Appendix H Air Quality Analysis

1.0 Introduction

This appendix presents an assessment of potential air quality impacts associated with the General Services Administration's (GSA) proposed Calexico West Land Port of Entry (LPOE) Improvements Project. The assessment addresses the potential for air emissions during construction and after full build out of the project, including an assessment of the potential for the formation of carbon monoxide (CO), respirable "hot spots" due to traffic associated with the proposed project.

2.0 Background Air Quality

2.1 Regional Air Quality

Table 2-1 provides a summary for Imperial County of the attainment status for each criteria pollutant.

Table 2-1. Imperial County Attainment Classification

Pollutant	Attainment Status: Federal	Attainment Status: State
Ozone (O3)	Nonattainment	Nonattainment
Respirable Particulate Matter (PM10)	Nonattainment	Nonattainment
Fine Particulate Matter (PM2.5)	Nonattainment	Nonattainment
Carbon Monoxide (CO)	Attainment	Attainment
Nitrogen Dioxide (NO2)	Attainment	Attainment
Sulfur Dioxide (SO2)	Attainment	Attainment

Source: EPA 2011 and CARB 2011.

As shown in Table 2-1, Imperial County is designated as a non-attainment area for ozone, and PM-10, and the city of Calexico is designated as a non-attainment area for PM-2.5 under the NAAQS. Non-attainment status means that the ambient concentration of a criteria pollutant is exceeded in the region relative to the applicable air quality standard. A region is a "nonattainment" area if one or more monitoring stations in the region fails to attain the relevant standard. Areas that were previously designated as nonattainment areas but have recently met the standard are called "maintenance" areas.

2.2 Local Air Quality

Existing levels of ambient air quality and historical trends and projections of air quality in the project area are best documented from measurements made near the project site. The Imperial County Air Pollution Control District (ICAPCD) has air quality monitoring stations in Niland, Brawley, Westmorland, El Centro, and a station in Calexico and the California Air Resources Board (CARB) has two other stations in Calexico. The monitoring stations measure the levels for the various air pollutants that are used to define ambient air quality. The ICAPCD monitoring station in Calexico (Calexico-Ethel Street) is located

on approximately 1.1 miles northeast of the Calexico LPOE and is the station that best reflects conditions at the project site.

Ambient concentrations of pollutants from the Calexico-Ethel Street Monitoring Station for the 3-year period of 2006 through 2008 are presented in Table 2-2. These data indicate that the baseline air quality conditions in the project area include occasional events of very unhealthful air. However, the City of Calexico reports that the frequency of smog alerts has dropped significantly in the last decade. Ozone and particulates are the two most significant air quality concerns in the project area. Since 1995, the level of inhalable particulates has remained consistently high. However, the number of days that exceeded the state standard has dropped significantly (Calexico 2007).

Table 2-2. Ambient Background Concentrations at the Calexico-Ethel Street Monitoring Station

Pollutant	Averaging Period	Units	NAAQS	CAAQS	2006 Max	2007 Max	2008 Max
Ozone (O3)	1-hour	ppm	None	0.09	0.111	0.112	0.128
	8-hour	ppm	0.075	0.070	0.087	0.094	0.093
Respirable Particulate Matter (PM10)	24-hour	µg/m3	150	50	164	282	111
	Annual	µg/m3	None	20	56	66	56
Fine Particulate Matter (PM2.5)	24-hour	µg/m3	35	None	46	29.5	24
	Annual	µg/m3	15	12	12.47	12.25	10.48
Carbon Monoxide (CO)	1-hour	ppm	35	20	12.4	10.4	8.2
	8-hour	ppm	9	9.0	9.8	7.5	5.3
Nitrogen Dioxide (NO2)	1-hour	ppm	None	0.18	0.101	0.107	0.103
	Annual	ppm	0.053	0.030	0.014	0.015	0.013
Sulfur Dioxide (SO2)	1-hour	ppm	None	0.25	0.192	0.014	0.018
	3-hour	ppm	0.5	None	0.166	0.010	0.011
	24-hour	ppm	0.14	0.04	0.038	0.004	0.007
	Annual	ppm	0.03	None	0.002	0.001	0.001

[a] Values in parentheses () are exceedances of state standards.

