I:\ArcGIS\G\GSA-01 SanYsidroLandPOE\Map\ENV\EIS\Fig3_11-1_EnvConcernFacilities.mxd -NM

Listed Facilities of Potential Environmental Concern

SAN YSIDRO LAND PORT OF ENTRY IMPROVEMENTS

Figure 3.11-1

3.12 AIR QUALITY

3.12.1 Regulatory Setting

The Clean Air Act (CAA) as amended in 1990 is the federal law that governs air quality. Its counterpart in California is the California Clean Air Act of 1988. These laws set standards for the quantity of pollutants that can be in the air. At the federal level, these standards are called National Ambient Air Quality Standards (NAAQS); at the state level, they are called California Ambient Air Quality Standards (CAAQS). Standards have been established for six criteria pollutants that have been linked to potential health concerns; the criteria pollutants are: carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), particulate matter (PM), lead (Pb), and sulfur dioxide (SO_2).

Under the 1990 CAA Amendments, federal actions must be found to conform to the State Implementation Plan (SIP) for achieving the goals of the CAA requirements. Conformity with the CAA takes place on two levels—first, at the regional level and second, at the project level. A project must conform at both levels to be approved.

Regional level conformity in California is concerned with how well the region is meeting the standards set for CO, NO_2, O_3, and PM. California is in attainment for the other criteria pollutants. At the regional level, RTPs are developed that include all of the transportation projects planned for a region over a period of years (usually at least 20 years). Based on the projects included in the RTP, an air quality model is run to determine whether or not the implementation of those projects would conform to emission budgets or other tests showing that attainment requirements of the CAA are met. If the conformity analysis is successful, the regional planning organization, such as SANDAG for San Diego County, and the appropriate federal agencies make the determination that the RTP is in conformity with the SIP for achieving the goals of the CAA. Otherwise, the projects in the RTP must be modified until conformity is attained. If the design and scope of a proposed project are the same as described in the RTP, then it is deemed to meet regional conformity requirements for purposes of project-level analysis.

Conformity at the project-level also requires "hot spot" analysis if an area is "nonattainment" or "maintenance" for CO and/or particulate matter. A region is a "nonattainment" area if one or more monitoring stations in the region fail to attain the relevant standard. Areas that were previously designated as nonattainment areas but have recently met the standard are called "maintenance" areas. "Hot spot" analysis is essentially the same, for technical purposes, as CO or particulate matter analysis performed for NEPA purposes. Conformity does include some specific standards for projects that require a hot spot analysis. In general, projects must not cause the CO standard to be violated, and in "nonattainment" areas a project must not cause any increase in the number and severity of violations. If a known CO or particulate matter violation is located in the project vicinity, the project must include measures to reduce or eliminate the existing violation(s) as well.

The CAAQS and NAAQS for each of the regulated pollutants are shown below in Table 3.12-1.

Table 3.12-1
AMBIENT AIR QUALITY STANDARDS

Pollutant	Average Time	California Standards		National Standards		
		Concentration	Measurement Method	Primary	Secondary	Measurement Method
Ozone (O_3)	1 hour	0.09 ppm (180 µg/m^3)	Ultraviolet Photometry	--	--	Ultraviolet Photometry
	8 hour	0.070 ppm (137 µg/m^3)		0.075 ppm (147 µg/m^3)	0.075 ppm (147 µg/m^3)	
Carbon Monoxide (CO)	8 hours	9.0 ppm (10 mg/m^3)	Non-Dispersive Infrared Spectroscopy (NDIR)	9 ppm (10 mg/m^3)	None	Non-Dispersive Infrared Spectroscopy (NDIR)
	1 hour	20 ppm (23 mg/m^3)		35 ppm (40 mg/m^3)		
Nitrogen Dioxide (NO_2)	Annual Average	0.030 ppm (56 µg/m^3)	Gas Phase Chemiluminescence	0.053 ppm (100 µg/m^3)	0.053 ppm (100 µg/m^3)	Gas Phase Chemiluminescence
	1 hour	0.18 ppm (338 µg/m^3)		--	--	
Sulfur Dioxide (SO_2)	Annual Average	--	Ultraviolet Fluorescence	0.030 ppm (80 µg/m^3)	--	Pararosaniline
	24 hours	0.04 ppm (105 µg/m^3)		0.14 ppm (365 µg/m^3)	--	
	3 hours	--		--	0.5 ppm (1300 µg/m^3)	
	1 hour	0.25 ppm (655 µg/m^3)		--	--	
Respirable Particulate Matter (PM_{10})	24 hours	50 µg/m^3	Gravimetric or Beta Attenuation	150 µg/m^3	150 µg/m^3	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m^3		--	--	
Fine Particulate Matter ($PM_{2.5}$)	Annual Arithmetic Mean	12 µg/m^3	Gravimetric or Beta Attenuation	15 µg/m^3	15 µg/m^3	Inertial Separation and Gravimetric Analysis
	24 hours	--		35 µg/m^3	35 µg/m^3	
Sulfates	24 hours	25 µg/m^3	Ion Chromatography	--	--	--
Lead (Pb)	30-day Average	1.5 µg/m^3	Atomic Absorption	--	--	Atomic Absorption
	Calendar Quarter	--		1.5 µg/m^3	1.5 µg/m^3	
Hydrogen Sulfide (H_2S)	1 hour	0.03 ppm (42 µg/m^3)	Ultraviolet Fluorescence	--	--	--
Vinyl Chloride	24 hours	0.010 ppm (26 µg/m^3)	Gas Chromatography	--	--	--

ppm= parts per million
µg/m^3 = micrograms per cubic meter
mg/m^3= milligrams per cubic meter
Source: *Air Quality Impact Assessment for the San Ysidro Land Port of Entry Improvements Project*, April 2009.

3.12.2 Affected Environment

An air quality analysis was prepared for the Project (*Air Quality Impact Assessment for the San Ysidro Land Port of Entry Improvements Project*, July 2009) to evaluate the potential for air emissions associated with construction and long-term operation of the Project. The air quality report is summarized in this subchapter.

Climate and Meteorology

The climate of the Project Study Area, and all of San Diego, is dominated by a semi-permanent high pressure cell over the Pacific Ocean. This cell influences the direction of prevailing winds (westerly to northwesterly) and maintains clear skies for much of the year. The high pressure cell also creates two types of temperature inversions that may act to degrade local air quality: subsidence and radiation inversions.

Subsidence inversions occur during the warmer months as descending air associated with the Pacific high-pressure cell comes into contact with cool marine air. The boundary between the two layers of air creates a temperature inversion that traps pollutants. The other type of inversion, a radiation inversion, develops on winter nights when air near the ground cools by heat radiation and air aloft remains warm. The shallow inversion layer formed between these two air masses can also trap pollutants. As the pollutants become more concentrated in the atmosphere, photochemical reactions occur that produce ozone, commonly known as smog.

Background Air Quality

The San Diego APCD operates a network of ambient air monitoring stations throughout San Diego County. The purpose of the monitoring stations is to measure ambient concentrations of the pollutants and determine whether the ambient air quality meets the NAAQS and the CAAQS. The nearest ambient monitoring station to the Project is the Chula Vista station, which is located approximately seven miles north of the Project Study Area. Table 3.12-2 provides a summary of the attainment status for each criteria pollutant within the San Diego Air Basin (SDAB) and the number of air quality violations at the monitoring stations nearest to the Project site for the period from 2005 through 2007. As shown in the table, the SDAB is a nonattainment area for O_3 and a maintenance area for CO under the NAAQS. Ambient concentrations of pollutants from the Chula Vista station within the same time period (2005 to 2007) are presented in Table 3.12-3.

