AIR QUALITY IMPACT EVALUATION

FOR THE

RANCHO CORDOVA PARKWAY INTERCHANGE PROJECT

CITY OF RANCHO CORDOVA, CALIFORNIA

AUGUST 2010

DISTRICT 3 – SAC – 50

PM 12.796/15.745

EA: 03-1E2700

PREPARED BY:

DONALD BALLANTI
CERTIFIED CONSULTING METEOROLOGIST
1424 SCOTT STREET
EL CERRITO, CA 94530

PREPARED FOR:

CITY OF RANCHO CORDOVA
2729 PROSPECT PARK DRIVE
RANCHO CORDOVA, CA 95827

TABLE OF CONTENTS

LIST OF TABLES

LIST OF APPENDICES

1.0 INTRODUCTION

This report describes the impacts of the proposed project on local and regional air quality. This report was prepared using methodologies and assumptions recommended within the air quality impact assessment recommendations of the Sacramento Metropolitan Air Quality Management District.[1] In keeping with these recommendations, the section describes existing air quality, construction-related impacts, direct and indirect emissions associated with the project, the impacts of these emissions on both the local and regional scale, and mitigation measures warranted to reduce or eliminate any identified significant impacts.

[1] Sacramento Metropolitan Air Quality Management District, *Guide to Air Quality Assessment in Sacramento County*, December 2009.

2.0 PROJECT DESCRIPTION

2.1 PROJECT BACKGROUND

The City of Rancho Cordova (City), in cooperation with the California Department of Transportation (Caltrans), is proposing to construct a new interchange over US Highway 50 (US-50) between Sunrise Boulevard and Hazel Avenue. The project is located partially in the City of Rancho Cordova, and partially in unincorporated Sacramento County. The interchange would be a "south only" connection, and would also include construction of a new arterial street, called Rancho Cordova Parkway. Rancho Cordova Parkway would extend from the new interchange south to White Rock Road.

2.2 NEED FOR THE PROPOSED PROJECT

The City's General Plan anticipates the addition of 53,480 new housing units and 55,199 new jobs within the current city limits by 2030. Much of this growth is anticipated to occur east of Sunrise Boulevard and south of US-50, near the project area. The existing street network in the project vicinity and south of US-50 consists of two-lane arterial roadways, used primarily by commuters traveling between Elk Grove and the US-50 corridor. Currently, Sunrise Boulevard is the only route that provides direct access to US-50 from this area.

New developments are proposed or approved in the project area that could be constructed without construction of the interchange; however, resulting increases in traffic would likely have a negative impact on levels of service (LOS) on existing local roadways. The proposed interchange would help to accommodate traffic needs resulting from these housing developments, which are necessary to provide adequate housing for nearby jobs.

2.3 PURPOSE OF THE PROPOSED PROJECT

The project has been proposed to address the existing operational deficiencies of US-50 and adjacent arterial roadways as well as the anticipated future growth in the project area. The project would help to achieve the following objectives:

- Relieve existing traffic congestion on US-50, Sunrise Boulevard, White Rock Road and Hazel Avenue south of US-50;
- Improve traffic operations at the US-50/Sunrise Boulevard and US-50/Hazel Avenue interchanges;
- Maintain acceptable LOS on US-50 and at existing access points to US-50 under existing and future conditions;
- Provide additional access from US-50 to planned developments; and
- Provide access to regional transit facilities and park-and-ride lots, where feasible.

2.4 PROJECT LOCATION

The proposed project is located on US-50 (Post Mile 12.496/15.745) between Sunrise Boulevard and Hazel Avenue in the City of Rancho Cordova, Sacramento County. The proposed Rancho Cordova Parkway would extend approximately 1.0 mile south from the new interchange to White Rock Road.

2.5 PROJECT DESCRIPTION

The proposed project would include continuous auxiliary lanes in both directions on US-50 from Sunrise Boulevard to Hazel Avenue. Because the area north of US-50 is predominantly residential, the existing sound wall would be maintained or replaced as needed adjacent to the westbound auxiliary lane.

Retaining walls would also be provided along the westbound auxiliary lane where the freeway is lower than the adjacent properties. The auxiliary lane would terminate at the Sunrise Boulevard westbound off-ramp. The mainline #4 lane would continue past the gore area of the ramp and then would merge with the #3 lane east of the northbound Sunrise Boulevard westbound on-ramp connection.