[b] Insufficient data.

Source: CARB 2010.

2.3 Sources of Air Pollutants

In Imperial County, mobile emissions are the primary source of local pollution, accounting for approximately 80 percent of CO, 76 percent of NOX, and 76 percent of SOX. For reactive organic gasses (ROG), PM10 and PM2.5, the majority of emissions are generated by area sources. Approximately 30 percent of ROG in Imperial County is generated by agricultural sources and approximately 23 percent is from solvent evaporation. Fugitive windblown dust and unpaved road dust constitute the majority of PM10 emissions in Imperial County, accounting for approximately 77 percent and 13 percent,

respectively. Fugitive windblown dust and unpaved road dust emissions are also the main source of PM2.5 for the County, accounting for approximately 67 percent and 13 percent, respectively (CARB 2006b). At the LPOE, long lines of idling vehicles contribute to the air pollution in the region.

2.4 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:

- Auroro High School
- Calexico Adventist Missionary School
- Calexico High School
- Calexico Hospital
- Calexico Mission Academy
- Campesinos Unidos Head Start
- De Anza Jr. High School
- De Anza Senior Apartments
- Dool Elementary
- Jefferson Elementary
- Kennedy Garden Elementary
- Mains Elementary
- Moreno William Jr. High School
- Our Lady of Guadalupe Academy
- Rockwood Elementary
- Vincent Memorial High School

3.0 Evaluation of Impacts

3.1 Construction Impacts

Construction emissions are generated by both onsite and offsite activities. Onsite emissions primarily consist of exhaust emissions (NOx, CO, ROG, SOx, PM10, PM2.5, and CO2) from construction equipment, motor vehicle operation, and fugitive dust from disturbed soil. In addition, paving operations and the application of architectural coatings will release ROG emissions. Offsite emissions consist of motor vehicle exhaust and road dust from the operation of delivery vehicles and worker traffic. Major construction-related activities include the following:

- Grading and excavation;
- Building construction;
- Asphalt paving of parking lots and roadways; and
- Application of architectural coatings on exterior and interior surfaces.

Construction emissions were quantified using the California Emissions Estimator Model (CalEEMod), version 2011.1. CalEEMod quantifies emissions of NOx, CO, ROG, SOx, PM10, PM2.5, and CO2 from

construction activities by using emission factors from CARB's EMFAC2007 and OFFROAD2007 modeling software, for on-road and offroad construction vehicles, respectively. CalEEMod calculates Off-Road and On-Road vehicle emissions based on the fleet average emission rate of vehicles operating in the ICAPCD for the year in which each construction activity occurs. Emission factors for fugitive dust emissions and fugitive VOC emissions from asphalt and architectural coatings application are also included in CalEEMod. From project input parameters (e.g., land use, acreage, building square feet), CalEEMod calculates construction emissions in units of maximum pounds per day and total tons per year. The CalEEMod defaults for construction activities and construction fleet quantities were used.

The Preferred Alternative includes building new inspection facilities for southbound privately owned vehicles (POVs) and buses on the site of the former commercial vehicle inspection facility and building new facilities at the site of the existing port for inspection of northbound POVs, buses, and pedestrians.

In order to meet the proposed schedule of the Border Station Master Plan, various site and operational constraints, the construction of the new facility will take place in two phases. Phase 1 was assumed to commence in May 2011 and would continue for a period of approximately 24 months. Phase 1 would include the following elements: clearing and leveling of the Old Commercial Port area, reconfiguration of the northbound lanes, construction of the head house, 10 primary auto inspection lanes, 12 secondary inspection booths, canopies, surface and lower-level parking, temporary surface parking for employees, a secure prisoner transport sally-port, southbound inspection facilities, and site development to the western edge of the site. Phase 2 was assumed to commence in May 2012 and would continue for a period of approximately 30 months. Phase 2 would include the following elements: construction of the remaining northbound inspection facilities, a new Administration Building, a new Pedestrian processing facility, the connecting tunnel, and demolition of the existing LPOE. The construction scenario assumed that construction activities would occur 8 hours per day, 5 days per week.

