Air Quality Technical Report for Construction Emissions

for

STATE ROUTE 11 AND THE OTAY MESA EAST PORT OF ENTRY

OTAY MESA, SAN DIEGO, CALIFORNIA
DISTRICT 11–SD –ROUTE 11- PM 0.0/2.1
EA056310
DISTRICT 11–SD –ROUTE 905- PM R8.4/10.1

TIER II ENVIRONMENTAL IMPACT REPORT/ ENVIRONMENTAL IMPACT STATEMENT

November 2010

AIR QUALITY TECHNICAL REPORT FOR CONSTRUCTION EMISSIONS

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Prepared For: The California Department of Transportation

1.0 Introduction and Project Description

The need for proposed SR-11 is linked to the need for the new Otay Mesa East POE. Without SR-11, the Otay Mesa East POE would relocate a substantial number of trips on the local roadway system and would lead to the local roadways operating over capacity and with substantial delays. Proposed SR-11 is required in conjunction with the Otay Mesa East POE project to provide adequate cross-border travel facilities to fully accommodate future conditions.

The proposed SR-11 and Otay Mesa East POE project is needed to address the projected increase in trade, travel, development, and population at the California/Mexico border. The need for a third POE in the San Diego/Tijuana area is well established, and is based on recent and projected increases in trade and personal travel beyond the capacities of the existing POEs. Trade between the U.S. and Mexico has increased substantially since the signing of the North American Free Trade Agreement (NAFTA) in 1994, and totaled over $332 billion by 2006 (U.S. Department of Transportation 2007). Pedestrian and passenger vehicle border crossings between the U.S. and Mexico have also risen dramatically in the past decade, reaching over 60 million people in 2006 in the San Diego County/Baja California border area alone (San Diego Association of Governments [SANDAG]/Caltrans 2006a). The number of inspections increased substantially over the past decade, and is projected to continue to climb beyond the capacity of the existing POEs in the region.

2.0 Project Description

Emissions of criteria pollutants associated with construction of infrastructure improvements related to the SR 11 include the following: fugitive dust generation from site grading and preparation, heavy construction equipment exhaust emissions, emissions associated with truck traffic bringing construction materials to the site, and construction worker vehicle travel. To estimate emissions associated with construction of the alternatives, emission factors for construction from the ARB's OFFROAD model (California Air Resources Board 2007) were used to estimate emissions associated with the construction of the project. For purposes of conservative modeling, emission factors for San Diego County for 2008 were used to estimate emissions from heavy equipment.

There are three build alternatives for the SR-11 project. The construction emission's analysis performed herein refers directly to the POE and CVEF facilities that are to accompany the freeway infrastructure, independent of the alternative chosen.

Otay Mesa East POE

The proposed POE would accommodate northbound and southbound commercial and passenger traffic, as well as pedestrians and bicycles. The POE site would be accessed from the north by SR-11. From the south, entry would be through the proposed Otay II POE on the Mexican side of the border.

The current 106-acre POE shape and layout have been adjusted from those shown in the Program Environmental Impact Report/Phase I Environmental Impact Statement (PEIR/PEIS) approved

for the project in 2008, to reflect subsequent design changes for proposed SR-11 and the Otay II POE in Mexico.

Following implementation of the proposed project, it is anticipated that the existing Otay Mesa POE would remain open to all commercial, passenger and pedestrian traffic, while the existing POE at San Ysidro would continue to accommodate only passenger and pedestrian traffic. The GSA feasibility study conducted as part of the Otay Mesa East POE Phase I analysis (GSA 2008) concluded that this would be the most efficient operational arrangement to accommodate projected traffic in the San Diego-Tijuana region.

Transit Center Site

The overall POE footprint includes up to two acres to accommodate a potential future transit center adjacent to the POE. The intent of reserving space for a potential future transit center is to ensure that opportunities to implement transit service to the POE, such as Bus Rapid Transit, would not be precluded by future development in the project site vicinity. It is expected that SANDAG would locate the future transit center in the vicinity of the western POE boundary.

Commercial Vehicle Enforcement Facility (CVEF)

The proposed site for the CVEF would include approximately 23 acres and would be located east of SR-11 along the northern POE boundary (refer to Figure 2-4. After receiving clearance to enter the U.S. at the POE, northbound commercial vehicles would be routed into the CVEF for a safety inspection by the CHP prior to being released onto the regional roadway system

3.0 Construction Impacts

Construction is expected to take place in one phase. The phase and components are summarized below. The construction scenario assumed that construction would take place over 26 days per month (equivalent to 6 days per week), for 8 hours per day.

