Air Quality Impact Assessment

for the

Yucca Loma Bridge Project
Apple Valley, California

Submitted To:

Town of Apple Valley, City of Victorville,
County of San Bernardino, California

Prepared By:

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March 30, 2009

Air Quality Impact Assessment

Yucca Loma Road/ Yates Road/ Green Tree Boulevard

Transportation Improvement Project

Town of Apple Valley, City of Victorville,

County of San Bernardino, California

08 – SBD – STPL-5453(011)

March 2009

Prepared By _____ Date: 03/30/09

Valorie L. Thompson, Ph.D.
Principal
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April 14, 2009

Project: "City of Apple Valley Yucca Loma Rd. Project (Project # STPL 5453 (011))"
Subject: Air Quality Report Review
Senior: Aaron Burton
Generalist: Jo Stringfield
Document Date: March 2009

The Air Quality Report for the above referenced project has been reviewed. Our previous comments have been addressed. I have no further comments.

If you have questions regarding this review, please contact Donald Cheng via email or call me at (909) 388-1340.

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1.0 Introduction

The proposed project will provide a new route across the Mojave River between the Town of Apple Valley, County of San Bernardino, and City of Victorville (Figure 1). The eastern limit of the project is at the intersection of Yucca Loma Road and Apple Valley Road. The western limit is at the intersection of Green Tree Boulevard and Hesperia Road.

The project will widen Yucca Loma Road from two to four lanes from Apple Valley Road to its current terminus east of Kasanka Trail. A new bridge crossing of the Mojave River will be constructed extending the roadway to Yates Road. This bridge will be built wide enough for an ultimate build out use of six lanes but will be striped for four lanes. The bridge will also have shoulders and sidewalks. Space for sidewalk will be allowed on both sides of Yucca Loma Road; however, it is anticipated sidewalk will only be built on one side of the street as part of this project. A new signal with crosswalks is planned at Havasu Road.

Yates Road will be widened from two lanes to four lanes. From Fortuna Lane to Park Road actual roadway widening is necessary. From Park Road to Ridgecrest Road, Yates Road is currently built wide enough for four lanes, but has been striped and used for two lanes of traffic. Pavement rehabilitation and restriping is needed in this area. Yates Road as it connects to Ridgecrest Road will be realigned to the east to allow connection to an extension of Green Tree Boulevard. A pedestrian path is planned along the north side of Yates Road, connecting from the bridge over the Mojave River to Ridgecrest Road and Green Tree Boulevard.

Ridgecrest Road will be realigned, at its current width, from approximately five hundred feet south of Chinquapin Drive to a new intersection of Yates Road and the extension of Green Tree Boulevard. Signals are planned at the new intersection and sidewalks will connect the three streets.

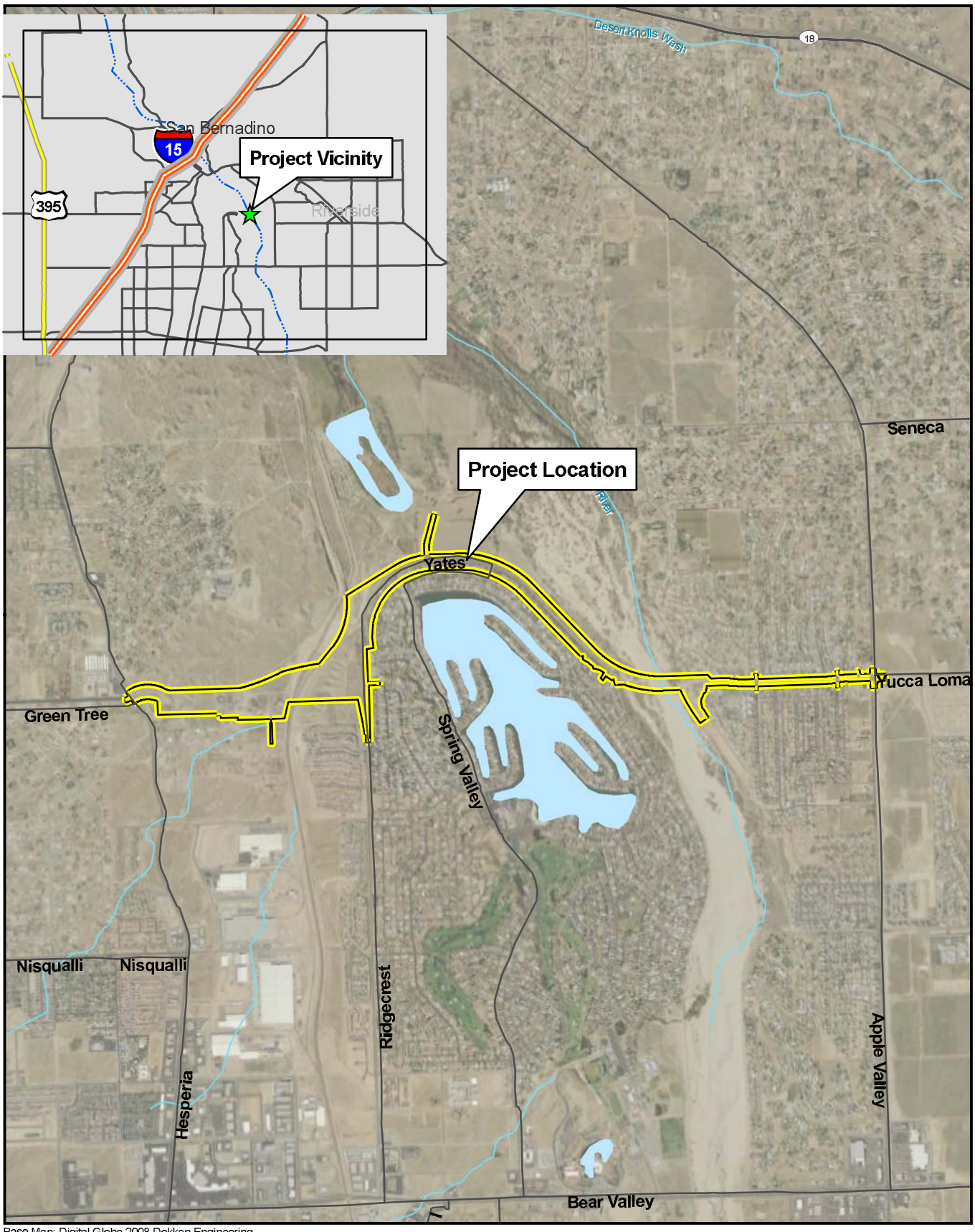
Green Tree Boulevard will be extended with four through travel lanes from the new Ridgecrest Road/Yates Road intersection to Hesperia Road by following one of two alternate alignments. The Green Tree South alignment, Alternative A, is centered on the existing property Section Line boundary and impacts four single family residential parcels located between the railroad right-of-way and Hesperia Road. Alternative B, the Green Tree North alignment, shifts the roadway approximately 150 feet to the north, avoiding the four single family residential parcels. New access roads would maintain access to the four parcels. Grading would allow for sidewalk to be built on both sides of the roadway; however, construction of sidewalks is anticipated to occur as development in the area occurs. Both Green Tree Boulevard alignment alternatives require the construction of a new bridge over the BNSF Railroad which will also be striped for four lanes and include sidewalks.

Various utility relocations and realignments will be necessary throughout the project.

Since the project is located in three different jurisdictions, it is anticipated construction will occur under multiple construction contracts and during different construction seasons. Construction may begin as early as 2010.

Figure 1 presents a map showing the location of the project and the project vicinity showing the area of proposed alignments.

This Air Quality Impact Assessment includes an evaluation of impacts associated with construction of the project, as well as an assessment of potential operational impacts. The Assessment has been prepared in accordance with the California Department of Transportation (Caltrans) Standard Environmental Reference (Caltrans 2007).



Base Map: Digital Globe 2008 Dokken Engineering

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0 0.5 1 Miles

FIGURE 1
Project Vicinity Map

Yucca Loma Road/Yates Road/Greentree Boulevard Extension Project
District 8
STPL 5453(011)
Town of Apple Valley, City of Victorville, and San Bernardino County

2.0 Existing Conditions

2.1 Meteorology/Climate

The proposed project is located within the Mojave Desert Air Basin (MDAB), in the region administered by the Mojave Desert Air Quality Management District (MDAQMD), which administers air quality in the desert portion of San Bernardino County and the Palo Verde Valley in Riverside County. The climate of the MDAB is determined by its terrain and geographical conditions.

Summer conditions are typically characterized by high temperatures and low humidity, with prevailing winds from the south. Summer high temperatures average in the 90s, and summer low temperatures average under 60ºF. Winter conditions are generally mild with occasional rainstorms. Wintertime high temperatures average in the high 50s, and winter low temperatures average in the 30s.

The nearest meteorological monitoring station to the project site is the Edwards Air Force Base meteorological station. Figure 2 provides a graphic representation of the prevailing winds in the project vicinity.

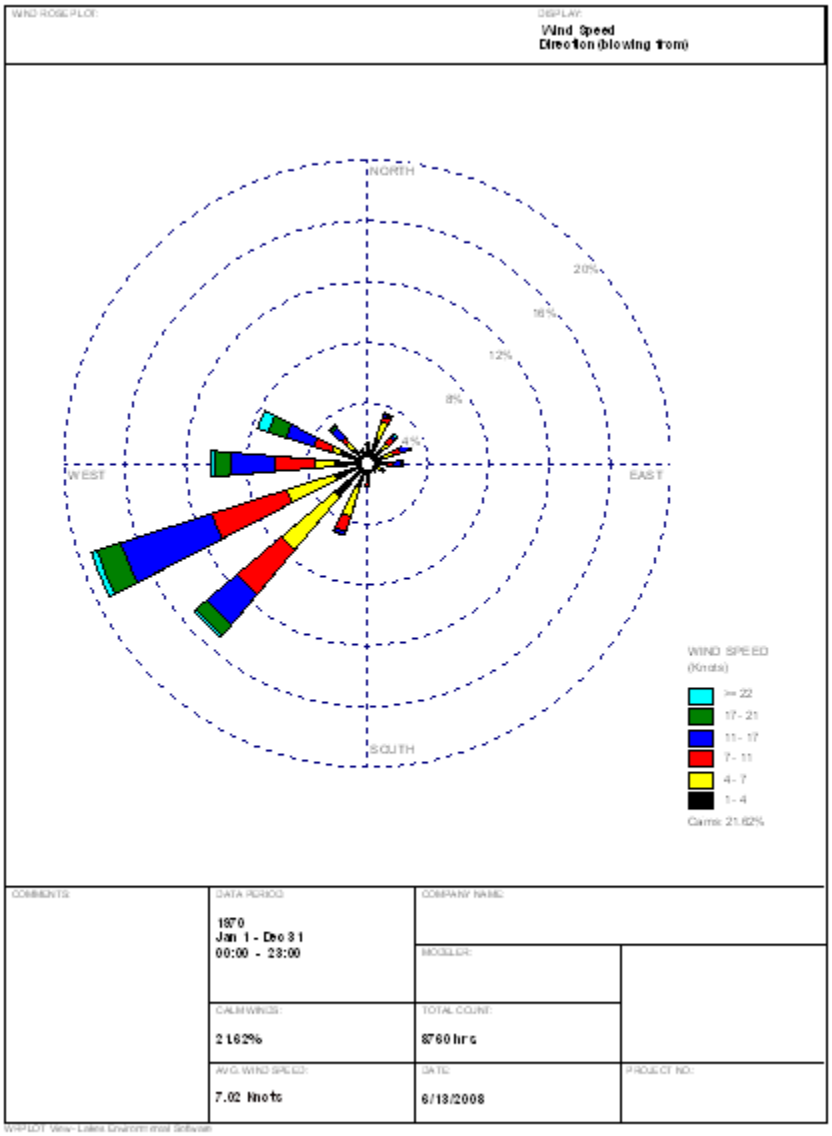


Figure 2. Wind Rose – Edwards Air Force Base

Air quality is defined by ambient air concentrations of specific pollutants identified by the United States Environmental Protection Agency (USEPA) to be of concern with respect to health and welfare of the general public. The Federal Clean Air Act (CAA) required the USEPA to establish National Ambient Air Quality Standards (NAAQS), which identify concentrations of pollutants in the ambient air below which no adverse

effects on the public health and welfare are anticipated. In response, the USEPA established both primary and secondary standards for several pollutants (called "criteria" pollutants). Primary standards are designed to protect human health with an adequate margin of safety. Secondary standards are designed to protect property and the public welfare from air pollutants in the atmosphere. Areas that do not meet the NAAQS for a particular pollutant are considered to be "nonattainment areas" for that pollutant.

The CAA allows states to adopt ambient air quality standards and other regulations provided they are at least as stringent as federal standards. The California Air Resources Board (ARB) has established the more stringent California Ambient Air Quality Standards (CAAQS) for the six criteria pollutants through the California CAA of 1988, and also has established CAAQS for additional pollutants, including sulfates, hydrogen sulfide, vinyl chloride and visibility-reducing particles.

The following specific descriptions of health effects for each of the criteria air pollutants associated with project construction and operations.

Ozone. O_3 is considered a photochemical oxidant, which is a chemical that is formed when VOCs and NOx, both by-products of combustion, react in the presence of ultraviolet light. O_3 is considered a respiratory irritant and prolonged exposure can reduce lung function, aggravate asthma and increase susceptibility to respiratory infections. Children and those with existing respiratory diseases are at greatest risk from exposure to O_3.

Carbon Monoxide. CO is a product of combustion, and the main source of CO in the SCAB is from motor vehicle exhaust. CO is an odorless, colorless gas. CO affects red blood cells in the body by binding to hemoglobin and reducing the amount of oxygen that can be carried to the body's organs and tissues. CO can cause health effects to those with cardiovascular disease, and can also affect mental alertness and vision.