Sensitive Receptors

Sensitive receptors are typically defined as schools (Preschool-12th Grade), hospitals, resident care facilities, or day-care centers, or other facilities that may house individuals with health conditions that would be adversely impacted by changes in air quality. The following sensitive receptors are located within one mile of the Project Study Area:

- San Ysidro Head Start, 249 Willow Road
- Willow Elementary School, 226 Willow Road
- Beyer Elementary School, 2312 East Beyer Boulevard
- Our Lady of Mt. Carmel School, 4141 Beyer Boulevard
- Sunset Elementary School, 3825 Sunset Lane
- La Mirada Elementary School, 222 Avenida de la Madrid
- Smythe Avenue Elementary School, 1880 Smythe Avenue

Table 3.12-2
ATTAINMENT CLASSIFICATION AND NUMBER OF AIR QUALITY VIOLATIONS AT THE NEAREST MONITORING STATION

Pollutant	Averaging Time	Attainment Status		Number of Air Quality Violations		
		Federal	State	2005	2006	2007
O_3	8 hour	Nonattainment	Nonattainment	1 (N) 3 (C)	0 (N) 0 (C)	1 (N) 3 (C)
	1 hour	N/A	Nonattainment	0 (C)	0 (C)	2 (C)
PM_{10}	Annual Arithmetic Mean	Attainment	Nonattainment	(C)	(C)	(C)
	24 hour	Attainment	Nonattainment	0 (N) 2 (C)	0 (N) 2 (C)	0 (N) 2 (C)
$PM_{2.5}$	Annual Arithmetic Mean	Attainment	Nonattainment	(C)	(C)	(C)
	24 hour	Attainment	Nonattainment	0 (N)	0 (N)	3 (N)
NO_2	Annual	Attainment	Attainment	0	0	0
	1 hour	Attainment	Attainment	0	0	0
CO	8 hour	Maintenance	Attainment	0	0	0
	1 hour	Maintenance	Attainment	0	0	0
SO_2	Annual	Attainment	Attainment	0	0	0
	24 hour	Attainment	Attainment	0	0	0
	3 hour	Attainment	Attainment	0	0	0
	1 hour	Attainment	Attainment	0	0	0

(N) = NAAQS; (C) = CAAQS
Source: *Air Quality Impact Assessment for the San Ysidro Land Port of Entry Improvements Project*, April 2009.

Table 3.12-3
AMBIENT BACKGROUND CONCENTRATIONS
ppm (unless otherwise indicated)

Pollutant	Averaging Time	2005	2006	2007	Most Stringent Ambient Air Quality Standard	Monitoring Station
O_3	8 hour	0.081	0.069	0.087	0.070	Chula Vista
	1 hour	0.093	0.084	0.105	0.09	Chula Vista
PM_{10}	Annual	27.0	26.3	26.2	20 $\mu g/m^3$	Chula Vista
	24 hour	53	51	58	50 $\mu g/m^3$	Chula Vista
$PM_{2.5}$	Annual	11.8	11.2	12.6	12 $\mu g/m^3$	Chula Vista
	24 hour	34.3	30.2	77.8	35 $\mu g/m^3$	Chula Vista
NO_2	Annual	0.016	0.017	0.015	0.030	Chula Vista
	1 hour	0.071	0.074	0.082	0.18	Chula Vista
CO	8 hour	2.13	2.20	2.24	9.0	Chula Vista
	1 hour	2.8	2.7	3.1	20	Chula Vista
SO_2	Annual	0.003	0.003	0.003	80	Chula Vista
	24 hour	0.005	0.006	0.004	105	Chula Vista
	3 hour	0.009	0.013	0.007	1300	Chula Vista
	1 hour	0.016	0.017	0.012	655	Chula Vista

Source: *Air Quality Impact Assessment for the San Ysidro Land Port of Entry Improvements Project*, April 2009.

3.12.3 Environmental Consequences

This section presents the results of an assessment of potential air quality impacts associated with the Project alternatives. The evaluation is based on analysis and calculations in the referenced air quality report and addresses the potential for emissions associated with the short-term construction and long-term operation of the Project.

Preferred Alternative

Construction Impacts

The Preferred Alternative would be constructed in three phases over a period of approximately four years, with some overlap of phases occurring. Refer to Chapter 2.0 of this Final EIS for details on proposed improvements during each phase. Phase 1 is estimated to begin in winter 2009/2010 with 18 to 24-month duration. Phase 2 is estimated to begin in 2011 and take 24 to 30 months. Phase 3 is estimated to begin as early as 2011, or as late as 2013, depending on the schedule provided by Mexico for their construction of the El Chaparral facility, and would last approximately 20 to 24 months. Emissions from the three construction phases would overlap as their construction phases overlap.

During construction, short-term degradation of air quality may occur due to the release of particulate emissions (airborne dust) generated by excavation, grading, hauling, and various other activities. Emissions from construction equipment also are anticipated and would include CO, nitrogen oxides (NO_x), VOCs, directly-emitted particulate matter (PM_{10} and $PM_{2.5}$), and toxic air contaminants such as diesel exhaust particulate matter. O_3 is a pollutant that is derived from NO_x and VOCs in the presence of sunlight and heat.

Construction-related effects on air quality would be greatest during site preparation because most engine emissions are associated with the excavation, handling, and transport of soils to and from the construction site(s). If not properly controlled, these activities would temporarily generate PM_{10}, $PM_{2.5}$, and small amounts of CO, SO_2, NO_x, and VOCs. Sources of fugitive dust would include disturbed soils at the construction site(s) and trucks carrying uncovered loads of soils. Unless properly controlled, vehicles leaving the site would deposit mud on local streets, which could be an additional source of airborne dust after it dries. PM_{10} emissions would vary from day to day, depending on the nature and magnitude of construction activity and local weather conditions. PM_{10} emissions would depend on soil moisture, silt content of soil, wind speed, and the amount of equipment operating. Larger dust particles would settle near the source, while fine particles would be dispersed over greater distances from the construction site.

In addition to dust-related PM_{10} emissions, heavy trucks and construction equipment powered by gasoline and diesel engines would generate CO, SO_2, NO_x, VOCs, and some soot particulate (PM_{10} and $PM_{2.5}$) in exhaust emissions. If construction activities were to increase traffic congestion in the area, CO and other emissions from traffic would increase slightly while those vehicles are delayed. These emissions would be temporary and limited to the immediate area surrounding the construction site(s).

The air quality analysis (*Air Quality Impact Assessment for the San Ysidro Land Port of Entry Improvements Project*, April 2009) evaluated construction emissions by comparing projected annual construction emissions of the Preferred Alternative with *de minimis* thresholds established under 40 CFR Part 93, the General Conformity Rule, which applies to federal projects in nonattainment areas. As stated earlier, the SDAB is currently considered a nonattainment area for O_3 and a maintenance area for CO. The *de minimus* thresholds for O_3 precursors (NO_x and VOCs) and CO are 100 tons per year.

