congestion level, on streets designated in the Congestion Management Program in order to receive funding from various Federal and State transportation and air quality funding programs (Government Code Section 65089.2). In general, level of service D or better is the Congestion

Management Program standard for roadways and intersections, but the Congestion Management Program recognizes that some facilities are currently operating at level of service E or below. Where facility traffic levels exceed this standard, the Congestion Management Program requires that agencies adopt a Deficiency Plan to improve operation of the facility. Agencies that fail to do so are out of conformity. As of the most recent Congestion Management Program, the County of Santa Barbara was in conformity because all of its facilities that have unacceptable levels of service are being mitigated through adopted Deficiency Plans. At the project level, if a proposed development is located adjacent to or near one of the Congestion Management Program designated highways and arterials, then the proposed development must also meet the Congestion Management Program specified thresholds of significance. In addition, the Congestion Management Program provides its own classification system used when determining eligibility for funding rather than the classification system contained within the County's Circulation Element. However, the Inter-modal Surface Transportation Efficiency Act, passed in 1991, established new policies that fund a variety of modes of transportation, including cars, trucks, buses, trains, bicycles, and walking. Inter-modal Surface Transportation Efficiency requires the comprehensive planning of appropriate modes of transportation for natural and built environments and air quality standards. According to Associated Transportation Engineers, only one roadway within the Project area is included within the Congestion Management Program (U.S. Highway 101). None of the intersections located within the Project area are part of the Congestion Management Program network.

**Santa Barbara County Public Works.** The Santa Barbara County Public Works Department regulates roadway encroachment through permits. Short term impacts during construction and temporary activities are regulated through review and approval of traffic control plans. Long term impacts associated with private activities and improvements on and adjacent to public roads are regulated through encroachment permits.

**Santa Barbara County Planning & Development.** The Circulation Element of the Santa Barbara County Comprehensive Plan provides specific policies related to the traffic and transportation implications of proposed development. The following policies of the Circulation Element are relevant to the Project:

- Policy B-a, Roadway Standards: A project that would contribute average daily traffic to a roadway where the estimated future volume does not exceed the policy capacity would be considered consistent with this section of the Circulation Element;
- a. Policy D-1, Intersection Standards: Projects contributing peak hour trips to intersections that operate at an estimated future level of service that is better than level of service C shall be found consistent with this section of this Element unless the project results in a change in volume/capacity ratio greater than 0.20 for an intersection operating at level of service A or 0.15 for an intersection operating at level of service B;
- b. Policy V-A, Circulation Element Policies: The roadway classifications, intersection levels of service, and capacity levels adopted in this Element shall apply to all roadways and intersections within the unincorporated area of the County, with the exception of those roadways and intersections located within an area included in an adopted community or area plan. Roadway classifications, intersection levels of

service, and capacity levels adopted as part of any community or area plan subsequent to the adoption of this Element shall supersede any standards included as part of this Element; and

- c. Policy V-E, Circulation Element Policies: A determination of project consistency with the standards and policies of this Element shall constitute a determination of project consistency with the Land Use Element's Land Use Development Policy Number 4 with regard to roadway and intersection capacity.

### 4.9.3 Impact Assessment Standards

#### 4.9.3.1 County of Santa Barbara Environmental Thresholds and Guidelines Manual

According to the County of Santa Barbara Environmental Thresholds of Significance for Traffic Impacts, a project will have a significant impact if the following were to occur:

- A. An impact is considered significant if the addition of project traffic to an intersection increases the volume to capacity ratio by the following values;

Level of Service (including Project)	Increase in Volume/Capacity Ratio (Greater Than)
A	0.20
B	0.15
C	0.10
Or the Addition Of:	
D	15 trips
E	10 trips
F	5 trips

- B. The project's access to a major road or arterial road would require access that would create an unsafe situation, a new traffic signal, or major revisions to an existing traffic signal;
- C. The project adds traffic to a roadway that has design features (e.g., narrow width, road-side ditches, sharp curves, poor sight distance, inadequate pavement structure) that would become a potential safety problem with the addition of project traffic; and/or
- D. Project traffic would utilize a substantial portion of an intersection's capacity where the intersection is currently operating at an acceptable level of service (A-C) but with cumulative traffic would degrade, or approach level of service D (volume/capacity 0.80) or lower. Substantial is defined as a minimum change of 0.03 for an intersection which would operate from 0.80 to 0.85, a change of 0.02 for an intersection which would operate greater than 0.90.