Nitrogen Dioxide. NO_2 is also a by-product of fuel combustion, and is formed both directly as a product of combustion and in the atmosphere through the reaction of nitrogen oxide (NO) with oxygen. NO_2 is a respiratory irritant and may affect those with existing respiratory illness, including asthma. NO_2 can also increase the risk of respiratory illness.

Respirable Particulate Matter and Fine Particulate Matter. Respirable particulate matter, or PM_{10}, refers to particulate matter with an aerodynamic diameter of 10 microns or less. Fine particulate matter, or $PM_{2.5}$, refers to particulate matter with an aerodynamic diameter of 2.5 microns or less. Particulate matter in this size range has been determined to have the potential to lodge in the lungs and contribute to respiratory problems. PM_{10} and $PM_{2.5}$ arise from a variety of sources, including road dust, diesel exhaust, combustion, tire and brake wear, construction operations and windblown dust. PM_{10} and $PM_{2.5}$ can increase susceptibility to respiratory infections and can aggravate existing respiratory diseases such as asthma and chronic bronchitis. $PM_{2.5}$ is considered to have the potential to lodge deeper in the lungs.

Sulfur dioxide. SO_2 is a colorless, reactive gas that is produced from the burning of sulfur-containing fuels such as coal and oil, and by other industrial processes. Generally, the highest concentrations of SO_2 are found near large industrial sources. SO_2 is a respiratory irritant that can cause narrowing of the airways leading to wheezing and shortness of breath. Long-term exposure to SO_2 can cause respiratory illness and aggravate existing cardiovascular disease.

Lead. Pb in the atmosphere occurs as particulate matter. Pb has historically been emitted from vehicles combusting leaded gasoline, as well as from industrial sources. With the phase-out of leaded gasoline, large manufacturing facilities are the sources of the largest amounts of lead emissions. Pb has the potential to cause gastrointestinal, central nervous system, kidney and blood diseases upon prolonged exposure. Pb is also classified as a probable human carcinogen.

Sulfates. Sulfates are the fully oxidized ionic form of sulfur. In California, emissions of sulfur compounds occur primarily from the combustion of petroleum-derived fuels (e.g., gasoline and diesel fuel) that contain sulfur. This sulfur is oxidized to sulfur dioxide (SO_2) during the combustion process and subsequently converted to sulfate compounds in the atmosphere. The conversion of SO_2 to sulfates takes place comparatively rapidly and completely in urban areas of California due to regional meteorological features. The CARB's sulfates standard is designed to prevent aggravation of respiratory symptoms. Effects of sulfate exposure at levels above the standard include a decrease in ventilatory function, aggravation of asthmatic symptoms and an increased risk of cardio-pulmonary disease. Sulfates are particularly effective in degrading visibility, and due to fact that they are usually acidic, can harm ecosystems and damage materials and property.

Hydrogen Sulfide. H_2S is a colorless gas with the odor of rotten eggs. It is formed during bacterial decomposition of sulfur-containing organic substances. Also, it can be present in sewer gas and some natural gas, and can be emitted as the result of geothermal energy exploitation. Breathing H_2S at levels above the standard would result in exposure to a very disagreeable odor. In 1984, a CARB committee concluded that the ambient standard for H_2S is adequate to protect public health and to significantly reduce odor annoyance.

Vinyl Chloride. Vinyl chloride, a chlorinated hydrocarbon, is a colorless gas with a mild, sweet odor. Most vinyl chloride is used to make polyvinyl chloride (PVC) plastic and vinyl products. Vinyl chloride has been detected near landfills, sewage plants and hazardous waste sites, due to microbial breakdown of chlorinated solvents. Short-term exposure to high levels of vinyl chloride in air causes central nervous system effects, such as dizziness, drowsiness and headaches. Long-term exposure to vinyl chloride through inhalation and oral exposure causes liver damage. Cancer is a major concern from exposure to vinyl chloride via inhalation. Vinyl chloride exposure has been shown to increase the risk of angiosarcoma, a rare form of liver cancer, in humans.

2.2 Regulatory Setting

As discussed above, air quality is defined by ambient air concentrations of specific pollutants identified by the USEPA to be of concern with respect to health and welfare of the general public. The USEPA is responsible for enforcing the Federal Clean Air Act (CAA) of 1970 and its 1977 and 1990 Amendments.

In September 1997, the USEPA promulgated 8-hour ozone (O_3) and 24-hour and annual national standards for particulate matter less than 2.5 microns in diameter ($PM_{2.5}$). As a result, this action has initiated a new planning process to monitor and evaluate emission control measures for these pollutants. The western Mojave Desert region of the MDAQMD is designated as a moderate nonattainment area for the 8-hour NAAQS for O_3. San Bernardino County is also designated as a nonattainment area for the NAAQS for particulate matter less than 10 microns in diameter (PM_{10}).

The project area is currently classified as a nonattainment area under the CAAQS for O_3, PM_{10} and $PM_{2.5}$.

The ARB is the state regulatory agency with authority to enforce regulations to both achieve and maintain the NAAQS and CAAQS. The ARB is responsible for the development, adoption, and enforcement of the state's motor vehicle emissions program, as well as the adoption of the CAAQS. The ARB also reviews operations and programs of the local air districts, and requires each air district with jurisdiction over a nonattainment area to develop its own strategy for achieving the NAAQS and CAAQS. The local air district has the primary responsibility for the development and implementation of rules and regulations designed to attain the NAAQS and CAAQS, as well as the permitting of new or modified sources, development of air quality management plans, and adoption and enforcement of air pollution regulations. The MDAQMD is the local agency responsible for the administration and enforcement of air quality regulations for the project area.

The MDAQMD is responsible for developing and implementing the clean air plan for attainment and maintenance of the ambient air quality standards in the project area. Transportation planning is under the jurisdiction of the Southern California Association of Governments (SCAG). In its transportation planning process, SCAG is responsible for development of a Regional Transportation Plan (RTP) that accounts for transportation in the region. As part of the planning process in developing the RTP, the RTP accounts for transportation improvement projects that will be constructed in the future. As required under 40 CFR Part 93, SCAG, the metropolitan planning organization for the region, must demonstrate that the RTP is in conformity with the State Implementation Plan (SIP) for meeting air quality goals. A SIP is required under the Federal CAA for areas that are out of attainment of air quality standards. All projects that are included within the currently conforming RTP would be concluded to be in conformity with the SIP.

Table 1 presents a summary of the ambient air quality standards adopted by the federal and California CAAs.

Table 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 $\mu g/m^3$)	Ultraviolet Photometry	--	--	Ethylene Chemiluminescence
	8 hour	0.070 ppm (137 $\mu g/m^3$)		0.075 ppm (147 $\mu g/m^3$)	0.075 ppm (147 $\mu g/m^3$)	
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)[a]	Annual Average	0.030 ppm (56 $\mu g/m^3$)	Gas Phase Chemiluminescence	0.053 ppm (100 $\mu g/m^3$)	0.053 ppm (100 $\mu g/m^3$)	Gas Phase Chemiluminescence
	1 hour	0.18 ppm (338 $\mu g/m^3$)		--	--	
Sulfur Dioxide (SO_2)	Annual Average	--	Ultraviolet Fluorescence	0.03 ppm (80 $\mu g/m^3$)	--	Pararosaniline
	24 hours	0.04 ppm (105 $\mu g/m^3$)		0.14 ppm (365 $\mu g/m^3$)	--	
	3 hours	--		--	0.5 ppm (1300 $\mu g/m^3$)	
	1 hour	0.25 ppm (655 $\mu g/m^3$)		--	--	
Respirable Particulate Matter (PM_{10})	24 hours	50 $\mu g/m^3$	Gravimetric or Beta Attenuation	150 $\mu g/m^3$	150 $\mu g/m^3$	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 $\mu g/m^3$		--	--	
Fine Particulate Matter ($PM_{2.5}$)	Annual Arithmetic Mean	12 $\mu g/m^3$	Gravimetric or Beta Attenuation	15 $\mu g/m^3$	15 $\mu g/m^3$	Inertial Separation and Gravimetric Analysis
	24 hours	--		35 $\mu g/m^3$	35 $\mu g/m^3$	
Sulfates	24 hours	25 $\mu g/m^3$	Ion Chromatography	--	--	--
Lead (Pb)	30-day Average	1.5 $\mu g/m^3$	Atomic Absorption	--	--	Atomic Absorption
	Calendar Quarter	--		1.5 $\mu g/m^3$	1.5 $\mu g/m^3$	
Hydrogen Sulfide (H_2S)	1 hour	0.03 ppm (42 $\mu g/m^3$)	Ultraviolet Fluorescence	--	--	--
Vinyl Chloride	24 hours	0.010 ppm (26 $\mu g/m^3$)	Gas Chromatography	--	--	--

ppm= parts per million
$\mu g/m^3$ = micrograms per cubic meter
mg/m^3= milligrams per cubic meter
Source: ARB 2008a

2.3 Background Air Quality

The ARB and local air quality management districts operate a network of ambient air monitoring stations throughout the state of California. The purpose of the monitoring stations is to measure ambient concentrations of the pollutants and determine whether the ambient air quality meets the CAAQS and the NAAQS. The nearest ambient monitoring station to the project site is the Victorville monitoring station at 14306 Park Avenue, which measures O_3, nitrogen dioxide ($NO_{2,}$) carbon monoxide (CO), sulfur dioxide (SO_2), PM_{10}, and $PM_{2.5}$. Ambient concentrations of pollutants over the period from 2005 to 2007 are presented in Table 2.

Table 2
Ambient Background Concentrations
ppm (unless otherwise indicated)

Pollutant	Averaging Time	2005	2006	2007	Most Stringent Ambient Air Quality Standard	Monitoring Station
Ozone	8 hour	0.107	0.105	0.060	0.070	Victorville
	1 hour	0.131	0.136	0.107	0.09	Victorville
PM_{10}[2]	Annual Arithmetic Mean	26.1	30.5	36.0	20	Victorville
	24 hour	57	56	339	50	Victorville
$PM_{2.5}$	Annual Arithmetic Mean	9.7	10.3	9.7	12	Victorville
	24 hour	27	22	28	35	Victorville
NO_2	Annual	0.015	0.015	0.015	0.030	Victorville
	1 hour	0.082	0.074	0.072	0.18	Victorville
CO	8 hour	1.63	1.56	1.61	9	Victorville
	1 hour	2.5	2.2	2.1	20	Victorville
SO_2	Annual	0.001	0.001	0.001	0.03	Victorville
	24 hour	0.003	0.005	0.005	0.04	Victorville
	3 hour	0.008	0.012	0.006	0.5	Victorville
	1 hour	0.012	0.018	0.009	0.25	Victorville

Source: ARB 2008b(all pollutants except 1-hour CO and 1-hour and 3-hour SO_2)
USEPA 2008 (1-hour CO and 1-hour and 3-hour SO_2)

During the period from 2005 through 2007, the 8-hour NAAQS for ozone was exceeded 12 times in 2005, 6 times in 2006, and 6 times in 2007 at the Victorville monitoring station. The Victorville monitoring station measured exceedances of the state PM_{10}

standards during the period from 2005 to 2007, as well as one exceedance of the 24-hour NAAQS in 2007. The data from the monitoring station indicate that air quality is in attainment of all other federal standards.

3.0 Thresholds of Significance

Air quality significance thresholds are based primarily on regulatory thresholds. The broadest thresholds are contained within Appendix G of the California Environmental Quality Act (CEQA) Guidelines. The CEQA Guidelines indicate that a project would have a significant environmental impact if it would:

- Conflict with or obstruct the implementation of the applicable air quality plan;
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard (in this case, PM_{10} and $PM_{2.5}$, or exceed quantitative thresholds for O_3 precursors, oxides of nitrogen (NO_X) and Reactive Organic Gases (ROG));
- Expose sensitive receptors (including, but not limited to, schools, hospitals, resident care facilities, or day-care centers) to substantial pollutant concentrations (including air toxics such as diesel particulates);
- Create objectionable odors affecting a substantial number of people.

With regard to evaluating whether a project would have a significant impact on sensitive receptors, air quality regulators typically define sensitive receptors as schools (Preschool-12^{th} 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. Any project which has the potential to directly impact a sensitive receptor located within 1 mile and results in an unacceptable health risk would be deemed to have a potentially significant impact.

The MDAQMD has developed guidelines for evaluating air quality impacts for projects under CEQA (MDAQMD 2007). For CEQA purposes, these thresholds can be used as

numeric methods to demonstrate that a project's total emissions would not result in a significant impact to air quality. The significance thresholds are included in Table 3.

Table 3
MDAQMD Significant Emissions Thresholds

Criteria Pollutant	Annual Threshold (tons)	Daily Threshold (pounds)
Carbon Monoxide (CO)	100	548
Oxides of Nitrogen (NOx)	25	137
Volatile Organic Compounds (VOC)	25	137
Oxides of Sulfur (SOx)	25	137
Particulate Matter (PM_{10})	15	82

In the event that emissions exceed these thresholds, the project would have the potential for a significant air quality impact.

In addition to the thresholds evaluated under CEQA, the project must demonstrate that it is included in the applicable RTP and is thus in conformity with the SIP. Should a project not be included in the applicable RTP, the project must provide a conformity determination as required under 40 CFR Part 93 for all federally-approved projects. For transportation projects, the project's potential impacts on air quality and conformity with the SIP can be evaluated based on the Transportation Project-Level Carbon Monoxide Protocol (University of California Davis 1998), and the Federal Highway Administration and U.S. EPA's *Transportation Conformity Guidance for Qualitative Hot-Spot Analyses in $PM_{2.5}$ and PM_{10} Nonattainment and Maintenance Areas* (USEPA 2006).

The impacts associated with the project were evaluated for significance based on these significance criteria.

4.0 Impacts

The Yucca Loma Bridge Project includes both construction of the bridge itself as well as construction associated with road widening. Construction impacts include emissions

associated with the demolition of existing pavement, site clearance and grading operations, overpass construction, paving, and finishing work. Operational impacts include emissions associated with the project, including traffic, at full build-out.