Annual emissions for each individual phase would be below the *de minimis* thresholds for all pollutants (i.e., 100 tons per year) during construction of the Preferred Alternative, as shown in Table 3.12-4. All three construction phases would overlap; however, demolition and use of heavy construction equipment during Phase 1 would be completed by the time Phase 3 would start. When Phase 3 construction starts, Phase 1 would consist of interior finish construction, involving small hand tools that would not generate substantial emissions. For this reason, annual emissions of all pollutants would be less than the *de minimis* threshold throughout the duration of construction. No associated adverse impacts would occur during construction of the Preferred Alternative.

Table 3.12-4
ANNUAL CONSTRUCTION EMISSIONS (ppm)

Source	CO	VOCs	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Phase 1						
Fugitive Dust – Demolition	--	--	--	--	0.11	0.02
Heavy Construction Equipment	24.55	7.13	46.17	0.05	3.09	2.75
Construction Worker Travel	4.86	0.23	0.45	0.01	0.06	0.03
Heavy Duty Trucks	8.39	1.72	23.40	0.03	1.03	0.90
Fugitive Dust – Grading	--	--	--	--	4.88	1.02
Fugitive Dust – Vehicles	--	--	--	--	7.41	0.90
Total Annual Emissions	**37.80**	**9.08**	**70.02**	**0.09**	**16.55**	**5.62**
Phase 2						
Fugitive Dust – Demolition	--	--	--	--	0.11	0.02
Heavy Construction Equipment	9.20	2.31	16.53	0.02	0.90	0.81
Construction Worker Travel	3.33	0.16	0.30	0.01	0.04	0.02
Heavy Duty Trucks	1.42	0.30	4.05	0.01	0.18	0.15
Fugitive Dust – Grading	--	--	--	--	4.88	1.02
Fugitive Dust – Vehicles	--	--	--	--	1.42	0.17
Total Annual Emissions	**13.95**	**2.77**	**20.88**	**0.04**	**7.53**	**2.19**
Phase 3						
Fugitive Dust – Demolition	--	--	--	--	0.11	0.02
Heavy Construction Equipment	13.11	2.82	22.91	0.03	1.20	1.07
Construction Worker Travel	3.43	0.17	0.30	0.01	0.05	0.03
Heavy Duty Trucks	5.85	1.27	17.02	0.02	0.72	0.62
Fugitive Dust – Grading	--	--	--	--	4.88	1.02
Fugitive Dust – Vehicles	--	--	--	--	6.41	0.78
Total Annual Emissions	**22.39**	**4.26**	**40.23**	**0.06**	**13.37**	**3.54**

Source: *Air Quality Impact Assessment for the San Ysidro Land Port of Entry Improvements Project*, April 2009.

Operational Impacts

Operational Air Emissions

The Preferred Alternative would result in operational air emissions that are mainly attributable to vehicles traveling on the I-5 and I-805 freeways, as well as surface streets and vehicles idling at the border crossing. Table 3.12-5 presents a summary of the operational emissions from vehicles for the Preferred Alternative and No Build Alternative, along with a calculation of the net emissions attributable to the project. As shown in Table 3.12-5, the Preferred Alternative would result in a net decrease in emissions overall due to the reduction in idling time at the border crossing.

Table 3.12-5
OPERATIONAL EMISSIONS (Tons per Year)

	CO	NO_x	VOCs	SO_x	PM_{10}	$PM_{2.5}$
2014 Annual Total – No Build Alternative						
Vehicles on I-5 and I-805	233.998	67.423	9.509	0.458	5.115	3.204
Vehicles on Surface Streets	36.699	8.738	1.739	0.066	0.776	0.740
Idling Vehicles	814.790	194.153	100.503	2.121	27.084	22.842
Total Emissions	1085.49	270.31	111.75	2.65	32.98	26.79
2014 Annual Total – Preferred Alternative						
Vehicles on I-5 and I-805	292.062	82.304	11.580	0.569	6.302	3.940
Vehicles on Surface Streets	33.288	8.039	1.426	0.058	0.683	0.655
Idling Vehicles	305.352	72.761	37.665	0.795	10.150	8.560
Total Emissions	630.70	163.10	50.67	1.42	17.14	13.16
Net Emissions	**-454.79**	**-107.21**	**-61.08**	**-1.23**	**-15.84**	**-13.63**
2030 Annual Total – No Build Alternative						
Vehicles on I-5 and I-805	160.182	36.839	7.157	0.661	6.607	3.964
Vehicles on Surface Streets	21.302	4.523	1.090	0.083	0.877	0.582
Idling Vehicles	907.788	220.400	122.202	5.674	64.593	53.682
Total Emissions	1089.27	261.76	130.45	6.42	72.08	58.23
2030 Annual Total – Preferred Alternative						
Vehicles on I-5 and I-805	206.137	45.943	8.928	0.818	8.293	4.993
Vehicles on Surface Streets	20.032	4.232	0.963	0.075	0.808	0.521
Idling Vehicles	190.574	46.269	25.654	1.191	13.560	11.270
Total Emissions	416.74	96.44	35.55	2.08	22.66	16.78
Net Emissions	**-672.53**	**-165.32**	**-94.9**	**-4.34**	**-49.42**	**-41.45**

Notes: SDAB is currently a basic nonattainment area for the 8-hour federal O_3 standard; VOCs and NO_x are precursors to the formation of O3.
SDAB is in attainment of the federal and state CO and SO_x standards and the federal PM_{10} and $PM_{2.5}$ standards; significance levels are developed from SDCAPCD major source thresholds.
SDAB is in nonattainment of the state PM10 standard.
NO_x = oxides of nitrogen; SO_x = oxides of sulfur.

Air Quality Conformity

To determine whether the Preferred Alternative is consistent with local air quality plans and programs, an affirmative regional conformity determination must be made to demonstrate that the Preferred Alternative would not cause or contribute to a violation of an ambient air quality standard (Table 3.13-1). The SDAB is currently considered to be a basic nonattainment area for the NAAQS for ozone; therefore the conformity determination addresses regional transportation projects and include the projects in the assessment conducted for the SIP, which includes emissions budgets for the air basin and strategies to attain and maintain the ozone standard.

The Transportation Project-Level Carbon Monoxide Protocol (Protocol) is applicable for the assessment of potential impacts of project alternatives and provides a means of evaluating the Preferred Alternative's conformity with the SIP and potential impacts to the ambient air quality. The Protocol is designed to ensure that projects conform to an approved or promulgated air quality implementation plan and to all applicable federal and state ambient air quality standards.

In addition, all projects except those that are exempt from analysis are subject to a local CO impact review. This involves an evaluation of the potential for CO "hot spots" to result due to traffic congestion. CO "hot spots" are typically evaluated when (1) the LOS of an intersection or roadway decreases to a LOS D or worse; and (2) sensitive receptors such as residences, commercial developments, schools, hospitals, etc. are located in the vicinity of the affected intersection or roadway segment.

Regional Conformity. The Protocol contains a conformity requirement decision flow chart for new projects that is designed to assist in the evaluation of the requirements that apply to the Preferred Alternative. The flow chart contained in the Protocol was followed to determine the level of analysis required for the Preferred Alternative. Based on the evaluation, a further regional analysis or regional conformity determination is not required for the Preferred Alternative.