The County of Santa Barbara has developed the administrative policy of defining a significant roadway impact if a project would increase traffic volumes by more than 1.0 percent on roadways that currently exceed the acceptable capacity or are forecast to exceed the acceptable capacity under cumulative conditions.

#### 4.9.3.2 Congestion Management Program

In addition to the County requirements, the Santa Barbara County Association of Governments has developed a set of traffic impact thresholds to assess the impacts of land use decisions made by local jurisdictions on regional transportation facilities located within the Congestion Management Program roadway system. The following guidelines were developed by the Santa Barbara County Association of Governments to determine the significance of project-generated traffic impacts on the regional Congestion Management Program system:

1. For any roadway or intersection operating at level of service A or B, a decrease of two levels of service resulting from the addition of project-generated traffic;
2. For any roadway or intersection operating at level of service C, project-added traffic that results in level of service D or worse;
3. For intersections within the Congestion Management Program system with existing congestion, the following table defines significant impacts; and

Level of Service	Project-Added Peak Hour Trips
D	20
E	10
F	10

4. For freeway or highway segments with existing congestion, the following table defines significant impacts.

Level of Service	Project-Added Peak Hour Trips
D	100
E	50
F	50

#### 4.9.4 Impact Analysis

##### 4.9.4.1 Project Trip Generation

In April of 2014, Associated Transportation Engineers conducted a Traffic and Circulation Study in support of the East Cat Canyon Oil Field Redevelopment Project. The Traffic and Circulation Study provided information regarding existing and future traffic conditions within the Project area. The Traffic and Circulation Study included a detailed analysis of potential traffic and circulation impacts associated with the Project based on anticipated trip generation. This analysis focused on peak trips associated with Phase II as the “worst-case” analysis approach. Trip generation estimates were calculated by Associated Transportation Engineers based on operational information provided by Aera. Trip generation was calculated based on the number of employees and schedules, material and equipment deliveries, and crude oil import/export by tanker trucks. Based on this information, Associated Transportation Engineers determined that the Project will generate approximately 532 average daily trips per day in Phase II (Table 4.9-7 - Anticipated Project Trip Generation). Of these, 199 are tanker truck trips, 18 are non-tanker truck trips (e.g., bulk material and waste deliveries), and 315 are employee vehicle trips. This includes 10

trips (4 plus 6) occurring during the a.m. peak hour and 89 (6 plus 83) trips occurring during the p.m. peak hour. Trip generation estimates include traffic that will be generated on a day-to-day basis (operations) as well as traffic that will be generated during peak drilling phases (construction). Thus, the traffic impact analysis is worst case in nature since it combines day-to-day traffic generated operations and traffic generated during peak drilling phases. Refer to Appendix M - Traffic and Circulation Study for detail including trip generation spreadsheets.

#### 4.9.4.2 Potential Impacts to Transportation or Circulation Routes within the Project Area

**Roadway Impacts.** The Traffic and Circulation Study (Associated Transportation Engineers, 2014) (Appendix M) evaluated potential traffic impacts associated with the Project by comparing the existing and future conditions of Project area roadways against County of Santa Barbara impact criteria (Table 4.9-8 - Existing Plus Project Roadway Operations). As shown in Table 4.9-8, the existing average daily traffic volume and level of service for each roadway plus the additional trips generated by Project activities will not result in a decrease in a significant effect to level of service. Specifically, the Project area roadways are forecasted to continue to operate at level of service A, which is well within the County's level of service C threshold of significance. Therefore, the Project will not generate a significant impact to roadways.