Emissions from the two construction phases would overlap as their schedules overlap. A detailed construction schedule is not currently available; so assumptions regarding construction phasing and schedule were made to evaluate daily and annual emissions.

Table 3-1 summarizes the construction-related emissions (without mitigation). The emission estimates were derived from the project description using the CalEEMod model.

Table 3-1. Unmitigated Construction Emissions

Source		Maximum Daily Emissions (pounds per day)					
Phase	Year	ROG	NOx	CO	SOx	PM10 [a]	PM2.5 [a]
Phase 1	2011	10.21	82.76	48.66	0.08	9.89	6.58
	2012	8.19	43.90	34.23	0.06	3.21	2.78
	2013	44.87	40.57	33.05	0.06	3.00	2.94
Phase 2	2012	6.93	52.13	33.46	0.05	5.62	4.30
	2013	5.75	37.44	27.56	0.05	2.54	2.39
	2014	25.49	70.19	43.88	0.08	7.39	3.37
ICAPCD Significance Threshold [b]		75	100	550	NA	150	NA
Below Threshold?		Yes	Yes	Yes	Yes	Yes	NA

a) PM10 and PM2.5 emissions include the required fugitive dust control measures under ICAPCD's Regulation VIII.

b) Source: .ICAPCD 2007, Table 4

The ICPACD, which has jurisdiction over stationary sources within Imperial County, uses a two-tiered approach for the analysis of construction impacts. Project construction emissions are quantified and compared against the thresholds of significance contained in Table 4 of the ICAPCD CEQA Air Quality Handbook (ICAPCD 2007). If construction emissions are below these thresholds, the project must comply with ICAPCD Regulation VIII and apply standard mitigation measures for construction emissions and fugitive dust. No additional analysis is required. For projects that exceed the thresholds of significance, the ICAPCD requires an additional analysis of localized and, under certain circumstances, regional impacts. Construction projects that are "prone to a significant use of heavy-duty diesel equipment and vehicles and that are within areas prone to human exposure" are required to perform a diesel exhaust screening level health risk assessment. As shown in Table 3-1, the project's emissions are below the construction thresholds of significance. So, no further analysis of construction impacts is required.

3.2 Operational Impacts

3.2.1 Operational Air Emissions

The Preferred Alternative would result in operational air emissions that are mainly attributable to vehicles traveling on Imperial Avenue (SR-111) through the border crossing, as well as vehicles idling at the border crossing. Air emissions were determined by multiplying number of vehicles by a specific pollutant's emission factor. Complexity increases when, instead of a single emission factor, several different emission factors for different vehicle activities are applied. The number of vehicles was derived from the Calexico West Land Port of Entry Border Station Expansion Traffic Impact Study (KOA Corporation 2009) and the Border Wizard Model. Emission factors were determined using the California Emission Factors (EMFAC2007) model.

Tables 3-2 and 3-3 present a summary of the average and peak operational emissions from northbound and southbound vehicles for the Preferred Alternative built in two Phases and No Build Alternative, along with a calculation of the net emissions attributable to the project. As shown in Table 3-2, the Preferred Alternative would result in a net increase in average emissions due to the increase in northbound traffic flow at the border crossing and a decrease in peak hour emissions due to the

reduction in idling time in long queues at the border crossing. As shown in Table 3-3, the Preferred Alternative would result in a net increase in average and peak emissions due to the increase in southbound traffic flow at the border crossing.

Table 3-2. Pollutant Emission Rates for Existing, Near-Term, and Horizon Year Conditions; Build and No Build Scenarios for the Northbound Direction

Northbound Average Operational Emissions (tons per year)							
-	**ROG**	**CO**	**NOX**	**CO2**	**SO2**	**PM2.5**	**PM10**
2008 - existing conditions	27.4	32.3	6.8	1,992	0.020	0.17	0.19
2015 - No Build Alternative	19.4	23.3	6.2	2,069	0.020	0.17	0.20
2015 - Preferred Alternative	27.8	33.3	8.9	2,963	0.029	0.24	0.29
Net	**8.4**	**10.1**	**2.7**	**894**	**0.0088**	**0.073**	**0.087**
2035 - No Build Alternative	13.3	17.5	5.8	2,310	0.023	0.18	0.21
2035 - Preferred Alternative	19.1	25.1	8.3	3,307	0.033	0.26	0.30
Net	**5.8**	**7.6**	**2.5**	**997**	**0.0099**	**0.077**	**0.090**