The Project is included in the 2030 San Diego RTP: Pathways for the Future (Table A.2-Phased Highway Projects – Revenue Constrained Plan, page A-9) approved by SANDAG in 2007. The Project is also included in the SANDAG 2008 RTIP as MPO ID CAL-56, RTP #08-00 (page 36). A conformity determination for both the 2030 RTP and the 2008 RTIP was made by DOT on November 17, 2008. The design concept and scope of the Preferred Alternative is consistent with the project description in the 2030 RTP, the 2008 RTIP, and the assumptions in the SANDAG regional emissions analysis. Therefore, the Preferred Alternative would conform to the SIP and no adverse regional air quality impacts would occur.

Project Level Conformity – Local CO Impacts. The Protocol provides guidance for determining whether a project would have the potential to cause or contribute to a violation of an air quality standard on a localized basis. The Protocol provides for various levels for the local CO analysis to make the determination of the potential for air quality impacts.

As discussed above, all non-exempt projects are subject to a local CO impact review by evaluating the potential for formation of CO "hot spots" due to traffic congestion. The traffic study prepared for the Project (*San Ysidro Land Port of Entry Border Station Expansion Traffic Impact Study*, April 2009) evaluated whether or not there would be a decrease in the LOS at the intersections affected by the Preferred Alternative (refer to Subchapter 3.4, Traffic and Transportation/Pedestrian and Bicycle Facilities). The referenced traffic study evaluated intersection operations for existing, near-term (2014), and horizon year (2030) conditions. The following intersections would operate at LOS E or F in the PM peak period under near-term and horizon year conditions:

- Via de San Ysidro/Calle Primera (near-term and horizon year)
- Via de San Ysidro/I-5 northbound ramps(near-term and horizon year)

- Camino de la Plaza/I-5 southbound ramps (horizon year)
- Camino de la Plaza/Virginia Avenue (near-term and horizon year)

To evaluate the potential for CO “hot spots,” CALINE4 modeling was conducted for the intersections identified above for near-term and horizon year conditions, without (No Build Alternative) and with the Preferred Alternative (Tables 3.12-5 and 3.12-6). Modeling was conducted based on the Protocol to calculate maximum predicted 1-hour CO concentrations. Predicted 1-hour CO concentrations were then scaled to estimate maximum predicted 8-hour CO concentrations, using the recommended scaling factor of 0.7 for urban locations.

Inputs to the CALINE4 model were obtained from the referenced traffic study. As recommended in the Protocol, receptors were located at locations that were approximately 10 feet from the mixing zone (i.e., the region over the traveled roadway), and at a height of six feet. Average approach and departure speeds were assumed to be worst case (i.e., 1 mph), and emission factors for that speed were estimated from the EMFAC2007 emissions model.

In accordance with the Protocol, it is also necessary to estimate future background CO concentrations in the Project vicinity to determine the potential impact plus background, and evaluate the potential for CO “hot spots” due to the Preferred Alternative. As a conservative estimate of background CO concentrations, the existing maximum 1-hour background concentration of CO that was measured at the Chula Vista monitoring station for the period from 2005 – 2007 of 3.1 ppm was used to represent future maximum background 1-hour CO concentrations. This is a conservative assumption, as the monitoring station is located in a congested area downtown. The existing maximum 8-hour background concentration of CO that was measured at the Chula Vista monitoring station during the period from 2005 – 2007 of 2.24 ppm was also used to provide a conservative estimate of the maximum 8-hour background concentrations in the Project vicinity. CO concentrations in the future may be lower as inspection and maintenance programs and more stringent emission controls are placed on vehicles. Figure 3.12-1 depicts the receptor sites used for the CO “hot spot” analysis.

Tables 3.12-5 and 3.12-6 present a summary of the predicted CO concentrations (impact plus background) for the intersections evaluated for the Preferred Alternative and No Build Alternative under near-term (2014) and horizon year conditions (2030), respectively. The 8-hour impacts were calculated by scaling the predicted 1-hour impacts by the scaling factor of 0.7; then maximum background concentrations were added to the predicted CO concentrations associated with traffic generated by the Preferred Alternative.

As shown in Tables 3.12-5 and 3.12-6, the predicted CO concentrations would be substantially below the 1-hour and 8-hour NAAQS and CAAQS for CO shown in Table 3.12-1. Therefore, no exceedances of the CO standard are predicted and thus, the Preferred Alternative would not cause or contribute to a violation of this air quality standard. No associated adverse air quality impacts would occur.

Table 3.12-6
CO "HOT SPOTS" EVALUATION
NEAR-TERM (2014) CONDITIONS

Intersection	CO Concentration	
	No Build Alternative	Preferred Alternative
Maximum 1-hour Concentration Plus Background, ppm CAAQS = 20 ppm; NAAQS = 35 ppm Background Concentration = 3.1 ppm		
Via de San Ysidro/Calle Primera	3.6	3.6
Via de San Ysidro/I-5 Northbound Ramps	3.5	3.5
Camino de la Plaza/Virginia Avenue	4.0	3.9
Maximum 8-hour Concentration Plus Background, ppm CAAQS = 9.0 ppm; NAAQS = 9 ppm Background Concentration = 2.24 ppm		
Via de San Ysidro/Calle Primera	2.59	2.59
Via de San Ysidro/I-5 Northbound Ramps	2.52	2.52
Camino de la Plaza/Virginia Avenue	2.87	2.80

Source: *Air Quality Impact Assessment for the San Ysidro Land Port of Entry Improvements Project*, April 2009.

Table 3.12-7
CO "HOT SPOTS" EVALUATION
HORIZON YEAR (2030) CONDITIONS

Intersection	CO Concentration	
	No Build Alternative	Preferred Alternative
Maximum 1-hour Concentration Plus Background, ppm CAAQS = 20 ppm; NAAQS = 35 ppm Background Concentration = 3.1 ppm		
Via de San Ysidro/Calle Primera	3.4	3.4
Via de San Ysidro/I-5 Northbound Ramps	3.3	3.3
Camino de la Plaza/I-5 Southbound Ramps	3.5	3.5
Camino de la Plaza/Virginia Avenue	3.5	3.5
Maximum 8-hour Concentration Plus Background, ppm CAAQS = 9.0 ppm; NAAQS = 9 ppm Background Concentration = 2.24 ppm		
Via de San Ysidro/Calle Primera	2.45	2.45
Via de San Ysidro/I-5 Northbound Ramps	2.38	2.38
Camino de la Plaza/I-5 Southbound Ramps	2.52	2.52
Camino de la Plaza/Virginia Avenue	2.52	2.52

Source: *Air Quality Impact Assessment for the San Ysidro Land Port of Entry Improvements Project*, April 2009.

Project Level Conformity – Local Particulate Impacts. Emissions of particulate matter ($PM_{2.5}$ and PM_{10}) are attributable to traffic sources. The potential for air quality impacts associated with particulate emissions from traffic generated by the Preferred Alternative was evaluated using USEPA's *Transportation Conformity Guidance for Qualitative Hot-Spot Analysis in $PM_{2.5}$ and PM_{10} Nonattainment and Maintenance Areas*. The USEPA's Transportation Conformity Rule (40 CFR 93.123(b)(1)) identifies projects for which $PM_{2.5}$ and PM_{10} would be of concern. Based on the criteria under this rule, the Preferred Alternative would not be a project of air quality concern for $PM_{2.5}$ and PM_{10} emissions because it would not result in increases in the number of diesel vehicles utilizing the border crossing. Estimates of the number of diesel vehicles as a percentage of ADT, based on truck percentages from the traffic study (*San Ysidro Land Port of Entry Border Station Expansion Traffic Impact Study*, April 2009) indicate that the highest percentage of diesel trucks traveling in the Project vicinity would be as much as 6.9 percent along the freeway segment of I-805, from SR-905 to East San Ysidro Boulevard. This value is lower than the threshold of significance of eight percent established by the USEPA for $PM_{2.5}$ and PM_{10} impacts. The Preferred Alternative would therefore be in conformance for federal PM_{10} and $PM_{2.5}$ standards. No associated adverse air quality impacts would occur.