4.1 Construction

Emissions of pollutants such as fugitive dust that are generated during construction are generally highest near the construction site. Emissions from the construction phase of the project were estimated through the use of the URBEMIS Model, Version 9.2.4, (Rimpo and Associates 2007) which is the latest version of the land use planning model.

It was assumed that construction would start in 2010. Construction work would generally occur 5 days per week, 8 hours per day. Emissions of criteria pollutants associated with the construction phase of the Yucca Loma Bridge Project were evaluated on the basis of a maximum daily emissions scenario. The maximum emissions scenario assumed that some grading could occur simultaneously with paving activities.

Table 4 presents an estimate of the maximum number of pieces of equipment for the construction phase of the proposed project. Default assumptions from the URBEMIS Model, Version 9.2.4, were used for the construction of the bridge.

Fugitive dust emissions associated with grading during construction were estimated assuming a maximum of 1.74 acres/day would be graded in any single day. The default fugitive dust emission factor within the URBEMIS Model, Version 9.2.4 (20 lbs/acre-day) was used to estimate unmitigated emissions, and it was assumed that watering three times daily and reduction of vehicle speeds on unpaved surfaces would be used to control emissions of fugitive dust.

Table 4
Maximum Day Construction Equipment

Equipment Type	Number	Hours of Operation per Day
Site Clearance/Grading		
Tracked loader	1	8
Tracked tractor	1	8
Dozer	1	8
Scraper	1	8
Roller	1	8
Motor graders	2	8
Miscellaneous	2	8
Water truck	1	8
Bridge Construction/Paving		
Crane	1	8
Backhoe/Loaders	1	8
Generator	1	8
Forklifts	2	8
Cement and mortar mixers	4	8
Paver	1	8
Paving Equipment	2	8
Roller	1	8

Table 5 provides a summary of the emission estimates for the construction phase of the proposed project based on the URBEMIS Model outputs. Refer to Appendix A for detailed emission calculations.

As shown in Table 5, maximum daily construction equipment emissions would not exceed the MDAQMD daily significance thresholds for criteria pollutants. Emissions would therefore be less than significant. Furthermore, construction duration would be between three and four years but would be less than five years and would not result in any long-term air quality impacts.

Table 5
Estimated Construction Emissions

Emission Source	ROG	NOx	CO	SOx	PM_{10}	$PM_{2.5}$
lbs/day						
Site Clearance/Grading						
Fugitive Dust – Grading	-	-	-	-	2.10	0.44
Off-Road Diesel	7.72	62.14	32.01	0.00	3.38	3.11
Worker Trips	0.08	0.14	2.39	0.00	0.02	0.01
TOTAL	**7.80**	**62.28**	**34.40**	**0.00**	**5.50**	**3.56**
Significance Criteria	137	137	548	137	82	82
Significant?	*No*	*No*	*No*	*No*	*No*	*No*
Paving						
Asphalt Offgassing	0.02	-	-	-	-	-
Off-Road Diesel	3.74	22.32	12.13	0.00	1.93	1.77
On Road Diesel	0.01	0.11	0.04	0.00	0.00	0.00
Worker Trips	0.09	0.16	2.69	0.00	0.02	0.01
TOTAL	**3.86**	**22.59**	**14.86**	**0.00**	**1.95**	**1.78**
Significance Criteria	137	137	548	137	82	82
Significant?	*No*	*No*	*No*	*No*	*No*	*No*
Bridge Construction						
Off-Road Diesel	3.87	17.35	11.50	0.00	1.28	1.17
On Road Diesel	1.29	16.05	11.12	0.00	0.75	0.63
Worker Trips	0.49	0.92	15.23	0.02	0.12	0.07
TOTAL	**5.65**	**34.32**	**37.85**	**0.02**	**2.15**	**1.87**
Significance Criteria	137	137	548	137	82	82
Significant?	*No*	*No*	*No*	*No*	*No*	*No*
Maximum Simultaneous Emissions						
Maximum Emissions	17.30	119.18	87.11	0.05	9.60	7.23
Significance Criteria	137	137	548	137	82	82
Significant?	*No*	*No*	*No*	*No*	*No*	*No*

Construction equipment also emits diesel particulate matter, which is considered a toxic air contaminant by the State of California. Because construction is a short-term event, emissions of diesel particulate matter would be short-term and would not expose sensitive receptors (including, but not limited to, schools, hospitals, resident care facilities, or day-care centers) to substantial pollutant concentrations including air toxics. No sensitive receptors are located within the immediate vicinity of the project site.

Construction would result in minor emissions of odor compounds associated with diesel equipment and road paving. These emissions would also be temporary and would be

localized to areas where paving and construction are occurring. Project construction would therefore not result in emission of substantial odor compounds that would affect a substantial number of receptors.

4.2 Operational Impacts

As part of determining whether the Project will be consistent with local air quality plans and programs, an affirmative regional conformity determination must be made. The purpose of the regional conformity determination is to demonstrate that the projects included in the conformity determination will not cause or contribute to a violation of an ambient air quality standard. The western Mojave Desert region of the MDAQMD is designated as a moderate nonattainment area for the 8-hour NAAQS for O_3. San Bernardino County is also designated as a nonattainment area for the NAAQS for PM_{10}. Therefore, the conformity determination must address 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 and particulate standards.

The Transportation Project-Level Carbon Monoxide Protocol (hereinafter referred to as the "Protocol") is applicable for the assessment of potential impacts of project alternatives as identified within the scope of the analysis required by CEQA. The Protocol is designed to ensure that a transportation project action conforms to an approved or promulgated air quality implementation plan and to all applicable state and national ambient air quality standards. In accordance with the Protocol, an affirmative regional conformity determination must be made before a project may proceed. An affirmative determination can be made if the project is included in the Regional Transportation Plan (RTP) for the area, and if the project has not been altered in design concept or scope from that described in the RTP.

The following subsections present (1) the analysis that was conducted to determine the possibility of regional impacts in accordance with the Protocol; and (2) the analysis that was conducted to determine the possibility of local CO impacts in accordance with the Protocol.

Regional Impacts. 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 project. The flow chart contained in the Protocol was followed to determine the level of analysis required for the Yucca Loma Bridge Project. The results for each step in the analysis are as follows:

3.1.1 Is this project exempt from all emissions analyses? No. The project was determined not to be exempt from all emissions analyses.

3.1.2 Is project exempt from regional emissions analyses? No. The project was determined not to be exempt from regional emissions analyses.

3.1.3 Is project locally defined as regionally significant? Yes. The project is defined as a regionally significant project. In accordance with the definitions contained in 40 CFR Part 93 (the federal conformity rule), a regionally significant project means a transportation project that is on a facility which serves regional transportation needs and would normally be included in the modeling of a metropolitan area's transportation network, including at a minimum all principal arterial highways and all fixed guideway transit facilities that offer an alternative to regional highway travel. The project is thus considered regionally significant under the definition in 40 CFR Part 93.

3.1.4 Is project in a federal attainment area? No. The project is in a federal nonattainment area for ozone and PM_{10}; therefore, further analysis to determine the potential for regional impacts is required.

3.1.5 Is there a currently conforming RTP and TIP? Yes. There is a current conforming RTP and Regional Transportation Improvement Program (RTIP). The Yucca Loma Bridge Project is included in the Final 2008 Regional Transportation Plan, Project ID Number 08-200049, Page 76.

3.1.6 Is the project included in the regional emissions analysis supporting the currently conformity RTP and TIP? Yes. Because the project is included in the currently conforming RTP and RTIP as Project ID Number 08-200049, it has been included in the conformity analysis.

3.1.7 Has project design concept and/or scope changed significantly from that in regional analysis? No. The project will not change design concept and/or scope from that in the regional analysis.

Based on this evaluation in accordance with the flow chart, a further regional analysis or regional conformity determination is not required for the project. A copy of the flow chart is included in Appendix B. The local CO analysis is addressed in the following subsection.

Local CO Impact Analysis. 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 adverse air quality impacts.

The Protocol contains a local CO analysis flow chart similar to the regional analysis flow chart that is designed to assist in the evaluation of the requirements for demonstrating that the project will not cause an adverse air quality impact. The flow chart contained in the Protocol was followed to determine the analysis required for the Yucca Loma Bridge Project. The results for the steps in the analysis contained in the Protocol are as follows:

Level 1

1. **Is the project in a CO nonattainment area? No.** The project is located in a CO attainment area.
2. **Was the area redesignated as "attainment" after the 1990 Clean Air Act? No.** The area was not redesignated as "attainment" after the 1990 CAA. (Proceed to Level 7)

Level 7

3. **Does project worsen air quality? No.** The project does not worsen air quality, in that it does not increase the percentage of vehicles operating in cold start mode, significantly increase traffic volumes, or worsen traffic flow.

Based on this evaluation, a further local CO impact analysis or regional conformity determination is not required for the project, and the project would not cause or contribute to a violation of the air quality standards for CO. A copy of the flow chart is included in Appendix B.

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 (a) the level of service (LOS) of an intersection or roadway decreases to a LOS D or worse; and (b) sensitive receptors such as residences, commercial developments, schools, hospitals, etc. are located in the vicinity of the affected intersection or roadway segment.

The Yucca Loma Bridge Traffic Impact Analysis (Urban Crossroads 2008) evaluated whether or not there would be a decrease in the level of service at the intersections affected by the Project. The Traffic Impact Analysis evaluated intersection LOS for Existing Conditions (2007), the Interim Year (2015), and the Design Year (2035) for 17 existing and 3 future intersections in the project study area. LOS was evaluated for the intersections with and without the Yucca Loma Bridge, and with and without intersection improvements designed to alleviate congestion. Several intersections were predicted to operate at LOS E or F in the Interim Year and in the Design Year without intersection

improvements. The Traffic Impact Analysis indicated that with improvements, all intersections would operate at LOS D or better. Provided intersection improvements are implemented, no CO "hot spots" would be anticipated due to the project. Due to the phase-out of older, more polluting vehicles and increasingly stringent emission standards, the EMFAC2007 model (ARB 2007) predicts that emissions will decrease for future years; thus impacts for future years would not be anticipated to result in CO "hot spots" for either Project or No Project Conditions.

PM_{10} and $PM_{2.5}$ Analysis. Emissions of $PM_{2.5}$ and PM_{10} are also attributable mainly to traffic sources. San Bernardino County is considered a moderate nonattainment area for the NAAQS for PM_{10}. The likelihood for adverse impacts associated with particulate emissions from project-generated traffic was evaluated using the *Transportation Conformity Guidance for Qualitative Hot-Spot Analyses in $PM_{2.5}$ and PM_{10} Nonattainment and Maintenance Areas* (USEPA 2006). The USEPA's Transportation Conformity Rule (40 CFR 93.123(b)(1)) identified projects for which $PM_{2.5}$ and PM_{10} would be of concern. These projects include the following:

> "(i) New or expanded highway projects that have a significant number of or significant increase in diesel vehicles;
>
> (ii) Projects affecting intersections that are at Level-of-Service D, E, or F with a significant number of diesel vehicles, or those that will change to Level-of-Service D, E, or F because of increased traffic volumes from a significant number of diesel vehicles related to the project;
>
> (iii) New bus and rail terminals and transfer points that have a significant number of diesel vehicles congregating at a single location;
>
> (iv) Expanded bus and rail terminals and transfer points that significantly increase the number of diesel vehicles congregating at a single location; and
>
> (v) Projects in or affecting locations, areas, or categories of sites which are identified in the $PM_{2.5}$ or PM_{10} applicable implementation plan or implementation plan submission, as appropriate, as sites of violation or possible violation."

Based on these five criteria, the following conclusions can be made:

1. The project is not a new or expanded highway project that has a significant number of or significant increase in diesel vehicles. The number of diesel vehicles traveling on roads in the vicinity of the project would not increase due to construction of the Yucca Loma Bridge.

2. The project would not affect intersections that are at Level-of-Service D, E, or F with a significant number of diesel vehicles, or those that will change to Level-of-Service D, E, or F because of increased traffic volumes from a significant number of diesel vehicles related to the project. As stated above, the project does not increase the number of diesel vehicles in the project area. As also stated above, the Traffic Impact Analysis indicated that with improvements, all intersections would operate at LOS D or better.
3. The project does not involve construction or operation of a new bus and rail terminals and transfer points that have a significant number of diesel vehicles congregating at a single location.
4. The project does not involve expanded bus and rail terminals and transfer points that significantly increase the number of diesel vehicles congregating at a single location.
5. The project is not in or would not affect locations, areas, or categories of sites which are identified in the $PM_{2.5}$ or PM_{10} applicable implementation plan or implementation plan submission, as appropriate, as sites of violation or possible violation.

Furthermore, the USEPA has provided examples of projects that are not an air quality concern for PM_{10} and $PM_{2.5}$ hot spots analyses. The following type of project is listed under the examples of projects identified as not a concern:

- "Any new or expanded highway project that primarily services gasoline vehicle traffic (i.e., does not involve a significant number or increase in the number of diesel vehicles), including such projects involving congested intersections operating at Level-of-Service D, E, or F"

The Yucca Loma Bridge Project would not be a project of air quality concern for $PM_{2.5}$ and PM_{10} emissions because the project would primarily service localized traffic in the Apple Valley area and would not involve a significant increase in the number of diesel

vehicles. The Transportation Conformity Working Group (TCWG) has concurred with this conclusion as of the meeting held March 24, 2009 (supporting documentation attached in Appendix B). The project would therefore not be required to conduct a PM_{10} or $PM_{2.5}$ analysis.

4.3 Mobile Source Air Toxics

The following discussion is based on the FHWA Memorandum, Subject: INFORMATION: Interim Guidance on Air Toxic Analysis in NEPA Documents, dated February 3, 2006. The purpose of the guidance is to advise when and how to analyze MSATs in the National Environmental Policy Act (NEPA) process for highways. This guidance is interim, because MSAT science is still evolving. As the science progresses, the FHWA will update the guidance.