**Intersection Impacts.** The Traffic and Circulation Study (Associated Transportation Engineers, 2014) (Appendix M) evaluated potential impacts to intersections by comparing the existing and future conditions of Project area intersections during peak a.m. (Table 4.9-9 - Existing Plus Project a.m. Peak Hour Intersection Operations<sup>1</sup>) and peak p.m. (Table 4.9-10 - Existing Plus Project p.m. Peak Hour Intersection Operations) operations against the County of Santa Barbara impact criteria. As shown in Table 4.9-9 and 4.9-10, the Project area intersections are forecasted to operate at the existing level of service (level of service A, B or C depending on the intersection) during Project activities, which is within the County's level of service C threshold of significance. Therefore, the Project will not generate a significant impact to intersections.

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<sup>1</sup> Please note that existing plus Project forecasts include Project traffic for day-to-day operations plus peak drilling phases.

**Table 4.9-7. Anticipated Project Trip Generation**

Component	Number Per Day	Shift	Trip Generation				
			Average Daily Traffic	a.m. Peak		p.m. Peak	
				In	Out	In	Out
<b>Employees - Operations</b>							
Aera 9/80 Employees <sup>(1)</sup>	48	6:30 a.m. - 4:15 p.m.	144	0	0	0	48
Aera 12 Hour Employees <sup>(2)</sup>	5	6:00 a.m. / p.m.- 6:00 p.m./ a.m.	15	0	0	0	0
Contract 9/80 Employees <sup>(1)</sup>	25	6:30 a.m. 4:15 p.m.	75	0	0	0	25
Contract 12 Hour Employees <sup>(2)</sup>	14	6:00 a.m. / p.m.- 6:00 p.m./ a.m.	42	0	0	0	0
<b>Subtotal</b>			276	0	0	0	73
<b>Employees - Drilling</b>							
Aera 9/80 Employees <sup>(1)</sup>	6	6:30 a.m. - 4:15 p.m.	18	0	0	0	6
Contract 12 Hour Employees <sup>(2)</sup>	7	6:00 a.m. / p.m.- 6:00 p.m./ a.m.	21	0	0	0	0
<b>Subtotal</b>			39	0	0	0	6
<b>Deliveries</b>							
Bulk Material & Waste Deliveries <sup>(4)</sup>	4	NA	8	0	1	1	0
Miscellaneous Material Deliveries <sup>(4)</sup>	5	NA	10	0	1	1	0
<b>Import/Export</b>							
Crude Import/Export <sup>(5)</sup>	99	NA	199	4	4	4	4
<b>Totals</b>			<b>532</b>	<b>4</b>	<b>6</b>	<b>6</b>	<b>83</b>

- (1) 9/80 workers. Shift starts at 6:30 a.m. and ends at 4:15 p.m. Average daily traffic assumes 50 percent of employee leave site for lunch break.  
 (2) 12-hour shift workers. Shifts = 6:00 a.m. to 6:00 p.m.; and 6:00 p.m. to 6:00 a.m. Average daily traffic assumes 50 percent of employees leave site for lunch break.  
 (3) Deliveries assume one inbound and one outbound trip. a.m. and p.m. peak hour trip generation assumes ten percent of trips during each peak hour.  
 (4) Crude Import/Export assumes one inbound plus one outbound trip per truck. a.m. and p.m. peak hour trip generation assumes four trucks per hour.

**Table 4.9-8. Existing Plus Project Roadway Operations**

Roadway Segment	Options Utilizing This Roadway Segment	Project Added Trips	Average Daily Traffic Volume / Level of Service (LOS)		Is the increase a significant impact based on Santa Barbara County Thresholds?
			Existing	Existing Plus Project-Generated Trips	
Clark Avenue east of U.S. Highway 101	Option 1	532	5,180 / LOS A	5,712 / LOS A	No
	Option 2	333		5,513 / LOS A	
	Option 3	333		5,513 / LOS A	
Clark Avenue east of Telephone Road	Option 1	532	3,000 / LOS A	3,532 / LOS A	No
	Option 2	532		3,532 / LOS A	
	Option 3	333		3,333 / LOS A	
Dominion Road south of Clark Avenue	Option 1	532	1,050 / LOS A	1,582 / LOS A	No
	Option 2	532		1,582 / LOS A	
	Option 3	532		1,582 / LOS A	
Cat Canyon Road south of Palmer Road	Option 1	532	850 / LOS A	1,382 / LOS A	No
	Option 2	532		1,382 / LOS A	
	Option 3	532		1,382 / LOS A	
Betteravia Road east of U.S. Highway 101	Option 2	199	10,250 / LOS A	10,449 LOS A	No
	Option 3	199		10,449 LOS A	
Telephone Road north of Clark Avenue	Option 2	199	1,400 / LOS A	1,599 / LOS A	No
Betteravia east of Telephone Road	Option 3	199	3,700 / LOS A	3,899 / LOS A	No
Dominion Road north of Clark Avenue	Option 3	199	1,400 / LOS A	1,599 / LOS A	No