According to the USEPA, a project with a small percentage of diesel trucks can have a significant impact if the overall average annual daily traffic (AADT) of the project is large, and specifically if the diesel vehicle total is over 10.000. The San Ysidro LPOE is not the border crossing that is used for truck traffic; therefore, the main emissions associated with the border crossing are generated from passenger vehicles such as light-duty autos and light-duty trucks. According to the Traffic Impact Study, the percentage of trucks at the border crossing is 2.2 percent. For the near-term conditions, considering both northbound and southbound traffic, the total truck AADT would therefore be 3,343; for horizon year conditions, the total truck AADT would be 3,340. This estimate has not been adjusted to account for passenger car equivalents (i.e., trucks are generally counted as two to three passenger cars in traffic impact analyses to account for their effect on traffic congestion). Thus, the number of trucks would be well below 10,000 AADT. Trucks would comprise the main category of diesel vehicles. According to the EMFAC2007 Model, the percentage of light-duty trucks that would be diesel would be 0.3 percent. Adding the diesel autos and light-duty trucks to the totals for near-term and horizon year conditions results in a total diesel vehicle AADT that would be 3,951 and 3,947, respectively. Diesel vehicles would be well below the 10,000 AADT above which PM_{10} and $PM_{2.5}$ impacts would be anticipated.

Mobile Source Air Toxics

In addition to the criteria air pollutants for which there are NAAQS, USEPA also regulates air toxics. Most air toxics originate from human-made sources, including on-road mobile sources, non-road mobile sources (e.g., airplanes), area sources (e.g., dry cleaners) and stationary sources (e.g., factories or refineries).

Mobile Source Air Toxics (MSATs) are a subset of the 188 air toxics defined by the CAA. The MSATs are compounds emitted from highway vehicles and non-road equipment. Some toxic compounds are present in fuel and are emitted to the air when the fuel evaporates or passes through the engine unburned. Other toxics are emitted from the incomplete combustion of fuels or as secondary combustion products. Metal air toxics also result from engine wear or from impurities in oil or gasoline.

The USEPA 2001 MSAT Rule identified 21 hazardous air pollutants as MSATs. USEPA decided to focus short-term work on six of the 21 pollutants as the MSATs of greatest concern due to their high relative emissions and toxicity, and because state agencies have indicated that these pollutants are major mobile source pollutants of concern. These six pollutants have become known as the “priority MSATs” and include benzene, acrolein, formaldehyde, 1,3-butadiene, acetaldehyde, and diesel exhaust. The USEPA is in the process of assessing the risks of various kinds of exposures to these pollutants. The USEPA Integrated Risk Information System (IRIS) is a database of human health effects that may result from exposure to various substances found in the environment. The following toxicity information for the six priority MSATs was taken from the IRIS database *Weight of Evidence Characterization* summaries. This information is taken verbatim from USEPA's IRIS database and represents the most current evaluations of the potential hazards and toxicology of these chemicals or mixtures.

- **Benzene** is characterized as a known human carcinogen.
- The potential carcinogenicity of **acrolein** cannot be determined because the existing data are inadequate for an assessment of human carcinogenic potential for either the oral or inhalation route of exposure.
- **Formaldehyde** is a probable human carcinogen, based on limited evidence in humans, and sufficient evidence in animals.
- **1,3-butadiene** is characterized as carcinogenic to humans by inhalation.
- **Acetaldehyde** is a probable human carcinogen based on increased incidence of nasal tumors in male and female rats and laryngeal tumors in male and female hamsters after inhalation exposure.
- **Diesel exhaust** is likely to be carcinogenic to humans by inhalation from environmental exposures. Diesel exhaust as reviewed in this document is the combination of diesel particulate matter and diesel exhaust organic gases. Diesel exhaust also represents chronic respiratory effects, possibly the primary non-cancer hazard from MSATs. Prolonged exposures may impair pulmonary function and could produce symptoms, such as cough, phlegm, and chronic bronchitis. Exposure relationships have not been developed from these studies.

There have been other studies that address MSAT health impacts in proximity to roadways. The Health Effects Institute, a non-profit organization funded by USEPA, FHWA, and industry, has undertaken a major series of studies to research near-roadway MSAT hot spots, the health implications of the entire mix of mobile source pollutants, and other topics. The final summary of the series is not expected for several years.

Some recent studies have reported that proximity to roadways is related to adverse health outcomes, particularly respiratory problems. Much of this research is not specific to MSATs, instead surveying the full spectrum of both criteria and other pollutants.

Unavailable Information for Project Specific MSAT Impact Analysis

This Final EIS includes a basic analysis of the likely MSAT emission impacts of the Preferred Alternative. However, available technical tools do not enable the prediction of Project-specific health impacts of the emission changes associated with the alternatives. Due to these limitations, the following discussion is included in accordance with CEQ regulations (40 CFR 1502.22(b)) regarding incomplete or unavailable information.

Evaluating the environmental and health impacts from MSATs on projects that may affect highways (such as the Preferred Alternative) may involve several key elements, including emissions modeling, dispersion modeling to estimate ambient concentrations resulting from the estimated emissions, exposure modeling to estimate human exposure to the estimated concentrations, and then final determination of health impacts based on the estimated exposure. Each of these steps is encumbered by technical shortcomings or uncertain science that prevents a more complete determination of the MSAT health impacts of the Preferred Alternative.

<u>Emissions</u>. USEPA tools to estimate MSAT emissions from motor vehicles are not sensitive to key variables determining emissions of MSATs in the context of highway and highway-related projects. While MOBILE 6.2 is used to predict emissions at a regional level, it has limited applicability at the project level. MOBILE 6.2 is a trip-based model; emission factors are

projected based on a typical trip of 7.5 miles, and on average speeds for this typical trip. This means that MOBILE 6.2 does not have the ability to predict emission factors for a specific vehicle operating condition at a specific location at a specific time. Because of this limitation, MOBILE 6.2 can only approximate the operating speeds and levels of congestion likely to be present on the largest-scale projects, and cannot adequately capture emissions effects of smaller projects. For particulate matter, the model results are not sensitive to average trip speed, although the other MSAT emission rates do change with changes in trip speed. Also, the emissions rates used in MOBILE 6.2 for both particulate matter and MSATs are based on a limited number of tests of mostly older-technology vehicles. Lastly, in its discussions of PM under the conformity rule, USEPA has identified problems with MOBILE 6.2 as an obstacle to quantitative analysis.

These deficiencies compromise the capability of MOBILE 6.2 to estimate MSAT emissions. MOBILE 6.2 is an adequate tool for projecting emissions trends and performing relative analyses between alternatives for very large projects, but it is not sensitive enough to capture the effects of travel changes tied to smaller projects or to predict emissions near specific roadside locations.