4.3.1 Introduction to MSAT

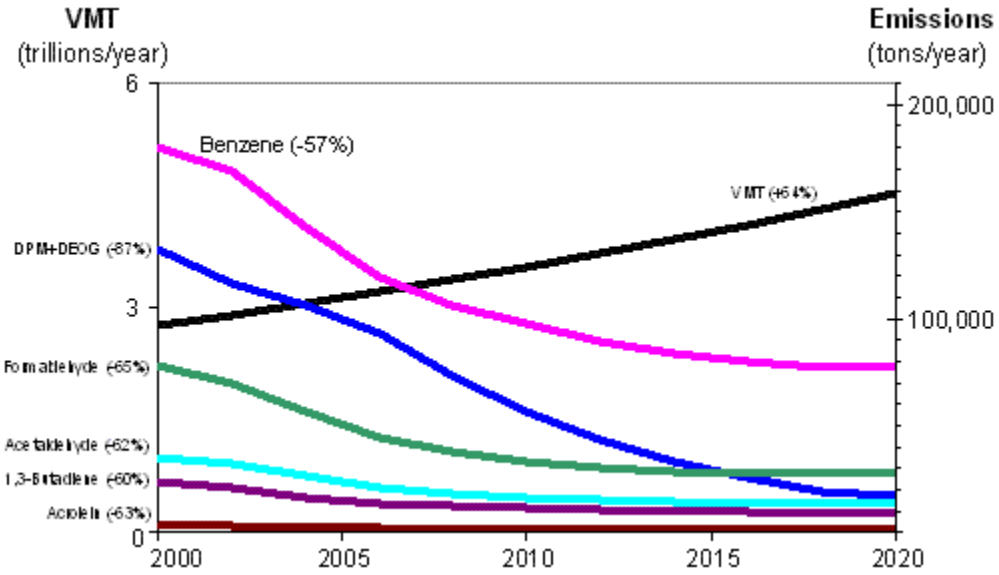
In addition to the criteria air pollutants for which there are National Ambient Air Quality Standards (NAAQS), EPA also regulates air toxics. Most air toxics originate from human-made sources, including on-road mobile sources, non-road mobile sources (e.g., airplanes), area sources (e.g., dry cleaners)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

Mobile Source Air Toxics (MSATs) are a subset of the 188 air toxics defined by the Clean Air Act. 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 EPA is the lead Federal Agency for administering the Clean Air Act and has certain responsibilities regarding the health effects of MSATs. The EPA issued a Final Rule on

Controlling Emissions of Hazardous Air Pollutants from Mobile Sources. 66 FR 17229 (March 29, 2001). This rule was issued under the authority in Section 202 of the Clean Air Act. In its rule, EPA examined the impacts of existing and newly promulgated mobile source control programs, including its reformulated gasoline (RFG) program, its national low emission vehicle (NLEV) standards, its Tier 2 motor vehicle emissions standards and gasoline sulfur control requirements, and its proposed heavy duty engine and vehicle standards and on-highway diesel fuel sulfur control requirements. Between 2000 and 2020, FHWA projects that even with a 64 percent increase in VMT, these programs will reduce on-highway emissions of benzene, formaldehyde, 1,3-butadiene, and acetaldehyde by 57 percent to 65 percent, and will reduce on-highway diesel PM emissions by 87 percent, as shown in the following graph:

U.S. Annual Vehicle Miles Traveled (VMT) vs. Mobile Source Air Toxics Emissions, 2000-2020



Notes: For on-road mobile sources. Emissions factors were generated using MOBILE6.2. MTBE proportion of market for oxygenates is held constant, at 50%. Gasoline RVP and oxygenate content are held constant. VMT: Highway Statistics 2000, Table VM-2 for 2000, analysis assumes annual growth rate of 2.5%. "DPM + DEOG" is based on MOBILE6.2-generated factors for elemental carbon, organic carbon and SO4 from diesel-powered vehicles, with the particle size cutoff set at 10.0 microns.

As a result, EPA concluded that no further motor vehicle emissions standards or fuel

standards were necessary to further control MSATs. The agency is preparing another rule under authority of CAA Section 202(l) that will address these issues and could make adjustments to the full 21 and the primary six MSATs.

4.3.2 Unavailable Information for Project Specific MSAT Impact Analysis

This air quality impact assessment includes a basic analysis of the likely MSAT emission impacts of this project. However, available technical tools do not enable us to predict the 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:

Information that is Unavailable or Incomplete. Evaluating the environmental and health impacts from MSATs on a proposed highway project would involve several key elements, including emissions modeling, dispersion modeling in order to estimate ambient concentrations resulting from the estimated emissions, exposure modeling in order 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 this project.

Emissions. The EPA tools to estimate MSAT emissions from motor vehicles are not sensitive to key variables determining emissions of MSATs in the context of highway 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, EPA has identified problems with MOBILE6.2 as an obstacle to quantitative analysis.
These deficiencies compromise the capability of MOBILE 6.2 to estimate MSAT emissions. MOBILE6.2 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 EPA's current regulatory models, CALINE3 and CAL3QHC, were developed and validated more than a decade ago for the purpose of predicting episodic concentrations of carbon monoxide 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 highway project locations across an urban area to assess potential health risk. The NCHRP is conducting research 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, FHWA is also faced with 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 us from reaching 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.

Summary of Existing Credible Scientific Evidence Relevant to Evaluating the Impacts of MSATs. Research into the health impacts of MSATs is ongoing. For different emission types, there are a variety of studies that show that some either are statistically associated with adverse health outcomes through epidemiological studies (frequently based on emissions levels found in occupational settings) or that animals demonstrate adverse health outcomes when exposed to large doses.

Exposure to toxics has been a focus of a number of EPA efforts. Most notably, the agency conducted the National Air Toxics Assessment (NATA) in 1996 to evaluate modeled estimates of human exposure applicable to the county level. While not intended for use as a measure of or benchmark for local exposure, the modeled estimates in the NATA database best illustrate the levels of various toxics when aggregated to a national or State level.

The EPA is in the process of assessing the risks of various kinds of exposures to these pollutants. The EPA 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 IRIS database is located at http://www.epa.gov/iris. The following toxicity information for the six prioritized MSATs was taken from the IRIS database

Weight of Evidence Characterization summaries. This information is taken verbatim from EPA's IRIS database and represents the Agency's 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** (DE) 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 noncancer 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 EPA, 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[1]. Much of this research is not specific to MSATs, instead surveying the full spectrum of both criteria and other pollutants. The FHWA cannot evaluate the validity of these studies, but more importantly, they do not

provide information that would be useful to alleviate the uncertainties listed above and enable us to perform a more comprehensive evaluation of the health impacts specific to this project.

Relevance of Unavailable or Incomplete Information to Evaluating Reasonably Foreseeable Significant Adverse Impacts on the Environment, and Evaluation of impacts based upon theoretical approaches or research methods generally accepted in the scientific community. Because of the uncertainties outlined above, a quantitative assessment of the effects of air toxic emissions impacts on human health cannot be made at the project level. While available tools do allow us to reasonably predict relative emissions changes between alternatives for larger projects, the amount of MSAT emissions from each of the alternatives and MSAT concentrations or exposures created by each of the alternatives cannot be predicted with enough accuracy to be useful in estimating health impacts. (As noted above, the current emissions model is not capable of serving as a meaningful emissions analysis tool for smaller projects.) Therefore, the relevance of the unavailable or incomplete information is that it is not possible to make a determination of whether any of the alternatives would have "significant adverse impacts on the human environment."

In this document, a qualitative analysis of MSAT emissions relative to the alternatives is provided and it is acknowledged that the proposed project may result in increased exposure to MSAT emissions in certain locations, although the concentrations and duration of exposures are uncertain, and because of this uncertainty, the health effects from these emissions cannot be estimated.

4.3.3 Evaluation of Project MSAT Potential

The FHWA has developed a tiered approach for analyzing MSATs in NEPA documents. Depending on the specific project circumstances, the FHWA has identified three levels of analysis:

- No analysis for projects with no potential for meaningful MSAT effects, Category (1);
- Qualitative analysis for projects with low potential MSAT effects, Category (2); or
- Quantitative analysis to differentiate alternatives for projects with higher potential MSAT effects, Category (3).

The proposed project is a Category (2) project, that is, the project would have a low potential for MSAT effects. This assessment is based on FHWA guidance that projects that do not meet the criteria for Category (1) or Category (3) should be included in Category (2). Category (1) is limited to projects that:

- qualify as a categorical exclusion under 23 CFR 771.117(c);
- are exempt under the Clean Air Act conformity rule under 40 CFR 93.126; or
- have no meaningful impacts on traffic volumes or vehicle mix.

The proposed project does not meet any of these Category (1) requirements.

For a project to be of the magnitude to have a higher potential for MSAT effects, Category (3), a project must:

- Create or significantly alter a major intermodal freight facility that has the potential to concentrate high levels of diesel PM in a single location; or
- Create new or add significant capacity to urban highways such as interstates, urban arterials, or urban collector-distributor routes with traffic volumes where the annual average daily traffic (AADT) volume is projected to be in the range of 140,000 to 150,000, or greater, by the design year; and
- Be proposed to be located in proximity to populated areas or in rural areas, in proximity to concentrations of vulnerable populations (i.e., schools, nursing homes, hospitals).

The proposed project would not create or significantly alter an intermodal freight facility that has the potential to concentrate high levels of diesel PM in a single location.

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 this project. 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 project. 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 various 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.

For each alternative in this Air Quality Analysis, the amount of MSATs emitted would be proportional to the vehicle miles traveled, or VMT, assuming that other variables such as fleet mix are the same for each alternative. Regardless of the alternative chosen, emissions will likely be lower than present levels in the design year as a result of the USEPA's national control programs that are projected to reduce MSAT emissions by 57 to 87 percent from 2000 to 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 study area are likely to be lower in the future in virtually all locations.
The purpose of the Yucca Loma Bridge project is to provide a third access to the town of Apple Valley and alleviate future congestion at the two existing access points. This project will not result in any meaningful changes in traffic volumes, vehicle mix, location of the existing facility, or any other factor that would cause an increase in emissions impacts relative to the no-build alternative. The Yucca Loma Bridge project serves to

improve regional traffic into the Town of Apple Valley. Based on the FHWA guidance, this project would generate minimal air quality impacts for CAA criteria pollutants and would not be linked with any special MSAT concerns. Consequently, this effort is exempt from analysis for MSATs. Moreover, USEPA regulations for vehicle engines and fuels will cause overall MSATs to decline significantly over the next 20 years. Even after accounting for a 64 percent increase in vehicle miles traveled (VMT), FHWA predicts MSATs will decline in the range of 57 percent to 87 percent, from 2000 to 2020, based on regulations now in effect. This will both reduce the background level of MSATs as well as the possibility of even minor MSAT emissions from this project.

5.0 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, Divisions of Mines and Geology 2000), major ultramafic rock formations are not found in San Bernardino 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.

6.0 Global Climate Change

6.1 Regulatory Setting

While climate change has been a concern since at least 1988, as evidenced by the establishment of the United Nations and World Meteorological Organization's Intergovernmental Panel on Climate Change (IPCC), the efforts devoted to greenhouse gas[1] (GHG) emissions reduction and climate change research and policy have increased dramatically in recent years. In 2002, with the passage of Assembly Bill 1493 (AB 1493), California launched an innovative and pro-active approach to dealing with GHG emissions and climate change at the state level. AB 1493 requires the Air Resources Board (ARB) to develop and implement regulations to reduce automobile and light truck GHG emissions; these regulations will apply to automobiles and light trucks beginning with the 2009 model year.

On June 1, 2005, Governor Arnold Schwarzenegger signed Executive Order S-3-05. The goal of this Executive Order is to reduce California's 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 32 (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." Executive Order S-20-06 further directs state agencies to begin implementing AB 32, including the recommendations made by the state's Climate Action Team.

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

[1] Greenhouse gases related to human activity, as identified in AB 32, include: Carbon dioxide, Methane, Nitrous oxide, Tetrafluoromethane, Hexafluoroethane, Sulfur hexafluoride, HFC-23, HFC-134a*, and HFC-152a*.

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 U.S. Environmental Protection Agency (EPA) to regulate GHGs as a pollutant under the Clean Air Act (*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 Clean Air Act'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. The USEPA is currently determining the implications to national policies and programs as a result of the Supreme Court decision.

6.2 Project Impacts

Since climate change is a new area of discussion in the Department's environmental documents, and because the science and research methods are still evolving, the recommended approach to addressing climate change is to take a relatively high-level, qualitative analytical approach. According to a recent white paper by the Association of Environmental Professionals[2], "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.