**Table 4.9-9. Existing Plus Project a.m. Peak Hour Intersection Operations**

Intersection	Options Utilizing This Intersection	Existing		Existing Plus Project		Is the increase a significant impact based on SBC Thresholds?
		Intersection Capacity Utilization Method or Delay	Level of Service	Intersection Capacity Utilization Method or Delay	Level of Service	
U.S. Highway 101 southbound Ramps/Clark Avenue	Option 1	9.7 sec.	LOS A	9.8 sec.	LOS A	No
	Option 2			9.7 sec.	LOS A	
	Option 3			9.7 sec.	LOS A	
U.S. Highway 101 north bound Ramps/Clark Avenue	Option 1	8.5 sec.	LOS A	8.5 sec.	LOS A	No
	Option 2			8.5 sec.	LOS A	
	Option 3			8.5 sec.	LOS A	
Telephone Road/Clark Avenue	Option 1	8.9 sec.	LOS A	8.9 sec.	LOS A	No
	Option 2			9.0 sec.	LOS A	
	Option 3			8.9 sec.	LOS A	
Dominion Road/Clark Avenue	Option 1	8.5 sec.	LOS A	8.5 sec.	LOS A	No
	Option 2			8.5 sec.	LOS A	
	Option 3			8.5 sec.	LOS A	
Palmer Road/Cat Canyon Road	Option 1	8.6 sec.	LOS A	8.6 sec.	LOS A	No
	Option 2			8.6 sec.	LOS A	
	Option 3			8.6 sec.	LOS A	
U.S. Highway 101 southbound Ramps/Betteravia Road	Option 2	0.48 sec	LOS A	0.48 sec.	LOS A	No
	Option 3			0.48 sec.	LOS A	
U.S. Highway 101 northbound Ramps/Betteravia Road	Option 2	0.37 sec	LOS A	0.37 sec	LOS A	No
	Option 3			0.37 sec	LOS A	
Telephone Road/Betteravia Road	Option 2	10.1 sec.	LOS B	10.1 sec.	LOS B	No
	Option 3			10.1 sec.	LOS B	
Dominion Road/Foxen	Option 3	9.4 sec.	LOS A	9.5 sec.	LOS A	No

**Table 4.9-10. Existing Plus Project p.m. Peak Hour Intersection Operations**

Intersection	Options Utilizing This Intersection	Existing		Existing Plus Project		Is the increase a significant impact based on SBC Thresholds?
		Intersection Capacity Utilization Method or Delay	Level of Service (LOS)	Intersection Capacity Utilization Method or Delay	Level of Service (LOS)	
U.S. Highway 101 southbound Ramps/Clark Avenue	Option 1	8.8 sec.	LOS A	8.9 Sec.	LOS A	No
	Option 2			8.9 Sec.	LOS A	
	Option 3			8.9 Sec.	LOS A	
U.S. 101 northbound Ramps/Clark Avenue	Option 1	9.1 sec.	LOS A	9.2 Sec.	LOS A	No
	Option 2			8.5 Sec.	LOS A	
	Option 3			8.5 Sec.	LOS A	
Telephone Road/Clark Avenue	Option 1	9.8 sec.	LOS A	10.4 Sec.	LOS B	No
	Option 2			10.5 Sec.	LOS B	
	Option 3			10.3 Sec.	LOS B	
Dominion Road/Clark Avenue	Option 1	8.1 sec.	LOS A	8.3 Sec.	LOS A	No
	Option 2			8.3 Sec.	LOS A	
	Option 3			8.3 Sec.	LOS A	
Palmer Road/Cat Canyon Road	Option 1	8.8 sec.	LOS A	9.2 Sec.	LOS A	No
	Option 2			9.2 Sec.	LOS A	
	Option 3			9.2 Sec.	LOS A	
U.S. Highway 101 southbound Ramps/Betteravia Road	Option 2	0.59 sec	LOS A	0.59	LOS A	No
	Option 3			0.59	LOS A	
U.S. Highway 101 northbound Ramps/Betteravia Road	Option 2	0.61 sec	LOS B	0.61	LOS B	No
	Option 3			0.61	LOS B	
Telephone Road/Betteravia Road	Option 2	16.4 sec.	LOS C	16.6 Sec.	LOS C	No
	Option 3			16.7 Sec.	LOS C	
Dominion Road/Foxen Canyon	Option 3	12.7 sec.	LOS B	12.8 Sec.	LOS B	No