Dispersion. The tools to predict how MSATs disperse are also limited. The USEPA's current regulatory models, CALINE3 and CAL3QHC, were developed and validated more than a decade ago for the purpose of predicting episodic concentrations of CO to determine compliance with the NAAQS. The performance of dispersion models is more accurate for predicting maximum concentrations that can occur at some time at some location within a geographic area. This limitation makes it difficult to predict accurate exposure patterns at specific times at specific project locations across an urban area to assess potential health risk. Research is currently being conducted on best practices in applying models and other technical methods in the analysis of MSATs. This work also will focus on identifying appropriate methods of documenting and communicating MSAT impacts in the NEPA process and to the general public. Along with these general limitations of dispersion models, there is also a lack of monitoring data in most areas for use in establishing project-specific MSAT background concentrations.

Exposure Levels and Health Effects. Finally, even if emission levels and concentrations of MSATs could be accurately predicted, shortcomings in current techniques for exposure assessment and risk analysis preclude determining meaningful conclusions about project-specific health impacts. Exposure assessments are difficult because it is difficult to accurately calculate annual concentrations of MSATs near roadways, and to determine the portion of a year that people are actually exposed to those concentrations at a specific location. These difficulties are magnified for 70-year cancer assessments, particularly because unsupportable assumptions would have to be made regarding changes in travel patterns and vehicle technology (which affects emissions rates) over a 70-year period. There are also considerable uncertainties associated with the existing estimates of toxicity of the various MSATs, because of factors such as low-dose extrapolation and translation of occupational exposure data to the general population. Because of these shortcomings, any calculated difference in health impacts between alternatives is likely to be much smaller than the uncertainties associated with calculating the impacts. Consequently, the results of such assessments would not be useful to decision makers, who would need to weigh this information against other project impacts that are better suited for quantitative analysis.

Evaluation of MSAT Potential

USEPA currently recommends following the March 2007 report entitled *Analyzing, Documenting, and Communicating the Impacts of Mobile Source Air Toxic Emissions in the NEPA Process*. Suggested procedures have been developed on how to select and apply the best available models and associated techniques for MSAT impact assessment in the NEPA process. The suggested approach uses both policy and technical considerations to determine the need and appropriateness for conducting a MSAT analysis. A set of policy and technical questions have been developed to help determine an appropriate level of analysis under NEPA. Based on the flowchart contained in this approach, a Level 3 Assessment was conducted for the Preferred Alternative, which includes a qualitative assessment of MSAT potential and a quantitative emissions analysis for projects posing MSAT exposure.

As discussed above, technical shortcomings of emissions and dispersion models and uncertain science with respect to health effects prevent meaningful or reliable estimates of MSAT emissions and effects of the Preferred Alternative. However, even though reliable methods do not exist to accurately estimate the health impacts of MSATs at the Project level, it is possible to qualitatively assess the levels of future MSAT emissions under the Preferred Alternative. Although a qualitative analysis cannot identify and measure health impacts from MSATs, it can give a basis for identifying and comparing the potential differences among MSAT emissions, if any, from the Project alternatives. The qualitative assessment presented below is derived in part from a study conducted by the FHWA entitled *A Methodology for Evaluating Mobile Source Air Toxic Emissions Among Transportation Project Alternatives*, found at:
www.fhwa.dot.gov/environment/airtoxic/msatcompare/msatemissions.htm

The amount of MSATs emitted would be proportional to the vehicle miles traveled (VMT), assuming that other variables such as fleet mix are the same for each alternative. The VMT estimated for the Preferred Alternative is slightly higher than that for the No Build Alternative, because the additional capacity increases the efficiency of the LPOE and adjoining roadways. This increase in VMT would lead to higher MSAT emissions for the Preferred Alternative along the I-5 and I-805 highway corridors due to the increased capacity of the LPOE to handle vehicles crossing the border. This emissions increase is offset, however, by the decrease in idling emissions anticipated by the proposed improvements to the LPOE under the Preferred Alternative.

MSAT Emissions Analysis

To provide a quantitative estimate of the MSAT emissions for the six priority MSATs, data from the traffic study (*San Ysidro Land Port of Entry Border Station Expansion Traffic Impact Study*, February 2009) were used to estimate VMT and idling emissions. Because the EMFAC2007 model addresses emissions for vehicles in California, and specifically in the SDAB, the EMFAC2007 model was used as a basis for emissions estimates, along with California Air Resources Board (ARB) profiles. The EMFAC2007 model coupled with the ARB profiles provide the best estimates of MSAT emissions for vehicles at the San Ysidro LPOE. Freeway segments analyzed in the MSAT analysis include those that would carry 125,000 or more ADT under near-term (2014) or horizon year (2030) conditions with the Preferred Alternative. As shown in Table 3.12-7, MSAT emissions would be slightly higher on freeway segments due to the increase in ADT on those segments that are within the Project Study Area. However, MSAT emissions associated with truck idling would decrease nearly three-fold under the Preferred Alternative, as compared with the No Build Alternative in the near-term, and would decrease nearly five-fold in the horizon year. A comparison of the overall MSAT emissions between the Preferred Alternative and the No Build Alternative indicate that the overall MSAT emissions would decrease under the Preferred Alternative due to the decrease in queue times at the border crossing despite slight increases in MSAT emissions on freeway segments.

In addition, estimated MSAT emissions will likely be lower than present levels as a result of USEPA's national control programs that are projected to reduce MSAT emissions by 57 to 87 percent between 2000 and 2020. Local conditions may differ from these national projections in terms of fleet mix and turnover, VMT growth rates, and local control measures. However, the magnitude of the USEPA-projected reductions is so great (even after accounting for VMT growth) that MSAT emissions in the Project Study Area are likely to be lower in the future in nearly all cases. Consequently, no adverse air quality impacts related to MSATs would occur from the Preferred Alternative.

Table 3.12-8
MSAT EMISSIONS (TONS/YEAR)

Freeway Segment	Priority MSAT Emissions					
	Benzene	Acrolein	Formalde-hyde	1,3-Butadiene	Acetaldehyde	Diesel Exhaust
Near-term – No Build Alternative						
I-5: East San Ysidro Blvd. to International Border	0.033	0.002	0.021	0.007	0.004	0.239
I-805: SR-905 Interchange to East San Ysidro Blvd.	0.114	0.006	0.073	0.025	0.013	0.702
Truck Idling	-	-	-	-	-	3.306
Near-term – Preferred Alternative						
I-5: East San Ysidro Blvd. to International Border	0.042	0.002	0.027	0.009	0.005	0.296
I-805: SR-905 Interchange to East San Ysidro Blvd.	0.134	0.007	0.086	0.030	0.015	0.825
Truck Idling	-	-	-	-	-	1.239
Horizon Year – No Build Alternative						
I-5: East San Ysidro Blvd. to International Border	0.015	0.001	0.009	0.003	0.002	0.149
I-5: I-805 Interchange to East San Ysidro Blvd.	0.039	0.002	0.025	0.009	0.004	0.354
I-805: SR-905 Interchange to East San Ysidro Blvd.	0.067	0.004	0.043	0.015	0.008	0.579
I-805: East San Ysidro Blvd. to I-5 Interchange	0.025	0.001	0.016	0.006	0.003	0.293
Truck Idling	-	-	-	-	-	5.655
Horizon Year – Preferred Alternative						
I-5: East San Ysidro Blvd. to International Border	0.021	0.001	0.014	0.005	0.002	0.192
I-5: I-805 Interchange to East San Ysidro Blvd.	0.053	0.003	0.034	0.011	0.006	0.431
I-805: SR-905 Interchange to East San Ysidro Blvd.	0.082	0.004	0.053	0.018	0.009	0.706
I-805: East San Ysidro Blvd. to I-5 Interchange	0.035	0.002	0.022	0.008	0.004	0.335
Truck Idling	-	-	-	-	-	1.187

Source: *Air Quality Impact Assessment for the San Ysidro Land Port of Entry Improvements Project*, April 2009.