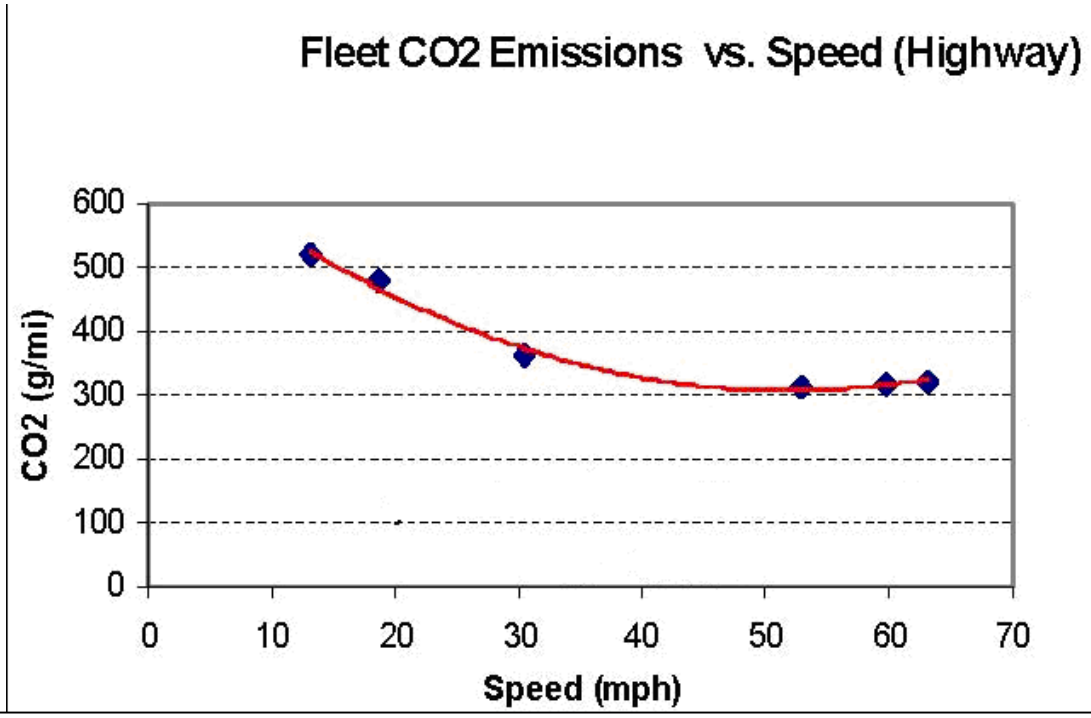
The Department and its parent agency, the Business, Transportation, and Housing Agency, have taken an active role in addressing GHG emission reduction and climate change. Recognizing that 98 percent of California's GHG emissions are from the burning of fossil fuels and 40 percent of all human made GHG emissions are from

[2] Hendrix, Micheal and Wilson, Cori. *Recommendations by the Association of Environmental Professionals (AEP) on How to Analyze Greenhouse Gas Emissions and Global Climate Change in CEQA Documents* (March 5, 2007), p. 2.

transportation, the Department has created and is implementing the *Climate Action Program at Caltrans* (December 2006). Transportation's contribution to GHG emissions is dependent on 3 factors: the types of vehicles on the road, the type of fuel the vehicles use, and the time/distance the vehicles travel.

One of the main strategies in the Department's Climate Action Program to reduce GHG emissions is to make California's transportation system more efficient. The highest levels of carbon dioxide from mobile sources, such as automobiles, occur at stop-and-go speeds (0-25 miles per hour) and speeds over 55 mph; the most severe emissions occur from 0-25 miles per hour (see Figure below). To the extent that a project relieves congestion by enhancing operations and improving travel times in high congestion travel corridors GHG emissions, particularly CO_2, will be reduced.

The purpose of the Yucca Loma Bridge project is to provide a third access to the town of Apple Valley and alleviate future congestion at the two existing access points. This project will not result in any meaningful changes in traffic volumes, vehicle mix, location of the existing facility, or any other factor that would cause an increase in emissions impacts relative to the no-build alternative. The project's purpose is therefore to reduce delays and congestion. As shown below, reductions in speed due to congestion in the project region result in higher emissions of CO_2. Thus projects that alleviate congestion would lead to lower CO_2 emissions overall.



Source: Center for Clean Air Policy— http://www.ccap.org/Presentations/Winkelman%20TRB%202004%20(1-13-04).pdf

6.3 AB 32 Compliance

The Department continues to be actively involved on the Governor's Climate Action Team as ARB works to implement AB 1493 and help achieve the targets set forth in AB 32. Many of the strategies the Department is using to help meet the targets in AB 32 come from the California Strategic Growth Plan, which is updated each year. Governor Arnold Schwarzenegger's Strategic Growth Plan (SGP) calls for a $222 billion infrastructure improvement program to fortify the state's transportation system, education, housing, and waterways, including $107 in transportation funding during the next decade. As shown on the figure below, the SGP targets a significant decrease in traffic congestion below today's level and a corresponding reduction in GHG emissions. The SGP proposes to do this while accommodating growth in population and the economy. A suite of investment options has been created that combined together yield the promised reduction in congestion. The SGP relies on a complete systems approach of a variety of strategies: system monitoring and evaluation, maintenance and preservation,

smart land use and demand management, and operational improvements. Because the project will provide operational improvements in the Apple Valley area, and does not promote growth, but rather serves an existing and future need to relieve congestion, the project will meet the goals of the SGP.

As part of the *Climate Action Program at Caltrans* (December 2006), the Department is supporting efforts to reduce vehicle miles traveled by planning and implementing smart land use strategies: job/housing proximity, developing transit-oriented communities, and high density housing along transit corridors. The Department is working closely with local jurisdictions on planning activities; however, the Department does not have local land use planning authority. The Department is also supporting efforts to improve the energy efficiency of the transportation sector by increasing vehicle fuel economy in new cars, light and heavy-duty trucks. However it is important to note that the control of the fuel economy standards is held by the United States Environmental Protection Agency

and ARB. Lastly, the use of alternative fuels is also being considered; the Department is participating in funding for alternative fuel research at the University of California Davis. The table provided below summarizes the Department and statewide efforts that Caltrans is implementing in order to reduce GHG emissions. For more detailed information about each strategy, please see *Climate Action Program at Caltrans* (December 2006); it is available at http://www.dot.ca.gov/docs/ClimateReport.pdf."

To the extent that it is applicable or feasible for the project and through coordination with the project development team, the following measures should be included in the project to reduce the GHG emissions and potential climate change impacts from projects:

1. Use of reclaimed water—currently 30% of the electricity used in California is used for the treatment and delivery of water. Use of reclaimed water helps conserve this energy, which reduces GHG emissions from electricity production.
2. Landscaping—reduces surface warming and through photosynthesis decreases CO_2.
3. Portland cement—use of lighter color surfaces such as Portland cement helps to reduce the albedo effect and cool the surface; in addition, the Department has been a leader in the effort to add fly ash to Portland cement mixes. Adding fly ash reduces the GHG emissions associated with cement production—it also can make the pavement stronger.
4. Use of energy efficient lighting, such as LED traffic signals.
5. Idling restrictions for trucks and equipment.

Each of the measures listed above will be used by the Town of Apple Valley to the extent feasible during construction to reduce GHG emissions.

7.0 Conclusions

Based on the analysis of emissions associated with both project construction and operation, the project would not cause a significant impact on the ambient air quality.
The project would not:

- Conflict with or obstruct the implementation of the applicable air quality plan;
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard (in this case, PM_{10} and $PM_{2.5}$, or exceed quantitative thresholds for O_3 precursors, oxides of nitrogen (NO_X) and Reactive Organic Compounds (ROCs));
- Expose sensitive receptors (including, but not limited to, schools, hospitals, resident care facilities, or day-care centers) to substantial pollutant concentrations including air toxics such as diesel particulates; or
- Create objectionable odors affecting a substantial number of people.

The Yucca Loma Bridge Project would therefore not result in significant adverse impacts to air quality.

8.0 References

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Appendix A

URBEMIS Model Outputs

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name:

Project Name: Yucca Loma Bridge

Project Location: San Bernadino County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2009 TOTALS (lbs/day unmitigated)	17.30	119.18	87.11	0.05	34.99	7.31	42.30	7.33	6.72	14.05	13,261.39
2009 TOTALS (lbs/day mitigated)	17.30	119.18	87.11	0.05	2.29	7.31	9.60	0.51	6.72	7.23	13,261.39

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2

Time Slice 1/1/2009-3/31/2009 Active Days: 64	7.79	62.28	34.40	0.00	34.81	3.39	38.20	7.27	3.12	10.39	5,506.37
Mass Grading 01/01/2009-06/30/2009	7.79	62.28	34.40	0.00	34.81	3.39	38.20	7.27	3.12	10.39	5,506.37
Mass Grading Dust	0.00	0.00	0.00	0.00	34.80	0.00	34.80	7.27	0.00	7.27	0.00
Mass Grading Off Road Diesel	7.72	62.14	32.01	0.00	0.00	3.38	3.38	0.00	3.11	3.11	5,258.29
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.08	0.14	2.39	0.00	0.01	0.01	0.02	0.00	0.01	0.01	248.07
Time Slice 4/1/2009-6/30/2009 Active Days: 65	**17.30**	**119.18**	**87.11**	**0.05**	**34.99**	**7.31**	**42.30**	**7.33**	**6.72**	**14.05**	**13,261.39**
Asphalt 04/01/2009-12/31/2009	3.86	22.59	14.86	0.00	0.01	1.94	1.96	0.00	1.79	1.79	1,942.86
Paving Off-Gas	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	3.74	22.32	12.13	0.00	0.00	1.93	1.93	0.00	1.77	1.77	1,650.33
Paving On Road Diesel	0.01	0.11	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.44
Paving Worker Trips	0.09	0.16	2.69	0.00	0.01	0.01	0.02	0.00	0.01	0.01	279.08
Building 04/01/2009-12/31/2009	5.65	34.31	37.85	0.04	0.17	1.98	2.14	0.06	1.82	1.87	5,812.16
Building Off Road Diesel	3.87	17.35	11.50	0.00	0.00	1.28	1.28	0.00	1.17	1.17	1,621.20
Building Vendor Trips	1.29	16.05	11.12	0.02	0.09	0.66	0.75	0.03	0.60	0.63	2,613.25
Building Worker Trips	0.49	0.92	15.23	0.02	0.07	0.05	0.12	0.03	0.04	0.07	1,577.71
Mass Grading 01/01/2009-06/30/2009	7.79	62.28	34.40	0.00	34.81	3.39	38.20	7.27	3.12	10.39	5,506.37
Mass Grading Dust	0.00	0.00	0.00	0.00	34.80	0.00	34.80	7.27	0.00	7.27	0.00
Mass Grading Off Road Diesel	7.72	62.14	32.01	0.00	0.00	3.38	3.38	0.00	3.11	3.11	5,258.29
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.08	0.14	2.39	0.00	0.01	0.01	0.02	0.00	0.01	0.01	248.07

Time Slice 7/1/2009-12/31/2009 Active Days: 132	9.51	56.89	52.71	0.04	0.18	3.92	4.10	0.06	3.60	3.66	7,755.02
Asphalt 04/01/2009-12/31/2009	3.86	22.59	14.86	0.00	0.01	1.94	1.96	0.00	1.79	1.79	1,942.86
Paving Off-Gas	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	3.74	22.32	12.13	0.00	0.00	1.93	1.93	0.00	1.77	1.77	1,650.33
Paving On Road Diesel	0.01	0.11	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.44
Paving Worker Trips	0.09	0.16	2.69	0.00	0.01	0.01	0.02	0.00	0.01	0.01	279.08
Building 04/01/2009-12/31/2009	5.65	34.31	37.85	0.04	0.17	1.98	2.14	0.06	1.82	1.87	5,812.16
Building Off Road Diesel	3.87	17.35	11.50	0.00	0.00	1.28	1.28	0.00	1.17	1.17	1,621.20
Building Vendor Trips	1.29	16.05	11.12	0.02	0.09	0.66	0.75	0.03	0.60	0.63	2,613.25
Building Worker Trips	0.49	0.92	15.23	0.02	0.07	0.05	0.12	0.03	0.04	0.07	1,577.71

Phase Assumptions

Phase: Mass Grading 1/1/2009 - 6/30/2009 - Site Grading and Preparation

Total Acres Disturbed: 6.97

Maximum Daily Acreage Disturbed: 1.74

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

2 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

1 Rollers (95 hp) operating at a 0.56 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

1 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 2 hours per day

Phase: Paving 4/1/2009 - 12/31/2009 - Paving

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Acres to be Paved: 1.74

Off-Road Equipment:

4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day

1 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day

2 Paving Equipment (104 hp) operating at a 0.53 load factor for 8 hours per day

1 Rollers (95 hp) operating at a 0.56 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Phase: Building Construction 4/1/2009 - 12/31/2009 - Bridge Construction

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
Time Slice 1/1/2009-3/31/2009 Active Days: 64	7.79	62.28	34.40	0.00	2.11	3.39	5.50	0.44	3.12	3.56	5,506.37
Mass Grading 01/01/2009-06/30/2009	7.79	62.28	34.40	0.00	2.11	3.39	5.50	0.44	3.12	3.56	5,506.37
Mass Grading Dust	0.00	0.00	0.00	0.00	2.10	0.00	2.10	0.44	0.00	0.44	0.00
Mass Grading Off Road Diesel	7.72	62.14	32.01	0.00	0.00	3.38	3.38	0.00	3.11	3.11	5,258.29
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.08	0.14	2.39	0.00	0.01	0.01	0.02	0.00	0.01	0.01	248.07

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Time Slice 4/1/2009-6/30/2009 Active Days: 65	**17.30**	**119.18**	**87.11**	**0.05**	2.29	**7.31**	9.60	0.51	**6.72**	7.23	**13,261.39**
Asphalt 04/01/2009-12/31/2009	3.86	22.59	14.86	0.00	0.01	1.94	1.96	0.00	1.79	1.79	1,942.86
Paving Off-Gas	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	3.74	22.32	12.13	0.00	0.00	1.93	1.93	0.00	1.77	1.77	1,650.33
Paving On Road Diesel	0.01	0.11	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.44
Paving Worker Trips	0.09	0.16	2.69	0.00	0.01	0.01	0.02	0.00	0.01	0.01	279.08
Building 04/01/2009-12/31/2009	5.65	34.31	37.85	0.04	0.17	1.98	2.14	0.06	1.82	1.87	5,812.16
Building Off Road Diesel	3.87	17.35	11.50	0.00	0.00	1.28	1.28	0.00	1.17	1.17	1,621.20
Building Vendor Trips	1.29	16.05	11.12	0.02	0.09	0.66	0.75	0.03	0.60	0.63	2,613.25
Building Worker Trips	0.49	0.92	15.23	0.02	0.07	0.05	0.12	0.03	0.04	0.07	1,577.71
Mass Grading 01/01/2009-06/30/2009	7.79	62.28	34.40	0.00	2.11	3.39	5.50	0.44	3.12	3.56	5,506.37
Mass Grading Dust	0.00	0.00	0.00	0.00	2.10	0.00	2.10	0.44	0.00	0.44	0.00
Mass Grading Off Road Diesel	7.72	62.14	32.01	0.00	0.00	3.38	3.38	0.00	3.11	3.11	5,258.29
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.08	0.14	2.39	0.00	0.01	0.01	0.02	0.00	0.01	0.01	248.07