Northbound Peak Operational Emissions (pounds per hour)							
-	**ROG**	**CO**	**NOX**	**CO2**	**SO2**	**PM2.5**	**PM10**
2008 - existing conditions	17.9	32.5	4.6	2,777	0.028	0.21	0.25
2015 - No Build Alternative	12.5	20.5	3.7	2,881	0.028	0.22	0.26
2015 - Preferred Alternative	8.8	10.5	2.8	938	0.009	0.08	0.09
Net	**-3.7**	**-9.9**	**-0.88**	**-1,943**	**-0.019**	**-0.143**	**-0.17**
2035 - No Build Alternative	8.4	12.5	2.9	3,213	0.031	0.24	0.29
2035 - Preferred Alternative	6.0	7.9	2.6	1,047	0.010	0.08	0.09
Net	**-2.4**	**-4.5**	**-0.33**	**-2167**	**-0.021**	**-0.16**	**-0.19**

Source: Tetra Tech 2011a

Table 3-3. Pollutant Emission Rates for Existing, Near-Term, and Horizon Year Conditions; Build and No Build Scenarios for the Southbound Direction

Southbound Average Operational Emissions (tons per year)							
-	ROG	CO	NOX	CO2	SO2	PM2.5	PM10
2008 - existing conditions	35.7	42.1	8.8	2,593	0.026	0.22	0.25
2015 - No Build Alternative	25.3	30.3	8.1	2,694	0.027	0.22	0.26
2015 - Preferred Alternative	27.8	33.3	8.9	2,963	0.029	0.24	0.29
Net	**2.5**	**3.0**	**0.8**	**269**	**0.0027**	**0.022**	**0.026**
2035 - No Build Alternative	17.3	22.8	7.5	3,006	0.030	0.23	0.27
2035 - Preferred Alternative	19.1	25.1	8.3	3,307	0.033	0.26	0.30
Net	**1.7**	**2.3**	**0.8**	**301**	**0.0030**	**0.023**	**0.027**

Southbound Peak Operational Emissions (pounds per hour)							
	ROG	CO	NOX	CO2	SO2	PM2.5	PM10
2008 - existing conditions	21.4	25.2	5.3	1,555	0.016	0.13	0.15
2015 - No Build Alternative	15.2	18.2	4.8	1,616	0.016	0.13	0.16
2015 - Preferred Alternative	16.7	20.0	5.3	1,777	0.018	0.15	0.17
Net	**1.5**	**1.8**	**0.48**	**161**	**0.0016**	**0.013**	**0.016**
2035 - No Build Alternative	10.4	13.7	4.5	1,803	0.018	0.14	0.16
2035 - Preferred Alternative	11.4	15.0	5.0	1,984	0.020	0.15	0.18
Net	**1.0**	**1.4**	**0.45**	**180**	**0.0018**	**0.014**	**0.016**

Source: Tetra Tech 2011a

3.2.2 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. Imperial County, which is in the Salton Sea Air Basin, is designated as a non-attainment area for ozone, and PM-10, and the city of Calexico is designated as a non-attainment area for PM-2.5.

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 E 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 Imperial County 2007 Transportation Plan. The Project is also included in the Southern California Association of Governments (SCAG) adopted the 2008 Regional Transportation Plan. Conformity determinations for both the 2030 RTP and the 2008 RTIP was made by DOT in 2010. The design concept and scope of the Preferred Alternative is consistent with the project descriptions in these documents. 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 evaluated whether there would be a decrease in the LOS at the intersections affected by the Preferred Alternative. The traffic study evaluated intersection operations for existing, near-term (2015), and horizon year (2035) conditions. Twelve intersections that would operate at LOS E or F in the PM peak period under near-term and horizon year conditions were identified. In addition, fourteen sensitive areas such as schools, parks, and hospitals were determined to be within scope of analysis.