Naturally-Occurring Asbestos

Exposure and disturbance of rock and soil that contains asbestos can result in the release of fibers to the air and consequent exposure to the public. Asbestos most commonly occurs in ultramafic rock that has undergone partial or complete alteration to serpentine rock (proper rock name serpentinite) and often contains chrysotile asbestos. In addition, another form of asbestos, tremolite, can be found associated with ultramafic rock, particularly near faults. Sources of asbestos emissions include: unpaved roads or driveways surfaced with ultramafic rock, construction activities in ultramafic rock deposits, or rock quarrying activities where ultramafic rock is present. Based on the map of naturally-occurring asbestos locations contained in *A General Location Guide for Ultramafic Rocks in California – Areas More Likely to Contain Naturally Occurring Asbestos* (California Department of Conservation 2000), major ultramafic rock formations are not found in San Diego County. Therefore, construction and grading would not occur in an area with ultramafic rock that could be a source of emissions of naturally-occurring asbestos. No associated impacts resulting from implementation of the Preferred Alternative would occur.

Global Climate Change

On June 1, 2005, Governor Arnold Schwarzenegger signed California Executive Order (CA-EO) S-3-05. The goal of this CA-EO is to reduce California's greenhouse gas (GHG) emissions to: (1) 2000 levels by 2010; (2) 1990 levels by the 2020; and (3) 80% below the 1990 levels by the year 2050. In 2006, this goal was further reinforced with the passage of Assembly Bill (AB) 32, the Global Warming Solutions Act of 2006. AB 32 sets the same overall GHG emissions reduction goals while further mandating that ARB create a plan, which includes market mechanisms, and implement rules to achieve "real, quantifiable, cost-effective reductions of greenhouse gases." CA-EO S-20-06 further directs state agencies to begin implementing AB 32, including the recommendations made by the state's Climate Action Team.

With CA-EO S-01-07, Governor Schwarzenegger set forth the low carbon fuel standard for California. Under this CA-EO, the carbon intensity of California's transportation fuels is to be reduced by at least 10 percent by 2020.

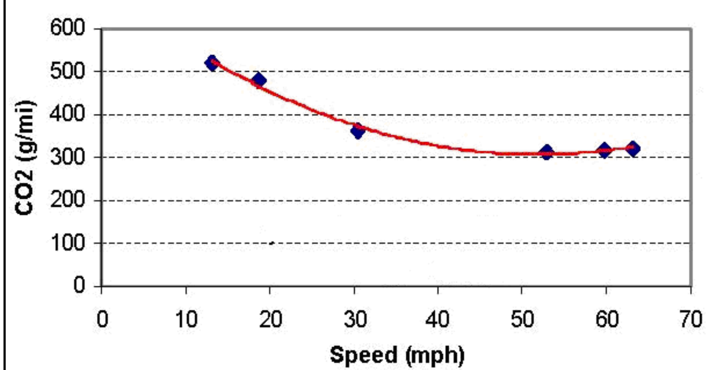
Climate change and GHG reduction is also a concern at the federal level; at this time, no legislation or regulations have been enacted specifically addressing GHG emissions reductions and climate change. However, California, in conjunction with several environmental organizations and several other states, sued to force the USEPA to regulate GHGs as a pollutant under the CAA (*Massachusetts vs. Environmental Protection Agency et al.,* U.S. Supreme Court No. 05–1120. 549 U.S. (Argued November 29, 2006—Decided April 2, 2007). The court ruled that GHGs do fit within the CAA's definition of a pollutant, and that EPA does have the authority to regulate GHGs. Despite the Supreme Court ruling, there are no promulgated federal regulations to date limiting greenhouse gas emissions.

Climate Change Evaluation

According to a recent white paper by the Association of Environmental Professionals (AEP; 2007), "an individual project does not generate enough greenhouse gas emissions to significantly influence global climate change. Global climate change is a cumulative impact; a project participates in this potential impact through its incremental contribution combined with the cumulative increase of all other sources of greenhouse gases."

GHG emissions in California are predominantly generated from the burning of fossil fuels, including (among other sources) from transportation sources. Transportation's contribution to GHG emissions is dependent on three factors: the types of vehicles on the road, the type of fuel the vehicles use, and the time/distance the vehicles travel. At a state level, one of the main strategies to reduce GHG emissions is to make California's transportation system more efficient. The highest levels of carbon dioxide (CO_2) from mobile sources, such as automobiles, occur at stop-and-go speeds (0-25 mph) and speeds over 55 mph; the most severe emissions occur from 0-25 mph, as shown in Table 3.12-8 below). Relieving congestion by enhancing operations and improving travel times in high congestion travel corridors will lead to an overall reduction in GHG emissions.

Table 3.12-9
CARBON DIOXIDE EMISSIONS VERSUS SPEED (HIGHWAY)



Source: *Air Quality Impact Assessment for the San Ysidro Land Port of Entry Improvements Project*, April 2009.

The Preferred Alternative is designed to reduce congestion and vehicle time delays by expanding the LPOE at the border. Increases in traffic crossing the border would occur with or without the Preferred Alternative. As the Preferred Alternative is included in the 2030 RTP and 2008 RTIP, it conforms with those plans and is designed to reduce vehicle hours traveled by reducing congestion and queuing times at the LPOE, and will improve overall traffic flow at the border crossing. As discussed in the traffic study (*San Ysidro Land Port of Entry Border Station Expansion Traffic Impact Study*, April 2009), wait times at the border are projected to increase to three to four hours in the near-term (2014) and up to 10 hours in the horizon year (2030). Implementation of the Preferred Alternative would reduce projected wait times to a maximum of 1.5 hours throughout the day (*San Ysidro Land Port of Entry Border Station Expansion Traffic Impact Study*, April 2009). Due to the reduction in vehicle hours traveled and improved traffic flow, CO_2 emissions at the LPOE are anticipated to be reduced despite increases in traffic.

However, the effect of increasing processing capacity of northbound traffic at the LPOE would result in higher volumes of traffic merging onto northbound I-5 and I-805 during peak periods, especially the AM peak. As a result, northbound I-5, between the international border and the I-805 interchange, and northbound I-805, between the I-5 interchange and East San Ysidro Boulevard would experience greater congestion and reduced speeds with the Preferred

Alternative, which could generate additional CO_2 emissions. It is anticipated that these additional emissions may be partially or completely offset by the reduced emissions at the LPOE because congestion and delays on the freeway segments would be less than existing congestion and delays at the San Ysidro LPOE.

Table 3.12-10 presents a summary of the GHG emissions calculated for the Preferred Alternative operations. The calculation includes indirect emissions from electricity and natural gas use for the 210,000 square foot building, which were calculated based on the California Climate Action Registry Protocol emission factors, and emissions from vehicles. Emissions from vehicles were calculated using EMFAC2007 emission factors. As indicated, the Preferred Alternative would result in a net decrease in GHG emissions due to the reductions in idling times at the border crossing.