Phase 1:
Start Date: July 2012
Duration: 24 to 30 months

CVEF / POE

- Northbound / Southbound Roadway
- Primary Inspection Area
- Secondary Inspection Area
- Auto Seizure and Impound Facilities
- Operations Center
- Central Plant

As shown above, the overall construction of the Port of Entry will commence in 2012 and will be completed in approximately 2014. Detailed construction scheduling information is not currently

available; therefore, assumptions regarding construction phasing and schedule were made to evaluate daily and annual emissions. Construction emissions were evaluated based on the methodologies recommended in the South Coast Air Quality Management District's CEQA Air Quality Handbook (SCAQMD 1993). Although the project is not subject to CEQA, the Handbook provides the most accurate methodologies and approaches for calculating emissions associated with construction and is considered the best guideline for construction calculations within the state of California. Emission factors from the California Air Resources Board's OFFROAD model (ARB 2007) were used to estimate emissions from heavy equipment. Emissions of fugitive dust were estimated based on methodologies recommended in the URBEMIS2007 model (Rimpo and Associates 2007), and in the SCAQMD's CEQA Air Quality Handbook for earthmoving activities.

For the purpose of estimating fugitive dust emissions from grading and surface preparation activities, it was assumed that 5 acres per day could be graded. Based on the emission factor from the URBEMIS Model of 20 lbs/acre-day, and assuming a minimum of 3 times daily watering to control dust, emissions would be 39 lbs/day from grading activities. PM2.5 fractions were estimated based on the SCAQMD's Final – Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds (SCAQMD 2006), which recommends a fugitive dust PM2.5 fraction of 0.21.

Estimated construction emissions as a result of implementation of the proposed action are shown below (tons per year).

Table 1
Estimated Construction Emissions

Emission Source	**CO**	**ROC**	**NO_x**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**
Tons/Year						
Phase I						
Site Grading Fugitive Dust	-	-	-	-	4.88	1.02
Earthmoving Fugitive Dust	-	-	-	-	9.59	1.17
Heavy Construction Equipment	24.55	6.98	44.73	0.05	3.04	2.71
Worker Travel – Vehicle Emissions	4.86	0.23	0.45	0.01	0.06	0.03
Construction Truck Emissions	10.43	2.17	29.32	0.04	1.29	1.11
TOTAL	**39.84**	**9.29**	**74.50**	**0.10**	**18.86**	**6.04**
Significance Criteria	100	50	100	100	100	55
Significant?	*No*	*No*	*No*	*No*	*No*	*No*

As shown in Tables 1, emissions for each the construction phase would be below the de minimis threshold during construction for all pollutants.

Appendix A presents the estimated maximum number of types and pieces of heavy equipment required for the construction phase. It was conservatively assumed that heavy construction equipment would be operating at the site for a total of 10 hours per day, 6 days per week.

Furthermore, as stated above, it was assumed that a maximum of 0.4 hectares (one acre) per day would be graded during construction. The SCAQMD emission factor of 26.4 lbs/acre/day (SCAQMD CEQA Air Quality Handbook, Table 9-9), was used to provide an estimate of the PM10 emissions associated with grading. It was further assumed that emissions would be controlled through watering and dust control measures at the site, and that the control efficiency of these measures would be 51 percent (based on the average of a range of 34 percent to 68 percent listed in the SCAQMD CEQA Air Quality Handbook for watering).

5.0 Summary and Conclusions

In summary, the project would result in emissions of air pollutants for both the construction phase and operational phase of the project. The air quality impact analysis evaluated the potential for adverse impacts to the ambient air quality due to construction and operational emissions. Construction emissions would include emissions associated with fugitive dust, heavy construction equipment and construction worker commuting to and from the site. Except for temporary impacts associated with NOx emissions under maximum daily construction activity, the emissions associated with construction are below the significance thresholds for all construction phases. Impacts during construction are temporary and would not cause a significant long-term impact to the ambient air quality.

The project would not conflict with or obstruct implementation of the applicable air quality plans (the San Diego County RAQS and SIP). The project would be below the significance thresholds established for FHWA-approved projects by the Transportation Conformity Rule as set forth in 40 CFR Part 93.