To evaluate the potential for CO "hot spots," CALINE4 modeling was conducted for the intersections and sensitive areas for near-term and horizon year conditions, without (No Build Alternative) and with the Preferred Alternative (Build Alternative). 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 and local meteorology data. As recommended in the Protocol, receptors were located at locations that were approximately 10 feet from the edge of the roadway and at a height of six feet. Average approach and departure speeds were assumed to be worst case (i.e., 5 mph), and emission factors for that speed were estimated from the CT-EMFAC 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 concentrations of CO measured at the Calexico Ethel Street monitoring station for the period from 2006 – 2008 was used to represent future maximum CO concentrations. CO concentrations in the future may be lower as inspection and maintenance programs and more stringent emission controls are placed on vehicles.

Tables 3-4 and 3-5 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. These results are shown in Table 3-5.

As shown in Tables 3-4 and 3-5, the predicted CO concentrations for the Preferred Alternative would be below the 1-hour and 8-hour NAAQS and CAAQS for CO. The only exceedances are in the maximum 8-hour average period for the existing conditions scenario. Therefore, no exceedances of the CO standard are predicted for the Preferred Alternative and thus, the Preferred Alternative would not cause a violation of these air quality standards. No associated adverse air quality impacts would occur.

Table 3-4. Maximum 1-Hour Concentration Plus Background during Peak PM Hour (in ppm)

Intersection	2008	2015 No Build	2015 Build	2015 Δ	2035 No Build	2035 Build	2035 Δ
1. Birch Street (SR-98) / VV Williams Avenue	12.1	11.2	11.3	*0.1*	10.2	10.3	*0.1*
2. Birch Street (SR-98) / Cesar Chavez Boulevard	12.3	11.9	12.3	*0.4*	10.7	10.9	*0.2*
3. Birch Street (SR-98) / Ollie Avenue	11.6	10.6	10.9	*0.3*	9.9	9.9	*0.0*
4. Birch Street (SR-98) / Imperial Avenue (SR-111)	14.5	12.7	12.9	*0.2*	10.9	10.7	*-0.2*
5. Imperial Avenue (SR-111) / 10th St	13.3	11.6	11.8	*0.2*	10.4	10.1	*-0.3*
6. Cesar Chavez Boulevard / Grant Street	10.1	11.1	11.5	*0.4*	10.2	10.8	*0.6*
7. Imperial Avenue (SR-111) / Grant Street	13.6	11.9	12.1	*0.2*	10.5	10.2	*-0.3*
11. Imperial Avenue (SR-111) / 3rd Street	14.2	12.4	12.7	*0.3*	10.5	10.0	*-0.5*
12. Paulin Avenue / 3rd Street	10.5	9.9	10.0	*0.1*	9.3	9.3	*0.0*
13. Cesar Chavez Boulevard / 2nd St	9.9	11.1	11.8	*0.7*	10.1	10.7	*0.6*
14. Imperial Avenue (SR-111) / 2nd St	14.8	12.7	12.5	*-0.2*	10.7	10.3	*-0.4*
15. Paulin Avenue / 2nd St	11.2	10.6	10.9	*0.3*	9.7	9.9	*0.2*

Table 3-4 (continued). Maximum 1-Hour Concentration Plus Background during Peak PM Hour (in ppm)