Table 3.12-10
GREENHOUSE GAS EMISSIONS (Metric Tons per Year)

Emission Source	CO_2	CH_4	N_2O
Building Electricity Use	1,084	0.0083	0.0046
Building Natural Gas Use	124	0.014	0.0002
Net Vehicle Emissions - Freeway	10,724	0.564	1.486
Net Vehicle Emissions – Surface Streets	-750	-0.047	-0.060
Net Vehicle Emissions – Idling	-124,937	-7.496	-10.462
Total Net Emissions	-113,755	-7	-9
Total Net CO2 Equivalent Emissions	-116,700		

Note: Net emissions calculated as Preferred Alternative emissions minus No Build Alternative emissions.

The main contributor to GHG emissions in the state of California is motor vehicles. As part of the effort to reduce emissions from vehicles, the USEPA and the DOT currently intend to work in coordination to propose standards for control of emissions of greenhouse gases and for fuel economy, respectively. If proposed and finalized, these standards would apply to passenger cars, light-duty trucks, and medium-duty passenger vehicles (light-duty vehicles) built in model years (MY) 2012 through 2016. The USEPA is proposing GHG emission standards under the CAA. The CAA requires USEPA to establish "standards applicable to the emission of any air pollutant from new motor vehicles or new motor vehicle engines which, in the Administrator's judgment, cause or contribute to air pollution which may reasonably be anticipated to endanger public health or welfare." As noted above, USEPA has made a preliminary endangerment finding for GHGs. Section 202(a) of the CAA further provides that standards set pursuant to it "shall take effect after such period as the Administrator finds necessary to permit the development and application of the requisite technology, giving appropriate consideration to the cost of compliance within such period. USEPA expects to propose a national CO_2 vehicle emissions standard under section 202(a) of the CAA. USEPA is currently considering proposing standards that would, if made final, achieve on average 250 grams/mile of CO_2 in model year 2016. The standards for earlier years would begin with the 2012 model year, with a generally linear phase-in from MY 2012 through to MY 2016.

Under the Energy Policy and Conservation Act (EPCA), the National Highway Traffic Safety Administration (NHTSA), on behalf of the DOT, has authority to set fuel economy standards for on-road vehicles. The federal Corporate Average Fuel Economy (CAFE) standard determines the fuel efficiency of certain vehicle classes in the U.S. The EPCA requires that the CAFE standards for each MY be set at the maximum feasible level. In determining that level, NHTSA must consider technological feasibility, economic practicability, the effect of other motor vehicle standards of the government on fuel economy, and the need of the U.S. to conserve energy. NHTSA is prohibited from considering the availability of compliance flexibilities such as the ability to earn credits for exceeding CAFE standards in setting CAFÉ standards. Further, the NHTSA must set the MY 2011-2020 CAFE standards sufficiently high to ensure that the industry-wide average of all new passenger cars and light trucks, combined, is not less than 35 miles per gallon by MY 2020. In May 2009, President Obama announced plans to increase CAFE standards to require light-duty vehicles to meet an average fuel economy of 35.5 miles per gallon by 2016. This equates to the USEPA's emission standard of 250 grams/mile of CO_2 in MY 2016.

California AB 1493 (Pavley) enacted on July 22, 2002, required the ARB to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light-duty trucks. Regulations adopted by ARB will apply to 2009 and later model year vehicles. ARB estimates that the regulation will reduce climate change emissions from light-duty passenger vehicle fleet by an estimated 18 percent in 2020 and by 27 percent in 2030 (AEP 2007). Once implemented, emissions from new light-duty vehicles are expected to be reduced in San Diego County by 21 percent in 2020. EO S-01-07 was enacted by the Governor on January 18, 2007. Essentially, the order mandates the following: 1) that a statewide goal be established to reduce the carbon intensity of California's transportation fuels by at least ten percent by 2020; and 2) that a Low Carbon Fuel Standard (LCFS) for transportation fuels be established for California.

These measures would reduce GHG emissions from vehicles traveling through the LPOE. In addition, the GSA has committed to achieving LEED Certification for the building, which would result in further reductions from "business as usual" conditions assumed in the GHG emission calculations in Table 3.12-10. With implementation of vehicle emission standards and energy efficiency measures incorporated into the building design, the Preferred Alternative would reduce GHG emissions to the extent feasible.

Pedestrian Crossing Alternative

Although the Pedestrian Crossing Alternative would entail a different cross-border pedestrian circulation scheme, it would occur within the same Project Study Area as the Preferred Alternative, and construction (including phasing), operation, and maintenance activities would be similar. The analysis presented above for the Preferred Alternative would apply equally to the Pedestrian Crossing Alternative, and potential impacts with respect to air quality would be the same.

No Build Alternative

Under the No Build Alternative, the proposed improvements to the San Ysidro LPOE would not be constructed. The Preferred Alternative's contribution to easing future traffic congestion would not occur. Since existing traffic congestion would not be reduced, associated air quality impacts also would not be reduced. Regardless, no impacts are assessed because no construction is proposed.

3.12.4 Avoidance, Minimization, and/or Mitigation Measures

Preferred Alternative

Construction

Implementation of the following avoidance, minimization, and mitigation measures would reduce air quality impacts resulting from construction activities:

- Water or dust palliative should be applied to exposed soil surfaces at the construction site(s) and equipment as frequently as necessary to control fugitive dust emissions.
- Soil binder should be spread on any unpaved roads used for construction purposes, and all construction parking areas.
- Trucks should be washed off as they leave the construction site(s), as necessary, to control fugitive dust emissions.
- Construction equipment and vehicles should be properly tuned and maintained. Low sulfur fuel should be used in all construction equipment.
- Track-out reduction measures such as gravel pads should be used at access points to minimize dust and mud deposits on roads affected by construction traffic.
- Transported loads of soils and wet materials should be covered prior to transport, or adequate freeboard (space from the top of the material to the top of the truck) should be provided to reduce PM10 and deposition of particulate during transportation.
- Dust and mud that are deposited on paved, public roads due to construction activity and traffic should be removed to decrease particulate matter.
- To the extent feasible, construction traffic should be routed and scheduled to reduce congestion and related air quality impacts caused by idling vehicles along local roads during peak travel times.
- Grading and earth moving should be suspended when wind gusts exceed 25 mph unless the soil is wet enough to prevent dust plumes.

Global Climate Change

To the extent that it is applicable or feasible, the following measures can help to reduce GHG emissions and potential climate change impacts resulting from the Preferred Alternative:

- Provide landscaping where possible, which reduces surface warming and decreases CO_2 through photosynthesis
- Use lighter color surfaces, such as Portland cement, which helps to reduce the albedo effect (i.e., surface reflectivity of the sun's radiation) and cool the surface
- Use of energy efficient lighting
- Limit idling times on trucks and equipment used during construction

Pedestrian Crossing Alternative

Avoidance, minimization, and mitigation recommendations related to air quality issues for the Pedestrian Crossing Alternative would be the same as those identified above for the Preferred Alternative. The use of such measures and considerations would reduce all potential impacts related to air quality.

No Build Alternative

The No Build Alternative would not result in air quality impacts; therefore, no avoidance, minimization, or mitigation measures are required.

THIS PAGE INTENTIONALLY LEFT BLANK