**Circulation Safety Impacts.** One of the Project objectives is to reliably import light crude oil and export produced oil to and from the Project site. Aera has among the industry's most stringent safety expectations for its employees and contractors. Aera has designed the Project tanker truck transportation program to meet and exceed its health, safety, security, and environmental compliance standards through implementation of the following policies, programs, and features:

- a. Fleet trucks will meet or exceed the *future* (2019) California Air Resources Board low emissions standards;
- b. Aera will deploy and maintain a tanker truck fleet consisting of three years old or younger truck engines by replacing older trucks with newer trucks whenever they reach the three year threshold This will reduce air emissions *significantly* from a standard aggregate fleet mix (refer to Project-Incorporated Avoidance and Minimization Measure #AQ-2a in Section 4.1);
- c. The feasibility of alternative fuel trucks, such as those utilizing liquefied natural gas, which could potentially reduce emissions further, will be evaluated as an alternative for Phase II;
- d. Fleet drivers will have a minimum of two years of commercial driver experience, plus extensive training in defensive driving, emergency response, and other driving skills;
- e. Drivers will be trained on Project-specific requirements, including loading and transportation procedures, local traffic concerns and hazards, driver safety, and driver courtesy;
- f. All trucks will be linked to an integrated fleet geographical information management system that provides real-time satellite tracking and mapping of locations, speeds, and other parameters;
- g. A "geographical information system fence" feature can be used to set and measure compliance to limits, such as speed, acceleration, and de-acceleration, for trucks in a specific area and/ or at a specific time of day;
- h. All tanker trucks will be equipped with dual-sided dashboard video cameras;
- i. A fleet maintenance program including California's Biennial Inspection of Terminals inspection program;
- j. The fleet operates an Electronic Driver Vehicle Inspection Report system, integrated with its maintenance system; and
- k. The fleet will operate under an effective health, safety, security, and the environment management system and emergency response system.

Based on the minimal number of road trips associated with the East Cat Canyon Oil Field Redevelopment Project in relation to the existing road capacity as well as the stringent safety measures included within Project design, the Project will not cause a significant impact to the safe operation of transportation corridors.

#### 4.9.4.3 Potential Impacts to Transportation or Circulation Resulting from Conflicts with the Santa Barbara County Association of Governments Congestion Management Program

According to Congestion Management Program monitoring, the segment of U.S. Highway 101 north of the Clark Avenue interchange currently operates at level of service B in the northbound direction and level of service A in the southbound direction during the peak hour period. It is anticipated that Project-related activities will generate an additional 71 peak hour trips along northbound U.S. Highway 101 and up to six peak hour trips along southbound U.S. Highway 101. The segment of U.S. Highway 101 north of the Clark Avenue interchange will continue to operate at level of service B in the northbound direction and level of service A in the southbound direction with the additional Project traffic, which is well within the Santa Barbara County Association of Governments threshold of significance. Therefore, the Project will not generate a significant impact to U.S. Highway 101 based on Congestion Management Program impact criteria.

#### **4.9.5 Project-Incorporated Avoidance and Minimization Measures**

As summarized from the Traffic and Circulation Study for the Project (Associated Transportation Engineers 2014) (Appendix M), none of the route options will have a significant impact on traffic level of service on the roads or intersections within the Project area. The largest anticipated traffic delay at any intersection is measured in tenths of a second. As such, no avoidance and minimization measures are proposed.

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