Sensitive Area	2008	2015 No Build	2015 Build	2015 Δ	2035 No Build	2035 Build	2035 Δ
Auroro High School	9.7	9.2	9.4	*0.2*	8.8	8.9	*0.1*
Border Park	11.1	10.2	10.4	*0.2*	9.3	9.0	*-0.3*
Calexico Adventist Missionary School	10.1	9.4	9.4	*0.0*	8.8	8.7	*-0.1*
Calexico Hospital	13.5	11.9	12.0	*0.1*	10.4	10.4	*0.0*
Calexico Mission Academy	10.2	9.5	9.6	*0.1*	9.0	9.0	*0.0*
Campesinos Unidos Head Start	12.7	11.4	11.4	*0.0*	10.0	10.1	*0.1*
Herber Park	10.1	9.7	9.8	*0.1*	8.7	8.8	*0.1*
Kennedy Garden Elementary	9.6	9.2	9.3	*0.1*	8.8	8.8	*0.0*
Legion Park	9.6	10.3	10.7	*0.4*	9.6	10.2	*0.6*
Mains Elementary	12.3	11.4	11.5	*0.1*	10.4	10.4	*0.0*
Our Lady of Guadalupe Academy	9.8	9.4	9.5	*0.1*	8.8	8.9	*0.1*
Rockwood Elementary	13.4	11.9	12.0	*0.1*	10.4	10.4	*0.0*
Rodriguez Park	8.6	9.2	9.3	*0.1*	8.9	9.0	*0.1*
Vincent Memorial High School	12.2	11.5	11.7	*0.2*	10.4	10.4	*0.0*

Source: Tetra Tech 2011b

Table 3-5. Maximum 8-Hour Concentration Plus Background (in ppm)

Intersection	2008	2015 No Build	2015 Build	2015	2035 No Build	2035 Build	2035
1. Birch Street (SR-98) / VV Williams Avenue	8.0	7.4	7.5	*0.1*	6.7	6.8	*0.1*
2. Birch Street (SR-98) / Cesar Chavez Boulevard	8.2	7.9	8.2	*0.3*	7.1	7.2	*0.1*
3. Birch Street (SR-98) / Ollie Avenue	7.7	7.0	7.2	*0.2*	6.5	6.5	*0.0*
4. Birch Street (SR-98) / Imperial Avenue (SR-111)	9.7	8.5	8.6	*0.1*	7.2	7.1	*-0.1*
5. Imperial Avenue (SR-111) / 10th St	8.9	7.7	7.8	*0.1*	6.8	6.6	*-0.2*
6. Cesar Chavez Boulevard / Grant Street	6.6	7.3	7.6	*0.3*	6.7	7.1	*0.4*
7. Imperial Avenue (SR-111) / Grant Street	9.1	7.9	8.0	*0.1*	6.9	6.7	*-0.2*
11. Imperial Avenue (SR-111) / 3rd Street	9.5	8.2	8.5	*0.2*	6.9	6.6	*-0.4*
12. Paulin Avenue / 3rd Street	6.9	6.5	6.6	*0.1*	6.1	6.1	*0.0*
13. Cesar Chavez Boulevard / 2nd St	6.5	7.3	7.8	*0.5*	6.6	7.1	*0.4*
14. Imperial Avenue (SR-111) / 2nd St	9.9	8.5	8.3	*-0.1*	7.1	6.8	*-0.3*
15. Paulin Avenue / 2nd St	7.4	7.0	7.2	*0.2*	6.4	6.5	*0.1*

Table 3-5 (continued). Maximum 8-Hour Concentration Plus Background (in ppm)

Sensitive Area	2008	2015 No Build	2015 Build	2015	2035 No Build	2035 Build	2035
Auroro High School	6.4	6.0	6.1	*0.1*	5.7	5.8	*0.1*
Border Park	7.3	6.7	6.8	*0.1*	6.1	5.9	*-0.2*
Calexico Adventist Missionary School	6.6	6.1	6.1	*0.0*	5.7	5.7	*-0.1*
Calexico Hospital	9.0	7.9	8.0	*0.1*	6.8	6.8	*0.0*
Calexico Mission Academy	6.7	6.2	6.3	*0.1*	5.9	5.9	*0.0*
Campesinos Unidos Head Start	8.5	7.5	7.5	*0.0*	6.6	6.6	*0.1*
Herber Park	6.6	6.4	6.4	*0.1*	5.7	5.7	*0.1*
Kennedy Garden Elementary	6.3	6.0	6.1	*0.1*	5.7	5.7	*0.0*
Legion Park	6.3	6.8	7.1	*0.3*	6.3	6.7	*0.4*
Mains Elementary	8.2	7.5	7.6	*0.1*	6.8	6.8	*0.0*
Our Lady of Guadalupe Academy	6.4	6.1	6.2	*0.1*	5.7	5.8	*0.1*
Rockwood Elementary	8.9	7.9	8.0	*0.1*	6.8	6.8	*0.0*
Rodriguez Park	5.6	6.0	6.1	*0.1*	5.8	5.9	*0.1*
Vincent Memorial High School	8.1	7.6	7.8	*0.1*	6.8	6.8	*0.0*