Time Slice 7/1/2009-12/31/2009 Active Days: 132	9.51	56.89	52.71	0.04	0.18	3.92	4.10	0.06	3.60	3.66	7,755.02
Asphalt 04/01/2009-12/31/2009	3.86	22.59	14.86	0.00	0.01	1.94	1.96	0.00	1.79	1.79	1,942.86
Paving Off-Gas	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	3.74	22.32	12.13	0.00	0.00	1.93	1.93	0.00	1.77	1.77	1,650.33
Paving On Road Diesel	0.01	0.11	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.44
Paving Worker Trips	0.09	0.16	2.69	0.00	0.01	0.01	0.02	0.00	0.01	0.01	279.08
Building 04/01/2009-12/31/2009	5.65	34.31	37.85	0.04	0.17	1.98	2.14	0.06	1.82	1.87	5,812.16
Building Off Road Diesel	3.87	17.35	11.50	0.00	0.00	1.28	1.28	0.00	1.17	1.17	1,621.20
Building Vendor Trips	1.29	16.05	11.12	0.02	0.09	0.66	0.75	0.03	0.60	0.63	2,613.25
Building Worker Trips	0.49	0.92	15.23	0.02	0.07	0.05	0.12	0.03	0.04	0.07	1,577.71

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Mass Grading 1/1/2009 - 6/30/2009 - Site Grading and Preparation

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stablizing Measures, the Water exposed surfaces 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

Appendix B

RTIP/RTP Listing

TCWG Supporting Documentation

Cost in Thousands

ProjectID	County	Air Basin	Model	RTP ID	Program	Route	Begin	End	System	Conformity Category	Amend	Source
200201	San Bernardino	MDAB		200201	NCR91				L	EXEMPT	0	2008
							PTC	560	Agency	ADELANTO		

IN ADELANTO, EL MIRAGE RD. FROM SR. 395 TO 1 MILE EAST TO ADELANTO RD. AND ON ADELANTO RD. FROM EL MIRAGE RD. TO 1 MILE SOUTH-AUBURN AVE. PAVE EXISTING 2 LANE RD.

Fund	ENG	R/W	CON	Total	Prior	2008/2009	2009/2010	2010/2011	2011/2012	2012/2013	2013/2014	Total
CITY FUNDS			440	440			440					440
SBD CO MEASURE I	70	50		120			120					120
200201 Total	70	50	440	560			560					560

ProjectID	County	Air Basin	Model	RTP ID	Program	Route	Begin	End	System	Conformity Category	Amend	Source
200049	San Bernardino	MDAB	S399	200049	PLN40				L	NON-EXEMPT	0	2008
							PTC	28,500	Agency	APPLE VALLEY		

MOJAVE RIVER BRIDGE CROSSING FROM TERMINUS OF YUCCA LOMA RD TO TERMINUS OF GREEN TREE BLVD - PRE. ENVIRONMENTAL REVIEW FOR CONSTRUCTION OF NEW 4 LANE BRIDGE

Fund	ENG	R/W	CON	Total	Prior	2008/2009	2009/2010	2010/2011	2011/2012	2012/2013	2013/2014	Total
STP LOCAL	2,800			2,800	2,800							2,800
BONDS - LOCAL			12,000	12,000						12,000		12,000
CITY FUNDS	500	200	13,000	13,700	500		200		13,000			13,700
200049 Total	3,300	200	25,000	28,500	3,300		200		13,000	12,000		28,500

ProjectID	County	Air Basin	Model	RTP ID	Program	Route	Begin	End	System	Conformity Category	Amend	Source
SBD55011	San Bernardino	MDAB	4627	SBD55011	CAR63				L	NON-EXEMPT	0	2008
							PTC	2,150	Agency	APPLE VALLEY		

YUCCA LOMA RD. FROM APPLE VALLEY RD. TO NAVAJO RD. WIDEN EXISTING 2 LANE RD. TO 4 LANE RD. (2 LANES IN EACH DIRECTION) (3 MILES)

Fund	ENG	R/W	CON	Total	Prior	2008/2009	2009/2010	2010/2011	2011/2012	2012/2013	2013/2014	Total
SBD CO MEASURE I	150		2,000	2,150						150	2,000	2,150
SBD55011 Total	150		2,000	2,150						150	2,000	2,150

ProjectID	County	Air Basin	Model	RTP ID	Program	Route	Begin	End	System	Conformity Category	Amend	Source
SBD55012	San Bernardino	MDAB	4627	SBD55012	CAN66				L	NON-EXEMPT	0	2008
							PTC	2,772	Agency	APPLE VALLEY		

YUCCA LOMA RD. AT SR 18 CONNECTION NEW CONNECTION - CONNECTING YUCCA LOMA RD. AND SR 18 - NEW INTER- SECTION

Fund	ENG	R/W	CON	Total	Prior	2008/2009	2009/2010	2010/2011	2011/2012	2012/2013	2013/2014	Total
CITY FUNDS	50		450	500							500	500
SBD55012 Total	50		450	500							500	500

ProjectID	County	Air Basin	Model	RTP ID	Program	Route	Begin	End	System	Conformity Category	Amend	Source
200202	San Bernardino	SCAB	S260	200202	CAR63				L	NON-EXEMPT	0	2008
							PTC	584	Agency	CHINO		

IN CHINO - ON CHINO AVENUE FROM MONTE VISTA TO SIXTH STREET-WIDEN EXISTING 2 LANES TO 4 LANES AND INSTALL SIGNAL AT INTERSECTION OF CHINO AVE. AND MONTE VISTA

Fund	ENG	R/W	CON	Total	Prior	2008/2009	2009/2010	2010/2011	2011/2012	2012/2013	2013/2014	Total
DEVELOPER FEES	88		496	584						584		584
200202 Total	88		496	584						584		584

Cost in Thousands

Local Highway

SBD031422 Total				750	750						750		750
ProjectID	**County**	**Air Basin**	**Model**	**RTP ID**	**Program**	**Route**	**Begin**	**End**	**System**	**Conformity Category**		**Amend**	**Source**
SBD97147	San Bernardino	MDAB	S295	SBD97147	CAX67				L	NON-EXEMPT		0	2008
							PTC	14,583	**Agency**	VICTORVILLE			

GREEN TREE BLVD AT AT&SF RAILROAD CONSTRUCT 4-LANE BR & CONNECT TO HESPERIA & RIDGECREST RD

Fund	**ENG**	**R/W**	**CON**	**Total**	**Prior**	**2008/2009**	**2009/2010**	**2010/2011**	**2011/2012**	**2012/2013**	**2013/2014**	**Total**
CITY FUNDS	1,092	1,491	12,000	14,583						2,583	12,000	14,583
SBD97147 Total	1,092	1,491	12,000	14,583						2,583	12,000	14,583
Grand Total	137,102	121,135	1,092,629	1,350,866	135,094	255,119	192,599	106,468	117,334	269,840	274,412	1,350,866

SOUTHERN CALIFORNIA
ASSOCIATION of GOVERNMENTS

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www.scag.ca.gov

MEETING OF THE

TRANSPORTATION CONFORMITY WORKING GROUP

Tuesday, March 24, 2008
10:00 a.m. – 12:00 p.m.

SCAG Offices
Riverside A Conference Room
818 West 7th, 12th Floor
Los Angeles, CA 90017
213.236.1800

If members of the public wish to review the attachments or have any questions on any of the agenda items, please contact:

Jonathan Nadler at 213.236.1884 or nadler@scag.ca.gov
Rongsheng Luo at 213.236.1994 or luo@scag.ca.gov

SCAG, in accordance with the Americans with Disabilities Act (ADA), will accommodate persons who require a modification of accommodation in order to participate in this meeting. If you require such assistance, please contact SCAG at (213) 236-1868 at least 72 hours in advance of the meeting to enable SCAG to make reasonable arrangements. To request documents related to this document in an alternative format, please contact (213) 236-1868.

Transportation Conformity Working Group

AGENDA

			PAGE #	TIME
1.0	**CALL TO ORDER**	**Shirley Medina, RCTC**		
2.0	**PUBLIC COMMENT PERIOD**			

Members of the public desiring to speak on an agenda item or items not on the agenda, but within the purview of the TCWG, must fill out a speaker's card prior to speaking and submit it to the Staff Assistant. A speaker's card must be turned in before the meeting is called to order. Comments will be limited to three minutes. The Chair may limit the total time for comments to twenty (20) minutes.

3.0	**CONSENT CALENDAR**			
3.1	TCWG Minutes of February 24, 2009 **Attachment**		**3.1-1**	
4.0	**INFORMATION ITEMS**			
4.1	RTIP Update	**John Asuncion, SCAG**		**5 minutes**
4.2	RTP Update	**Ryan Kuo, SCAG**		**5 minutes**
4.3	SB375 Update	**Jonathan Nadler, SCAG**		**5 minutes**
4.4	Review of PM Hot Spot Interagency Review Forms **Attachments** (pages 4.4-1/5/13/19/23/27/32/36/41)	**TCWG Discussion**	**4.4-1**	**40 minutes**
4.5	ARB Update ➢ EMFAC2010 ➢ ARB Revised 8-Hour Ozone Area Designation Recommendations	**Dennis Wade, ARB**		**5 minutes**
5.0	**INFORMATION SHARING**			**10 minutes**
6.0	**ADJOURNMENT**			

The next meeting of the Transportation Conformity Working Group will be on Tuesday, April 28, 2009 at the SCAG office in downtown Los Angeles.

TCWG Project-Level PM Hot Spot Analysis Project Lists

Review of PM Hot Spot Interagency Review Forms

March 2009	Determination
RIV011232	Not a POAQC - Hot Spot analysis not required.
SBD 4M07035 and 34011 Exhibit	Not a POAQC - Hot Spot analysis not required.
SBD 08-2000049 and SDB97147 Exhibit	Not a POAQC - Hot Spot analysis not required.
SBD 20041201 (updated) Exhibit (updated)	Not a POAQC - Hot Spot analysis not required.
SBD 200417 Exhibit	Not a POAQC - Hot Spot analysis not required.
SBD 200078 (updated) Exhibit (updated)	Not a POAQC - Hot Spot analysis not required.
SBD 200064 Exhibit	Not a POAQC - Hot Spot analysis not required.
SBD No RTIP ID Colton-Valley Exhibit	Not a POAQC - Hot Spot analysis not required.
LALS06	Not a POAQC - Hot Spot analysis not required.

Quick Links

- Goods Movement Knowledge Base
- Overall Work Program
- SCAG Emergency Information Network

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- Final 2008 RTP
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PM Conformity Hot Spot Analysis
Project Summary Form for Interagency Consultation

The purpose of this form is to provide sufficient information to allow the Transportation Conformity Working Group (TCWG) to determine if a project requires a project-level PM hot spot analysis pursuant to Federal Conformity Regulations.

The form is not required under the following circumstances:

1. The project sponsor determines that a project-level PM hot spot analysis is required or otherwise elects to perform the analysis; or

2. The project does not require a project-level PM hot spot analysis since it:

    a. Is exempt pursuant to 40 CFR 93.126; or

    b. Is a traffic signal synchronization project under 40 CFR 93.128; or

    c. Uses no Federal funds AND requires no Federal approval; or

    d. Is located in a Federal PM attainment area (note: PM10 and PM2.5 areas differ).

Projects other than those listed above may or may not need a project-level PM hot spot analysis depending on whether it is considered a "Project of Air Quality Concern" (POAQC), and should be brought before the TCWG for a determination.

It is the responsibility of the project sponsor to ensure that the form is filled out completely and provides a sufficient level of detail for the TCWG to make an informed decision on whether or not a project requires a project-level PM hot spot analysis. For example, the TCWG will be reviewing the effects of the project, and thus part of the required information includes build/no build traffic data. It is also the responsibility of the project sponsor to ensure a representative is available to discuss the project at the TCWG meeting if necessary.

Instructions:

1) Fill out form in its entirety. Enter information in gray input fields.

2) Be sure to include RTIP ID#. See http://scag.ca.gov/rtip/ if necessary.

3) Submit completed form to your local Transportation Commission who will submit it to the MPO. Caltrans projects can be submitted by Caltrans District representative.

The TCWG meets the fourth Tuesday of each month at SCAG Headquarters, 818 W. 7th Street, 12th Floor, Los Angeles, CA 90017. Participation is also available via teleconference. Call (213) 236-1800 prior to meeting to get the call-in number and pass-code.

Forms must be submitted by the second Tuesday of the month to be considered at that month's TCWG meeting.

REFERENCE

Criteria for Projects of Air Quality Concern (40 CFR 93.123(b)(1)) – PM_{10} and $PM_{2.5}$ Hot Spots

(i) New or expanded highway projects that have a significant number of or significant increase in diesel vehicles;

(ii) Projects affecting intersections that are at Level-of-Service D, E, or F with a significant number of diesel vehicles, or those that will change to Level-of-Service D, E, or F because of increased traffic volumes from a significant number of diesel vehicles related to the project;

(iii) New bus and rail terminals and transfer points than have a significant number of diesel vehicles congregating at a single location;

(iv) Expanded bus and rail terminals and transfer points that significantly increase the number of diesel vehicles congregating at a single location; and

(v) Projects in or affecting locations, areas, or categories of sites which are identified in the PM10 or PM2.5 applicable implementation plan or implementation plan submission, as appropriate, as sites of violation or possible violation.

Links to more information:

http://www.fhwa.dot.gov/environment/conform.htm

http://www.epa.gov/otaq/stateresources/transconf/index.htm

TABLE 1
Type of Project

• New state highway
• Change to existing state highway
• New regionally significant street
• Change to existing regionally significant street
• New interchange
• Reconfigure existing interchange
• Intersection channelization
• Intersection signalization
• Roadway realignment
• Bus, rail, or inter-modal facility/terminal/transfer point
• Truck weight/inspection station
• At or affects location identified in the SIP as a site of actual or possible violation of NAAQS

RTIP ID# *(required)* Project ID Number (Apple Valley) 08-200049 and (Victorville) SDB97147				
TCWG Consideration Date				
Project Description *(clearly describe project)* The proposed project will provide a new route across the Mojave River between the Town of Apple Valley, County of San Bernardino, and City of Victorville. The eastern limit of the project is at the intersection of Yucca Loma Road and Apple Valley Road. The western limit is at the intersection of Green Tree Boulevard and Hesperia Road. The purpose of the proposed project, as part of the regional plan, is to provide better access to Apple Valley from I-15, relieve traffic congestion, and improve circulation. The project is needed because the region currently experiences traffic slowdowns, which will only get worse as the region grows. The proposed project would take 4 years to construct and is expected to be open to traffic in 2013.				
Type of Project *(use Table 1 on instruction sheet)* Roadway realignment				
County San Bernardino	**Narrative Location/Route & Postmiles** Yucca Loma Road and Apple Valley Road Caltrans Project – **STPL-5453 (011)**			
Lead Agency: Caltrans District 8				
Contact Person Dr. Paul B. Fagan	**Phone#** (909) 383-5902	**Fax#** (909) 383-6938	**Email** Paul.Fagan@dot.ca.gov	
Hot Spot Pollutant of Concern *(Check one or both)* **PM2.5** **PM10 X**				
Federal Action for which Project-Level PM Conformity is Needed *(Check appropriate box)*				
Categorical Exclusion (NEPA)	X **EA or Draft EIS**	**FONSI or Final EIS**	**PS&E or Construction**	**Other**
Scheduled Date of Federal Action:				
NEPA Delegation – Project Type *(Check appropriate box)*				
Exempt	**Section 6004 – Categorical Exemption**	X **Section 6005 – Non-Categorical Exemption**		

Current Programming Dates *(as appropriate)*

	PE/Environmental	ENG	ROW	CON
Start	06	06	09	09
End	09	09	10	13

Project Purpose and Need (Summary): *(attach additional sheets as necessary)*

The purpose of the proposed project, as part of the regional plan, is to provide better access to Apple Valley from I-15, relieve traffic congestion, and improve circulation. The project is needed because the region currently experiences traffic slowdowns, which will only get worse as the region grows.

Surrounding Land Use/Traffic Generators *(especially effect on diesel traffic)*

Land uses in the immediate vicinity of both Yucca Loma Road and Green Tree Boulevard are mainly residential and recreational, with undeveloped land to the north of the project area. The project would extend the road south of Mojave Narrows Regional Park.

Opening Year: Build and No Build LOS, AADT, % and # trucks, truck AADT of proposed facility

Not Applicable

RTP Horizon Year / Design Year: Build and No Build LOS, AADT, % and # trucks, truck AADT of proposed facility

Not Applicable

Opening Year: If facility is an interchange(s) or intersection(s), Build and No Build cross-street AADT, % and # trucks, truck AADT

Project Opening Year 2015 (No Build)

Location	AADT	% Trucks[a]	Truck AADT
Green Tree Blvd.			
7th Street to Burning Tree	31,600	5.5	1,738
Burning Tree to 3rd Ave	33,000	5.5	1,815
3rd Ave to Hesperia Road	25,800	5.5	1,254
Hesperia Road			
North of Green Tree	35,600	5.5	1,958
South of Green Tree	47,500	5.5	2,613
Yates Road			
West of Apple Valley	3,600	5.5	198
Yucca Loma Road			
Apple Valley to Choco	10,800	5.5	594
Choco to Rincon	10,300	5.5	567
Rincon to Seminole	9,000	5.5	495
Seminole to Kiowa	8,400	5.5	462
Kiowa to Rancherias	8,300	5.5	457
Kiowa Road			
Yucca Loma to Rancherias	8,300	5.5	457
Highway 18			
North of Kiowa Road	28,500	5.5	1,568
South of Kiowa Road	23,700	5.5	1,304

[a]Truck percentages estimated from EMFAC2007 Model Run for San Bernardino County, 2015, for vehicle categories LHD1 through HHD

Project Opening Year 2015 (Build)

Location	AADT	% Trucks[a]	Truck AADT
Green Tree Blvd.			
7th Street to Burning Tree	40,900	5.5	2,250
Burning Tree to 3rd Ave	40,600	5.5	2,233
3rd Ave to Hesperia Road	36,000	5.5	1,980
Hesperia Road			
North of Green Tree	36,900	5.5	2,030
South of Green Tree	48,200	5.5	2,651
Yates Road			
West of Apple Valley	23,400	5.5	1,287
Yucca Loma Road			
Apple Valley to Choco	19,400	5.5	1,067
Choco to Rincon	18,400	5.5	1,012
Rincon to Seminole	16,300	5.5	897
Seminole to Kiowa	15,700	5.5	864
Kiowa to Rancherias	10,400	5.5	572
Kiowa Road			
Yucca Loma to Rancherias	8,300	5.5	457
Highway 18			
North of Kiowa Road	27,000	5.5	1,485
South of Kiowa Road	22,200	5.5	1,221

[a]Truck percentages estimated from EMFAC2007 Model Run for San Bernardino County, 2015, for vehicle categories LHD1 through HHD

RTP Horizon Year / Design Year: If facility is an interchange (s) or intersection(s), Build and No Build cross-street AADT, % and # trucks, truck AADT

Project Horizon Year 2035 (No Build)

Location	AADT	% Trucks[a]	Truck AADT
Green Tree Blvd.			
7th Street to Burning Tree	47,700	5.7	2,719
Burning Tree to 3rd Ave	40,700	5.7	2,320
3rd Ave to Hesperia Road	33,100	5.7	1,887
Hesperia Road			
North of Green Tree	50,800	5.7	2,896
South of Green Tree	52,300	5.7	2,981
Yates Road			
West of Apple Valley	4,000	5.7	228
Yucca Loma Road			
Apple Valley to Choco	11,900	5.7	678
Choco to Rincon	11,300	5.7	644
Rincon to Seminole	9,900	5.7	564
Seminole to Kiowa	9,200	5.7	524
Kiowa to Rancherias	9,200	5.7	524
Kiowa Road			
Yucca Loma to Rancherias	9,100	5.7	519
Highway 18			
North of Kiowa Road	31,400	5.7	1,790
South of Kiowa Road	26,000	5.7	1,482

[a]Truck percentages estimated from EMFAC2007 Model Run for San Bernardino County, 2035, for vehicle categories LHD1 through HHD

Project Horizon Year 2035 (Build)

Location	AADT	% Trucks[a]	Truck AADT
Green Tree Blvd.			
7th Street to Burning Tree	56,900	5.7	3,243
Burning Tree to 3rd Ave	49,900	5.7	2,844
3rd Ave to Hesperia Road	39,700	5.7	2,263
Hesperia Road			
North of Green Tree	52,000	5.7	2,964
South of Green Tree	53,000	5.7	3,021
Yates Road			
West of Apple Valley	25,800	5.7	1,471
Yucca Loma Road			
Apple Valley to Choco	22,900	5.7	1,305
Choco to Rincon	21,600	5.7	1,231
Rincon to Seminole	17,900	5.7	1,020
Seminole to Kiowa	17,300	5.7	986
Kiowa to Rancherias	11,500	5.7	656
Kiowa Road			
Yucca Loma to Rancherias	9,700	5.7	553
Highway 18			
North of Kiowa Road	29,700	5.7	1,693
South of Kiowa Road	38,400	5.7	2,189

[a]Truck percentages estimated from EMFAC2007 Model Run for San Bernardino County, 2035, for vehicle categories LHD1 through HHD

Describe potential traffic redistribution effects of congestion relief *(impact on other facilities)*
As discussed above, the purpose of the proposed project, as part of the regional plan, is to provide better access to Apple Valley from I-15, relieve traffic congestion, and improve circulation. The project will provide an additional eastward connection across the Mojave River, reducing traffic and potential congestion on Highway 18 and Bear Valley Road due to anticipated growth in the study area.

Comments/Explanation/Details *(attach additional sheets as necessary)*
No further comments are provided at this time.

Appendix C

Carbon Monoxide Hot-Spot Analysis Modeling Procedures

Appendix C: Carbon Monoxide Hot-Spot Analysis Modeling Procedures

Regional CO Impact Analysis. The CO Protocol (UC Davis, 1997) was used to analyze project-level CO impacts for the Yucca Loma Road / Yates Road / Green Tree Boulevard Transportation Improvement Project. The scope required for a project level CO analysis is summarized in the CO Protocol, Section 3, Determination of Project Requirements, and Section 4, Local CO Analysis.

Section 3 of the CO Protocol provides a conformity requirement decision flow chart, Figure 1, Requirements for New Project. Below is a step-by-step explanation of the flow chart based on Figure 1 of the CO protocol. Each question at an applicable analysis level specified in the flow chart is followed by a response, which determines the next applicable analysis level of the flow chart for the proposed project. Figure C-1 highlights the path taken on the flow chart. The flow chart begins with Section 3.1.1.

Question: 3.1.1. Is this project exempt from all emissions analysis? (see Table 1 of the CO protocol)

Answer: No. Table 1 of the CO Protocol lists project exempt from all emission analysis. The proposed project does not appear in Table 1 of the CO Protocol. The proposed project is not exempt from all emissions analyses.

Question: 3.1.2. Is the project exempt from regional emissions analysis? (see Table 2 of the CO Protocol.

Answer: No. Table 2 of the CO Protocol lists projects exempt from regional emissions analysis and does not apply to this project.

Question: 3.1.3. Is the project locally defined as regionally significant?

Answer: Yes. The project is defined as a regionally significant project. In accordance with the definitions contained in 40 CFR Part 93 (the federal conformity rule), a regionally significant project means a transportation project that is on a facility which serves regional transportation needs and would normally be included in the modeling of a metropolitan area's transportation network, including at a minimum all principal arterial highways and all fixed guideway transit facilities that offer an alternative to regional highway travel. The project is thus considered regionally significant under the definition in 40 CFR Part 93.

Question: 3.1.4. Is the Project in a federal attainment area?

Answer: No. The project is in a federal nonattainment area for ozone and PM_{10}; therefore, further analysis to determine the potential for regional impacts is required.

Question: 3.1.5. Is there a currently conforming RTP and TIP?

Answer: Yes. There is a current conforming RTP and Regional Transportation Improvement Program (RTIP). The Yucca Loma Bridge Project is included in the Final 2008 Regional Transportation Plan, Project ID Number 08-200049, Page 76.

Question: 3.1.6. Is the project included in the regional emissions analysis supporting the currently conforming RTP and TIP?

Answer: Yes. Because the project is included in the currently conforming RTP and RTIP as Project ID Number 08-200049, it has been included in the conformity analysis.

Question: 3.1.7. Has the project design concept and/or scope changed significantly from that in regional analysis?

Answer: No. The project will not change design concept and/or scope from that in the regional analysis.

Question: 3.1.9. Examine local impacts.

Answer: Section 3.1.9 of the flow chart directs evaluation to Section 4, Local Analysis, of the CO Protocol. This concludes the flow chart analysis presented in Figure 1 of the CO Protocol.

Based on this evaluation in accordance with the flow chart, a further regional analysis or regional conformity determination is not required for the project. The local CO analysis is addressed in the following subsection.