Source: Tetra Tech 2011b

Project Level Conformity – Local Particulate Impacts Emissions of particulate matter (PM2.5 and PM10) 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 PM2.5 and PM10 Nonattainment and Maintenance Areas. The USEPA's Transportation Conformity Rule (40 CFR 93.123(b)(1)) identifies projects for which PM2.5 and PM10 would be of concern. Based on the criteria under this rule, the Preferred Alternative would not be a project of air quality concern for PM2.5 and PM10 emissions because it would not result in increases in the number of diesel vehicles utilizing the border crossing. The Calexico West 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. The Preferred Alternative would therefore be in conformance for federal PM2.5 and PM10 standards. No associated adverse air quality impacts would occur.

4.0 Global Climate Change

There is growing concern about greenhouse gas emissions (GHG) and recognition of their significant adverse impacts on the world's climate and on our environment. These impacts, known as climate change, refer to the change in the average weather of the earth that may be measured by changes in wind patterns, storms, precipitation, and temperature. Global climate change is a cumulative impact. While individual projects do not generate enough greenhouse gas emissions to significantly influence global climate change, the incremental GHG emissions from an individual project combined with the GHG emissions from all other sources contribute to the potential impact. GHG emissions are measured as carbon dioxide equivalents (CO2e).

Greenhouse gases are emitted as a result of the energy used when driving, using electricity, and other activities. The transportation sector's contribution to GHG emissions is dependent on the types of vehicles on the road, the fuel the vehicles use, and the time/distance the vehicles travel. One of the main strategies for reducing GHG emissions in California is to make the transportation system more efficient. The highest levels of motor vehicle CO2 emissions occur at speeds between zero and 25 miles per hour. Enhancing LPOE operations to relieve congestion and improving travel times will lead to an overall reduction in GHG emissions.

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. The reduction in vehicle hours traveled and improved traffic flow at the reconfigured LPOE are expected to reduce CO2 emissions in spite of the increased traffic.

CO2 emissions resulting from the construction phase of the project were estimated utilizing the CalEEMod emissions inventory model. Trip lengths were obtained using the assumptions built into the CalEEMod model for Imperial County, which conservatively assumes that trip lengths will remain the same for all projects. Area source emissions associated with the operational phase of the project were also calculated using the assumptions built into the CalEEMod model for Imperial County. The

EMFAC2007 model was used to calculate emissions associated with traffic in the northbound and southbound traffic at the Calexico LPOE.

Construction exhaust GHG emissions are presented in Table 4-1. Operational Phase emissions are presented in Table 4-2.

Table 4-1. Annual Construction Exhaust GHG Emissions (metric tons/year CO2e)

2011	2012	2013	2014
450.79	1011.92	688.69	412.63

Table 4-2. Annual Operational Phase GHG Emissions (metric tons/year CO2e)

Motor vehicles	7000.18
Energy	465.27
Waste	30.86
Water	179.05
Total	7675.36

5.0 References

KOA Corporation 2009. Calexico West Land Port of Entry Border Station Expansion Traffic Impact Study. November.

CARB 2009. Fact Sheet: Air Pollution Sources, Effects and Control. December 2, 2009. Available online at http://www.arb.ca.gov/research/health/fs/fs2/fs2.htm.

CARB 2010. Ambient Air Quality Standards. September 8, 2010. Available online at http://www.arb.ca.gov/research/aaqs/aaqs2.pdf.

Tetra Tech 2011a. Calculation Package for Calexico West Land Port of Entry: Operational Air Emission Model, May 2011, prepared by Tetra Tech on behalf of General Services Administration, Aiken, South Carolina.

Tetra Tech 2011b. Calculation Package for Calexico West Land Port of Entry: Carbon Monoxide “Hot Spot” Evaluation, May 2011, prepared by Tetra Tech on behalf of General Services Administration, Aiken, South Carolina.