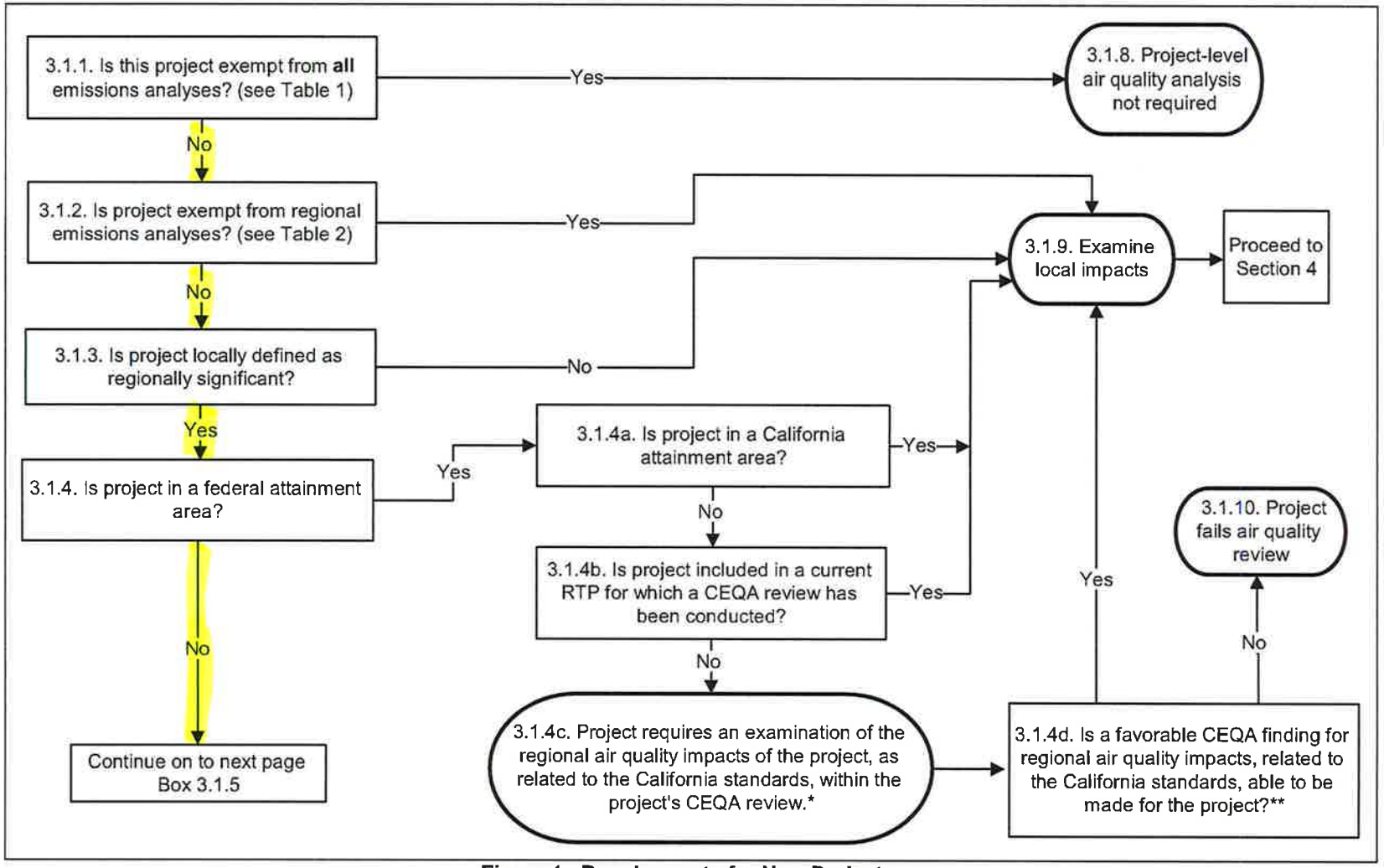

Figure 1. Requirements for New Projects

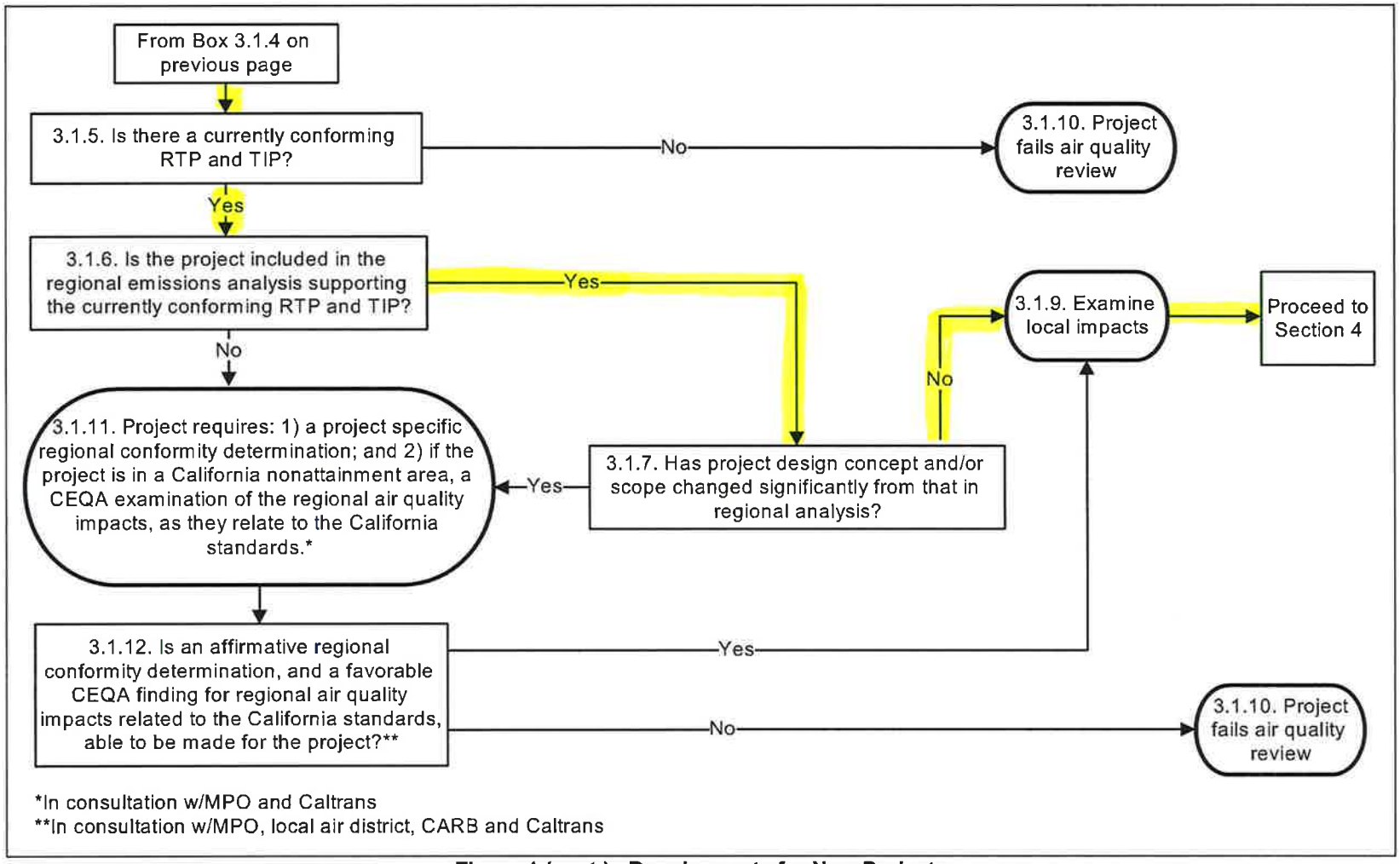

Figure 1 (cont.). Requirements for New Projects

Local CO Impact Analysis. 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 adverse air quality impacts.

The Protocol contains a local CO analysis flow chart similar to the regional analysis flow chart that is designed to assist in the evaluation of the requirements for demonstrating that the project will not cause an adverse air quality impact. The flow chart contained in the Protocol was followed to determine the analysis required for the Yucca Loma Bridge Project. The results for the steps in the analysis contained in the Protocol are as follows:

Question: Level 1. Is the project in a CO non-attainment area?

Answer: No. The project is located in a CO attainment area.

Question: Level 1. Was the area redesignated as "attainment after the 1990 Clean Are Act?

Answer: No. The area was not redesignated as "attainment" after the 1990 CAA. (Proceed to Level 7)

Question: Level 7. Does project worsen air quality?

Answer: No. The project does not worsen air quality, in that it does not increase the percentage of vehicles operating in cold start mode, significantly increase traffic volumes, or worsen traffic flow.

Based on this evaluation, a further local CO impact analysis or regional conformity determination is not required for the project, and the project would not cause or contribute to a violation of the air quality standards for CO.

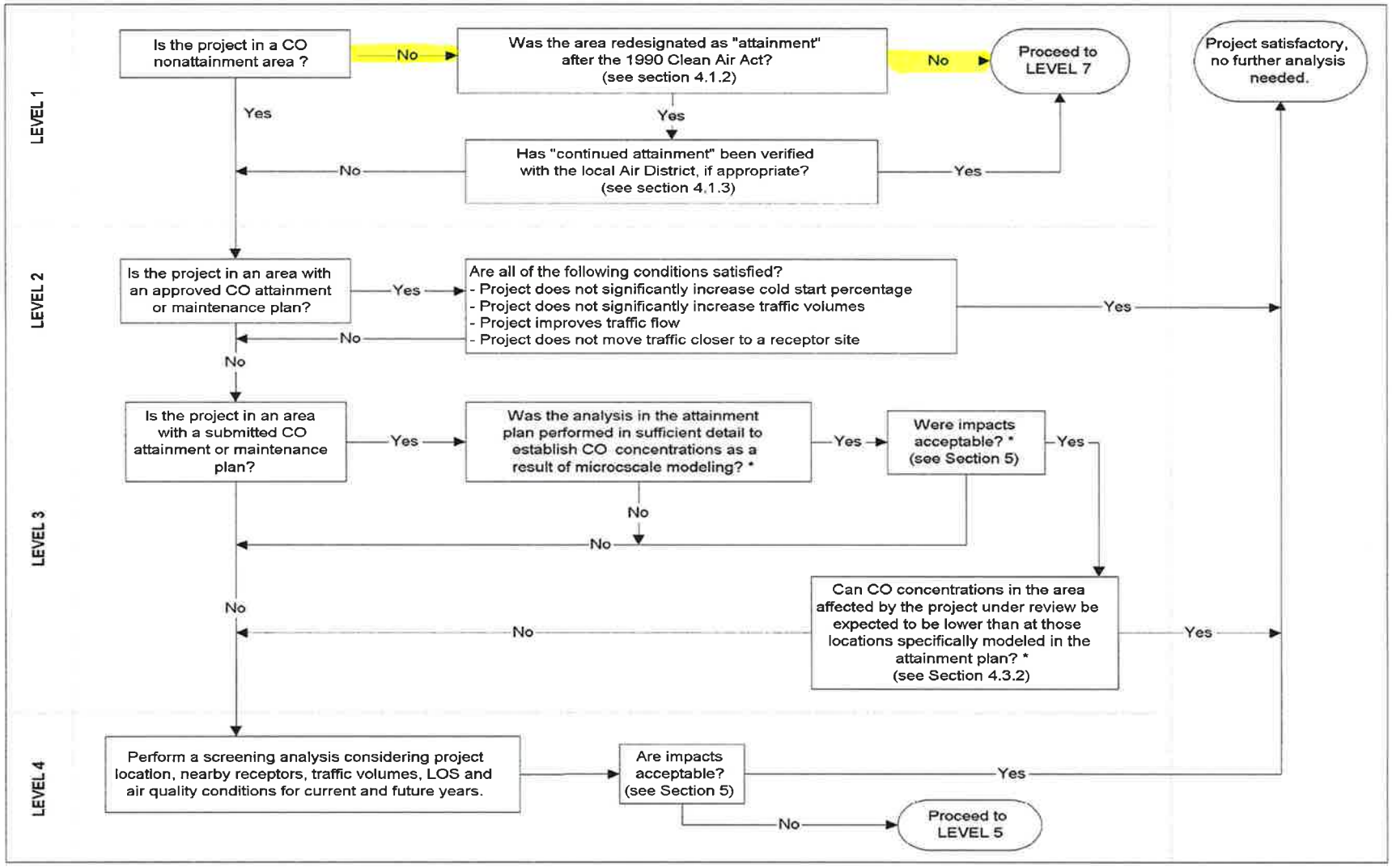

Figure 3. Local CO Analysis

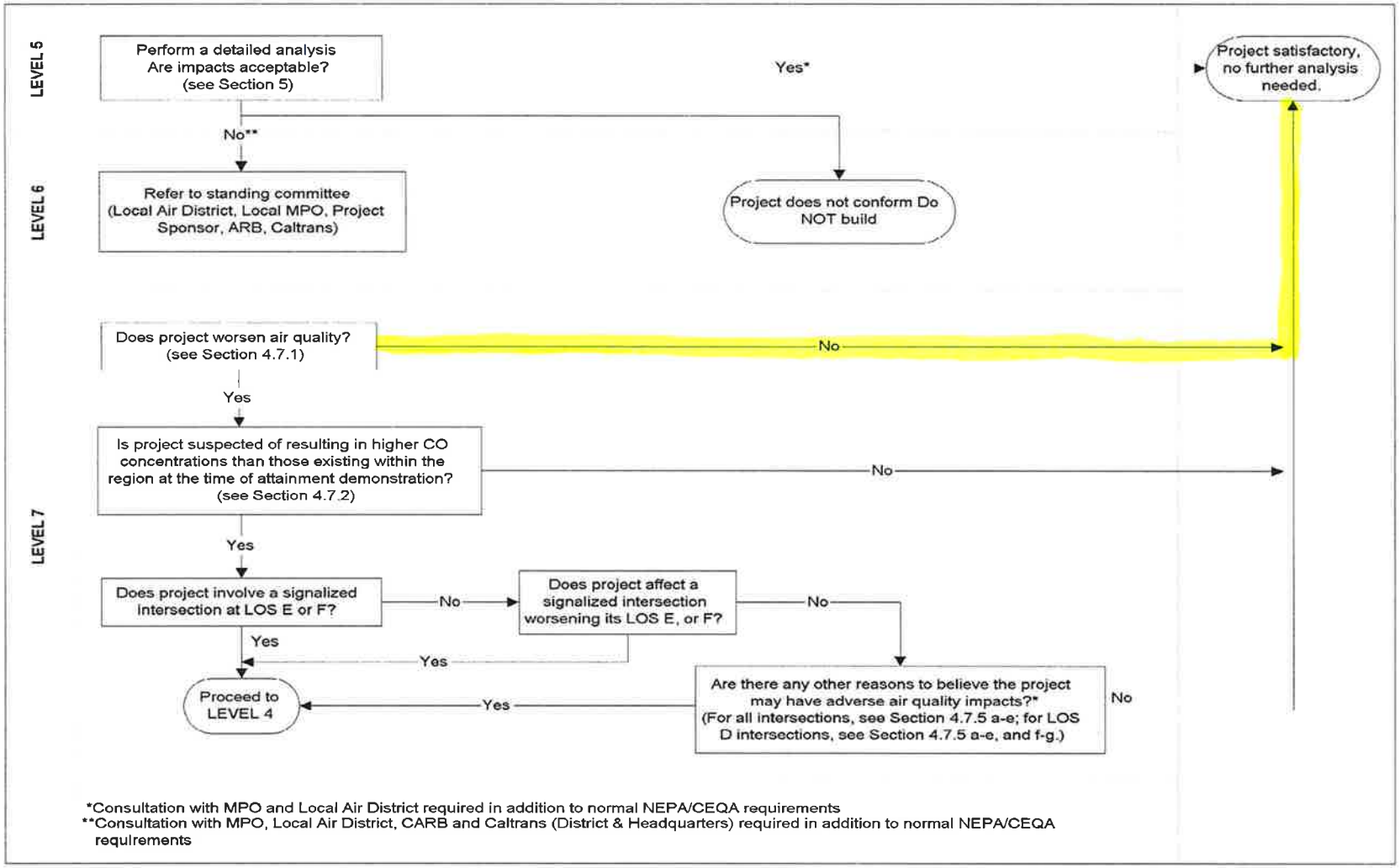

Figure 3 (cont.). Local CO Analysis