The Fair Oaks Branch overhead structure would require a sliver widening and a portion of the existing sound wall on the Sunrise Boulevard westbound off-ramp would be reconstructed to accommodate the westbound auxiliary lane between the proposed interchange and US-50/Sunrise Boulevard Interchange. An short extension of the culverts at the Buffalo Creek and the Folsom South Canal crossings may be required to accommodate the auxiliary lanes.

At the Hazel Avenue westbound on-ramp, the un-metered HOV bypass lane would be directed into the mainline #4 lane while the two metered lanes would merge into the auxiliary lane. These lane configurations would be the same for all build alternatives.

In the eastbound direction, the existing auxiliary lane that begins at the terminus of the Sunrise Boulevard eastbound on-ramp to US-50 would be extended to the eastbound off-ramp at the proposed interchange. The auxiliary lane that would begin at the terminus of the Rancho Cordova Parkway eastbound on-ramp to US-50 would be extended to join the existing auxiliary lane serving the Hazel Avenue eastbound off-ramp from US-50. Retaining walls would be provided along the eastbound auxiliary lane where the freeway is higher than the adjacent properties.

The project would also provide two-lane Class I bike paths. The paths would be separated from motorized vehicle traffic. They would provide access between the existing residential area north of US-50 and the new residential and commercial developments planned south of the Folsom South Canal.

2.5.1 Build Alternative (Proposed Project)

The Build Alternative (Proposed Project) is a tight diamond (L-1) interchange and the eastbound ramps would be placed in a diamond (L-1) configuration paralleling US-50 and creating a four-way intersection at the overcrossing. The overcrossing structure would be perpendicular to US-50, and the eastbound and westbound ramps would parallel US-50. The eastbound ramps would connect to the overcrossing with a four-way intersection. The overcrossing would terminate at a 'T' intersection with the westbound ramps. The overcrossing structure would accommodate a

7.6-meter (24.9 foot) median to allow adequate space for truck turns. The ramp intersections would be 90 meters (295.3 feet) apart and would operate as a single intersection.

2.5.2 No Project Alternative

The no-project alternative would not include any improvements in the proejct area other than routine maintenance of existing facilities. Vehicles accessing US-50 and surrounding development would continue to use the US-50/Sunrise Boulevard Interchange and US-50/Hazel Avenue Interchange, and access to areas south of the Folsom Boulevard would be limited to Sunrise Boulevard.

3.0 EXISTING CONDITIONS

3.1 AIR BASIN CHARACTERISTICS

The project lies at the southern end of the Sacramento Valley, a broad, flat valley bounded by the coastal ranges to the west and the Sierra Nevada to the east. A sea level gap in the Coast Range (the Carquinez Strait) is located approximately 50 miles southwest and the intervening terrain is very flat. The prevailing wind direction is southwesterly, which occurs when marine breezes flow through the Carquinez Strait. Marine breezes dominate during the spring and summer months, and show strong daily variations. Highest average wind speeds occur in the afternoon and evening hours; lightest winds occur in the night and morning hours. During fall and winter, when the sea breeze diminishes, northerly winds occur more frequently, but southwesterly winds still predominate.

The project is within the Sacramento Metropolitan Air Quality Management District, which is part of the Sacramento Valley Air Basin. The Sacramento Valley Air Basin has been further divided into Planning Areas called the Northern Sacramento Valley Air Basin (NSVAB) and the Greater Sacramento Air region, designated by the U.S. Environmental Protection Agency (EPA) as the Sacramento Federal Ozone non-attainment area. The non-attainment area consists of all of Sacramento and Yolo counties and parts of El Dorado, Solano, Placer, and Sutter counties. Sacramento County is also within the Sacramento Federal non-attainment area for both PM_{10} and $PM_{2.5}$.

The San Francisco Bay Area Air Basin lies to the west, and the San Joaquin Valley Air Basin is located to the south of the Planning Area. Considerable transport of pollutants occurs between these air basins, so that air quality in the Planning Area is partially determined by the release of pollutants elsewhere. In turn, pollutants generated within the Planning Area affect air quality in areas to the north and east.

3.2 AMBIENT AIR QUALITY STANDARDS

Both the U. S. EPA and the California Air Resources Board (CARB) have established ambient air quality standards for common pollutants. These ambient air quality standards are levels of contaminants which represent safe levels that avoid specific adverse health effects associated with each pollutant. The ambient air quality standards cover what are called "criteria" pollutants because the health and other effects of each pollutant are described in criteria documents.

The federal and California state ambient air quality standards are summarized in **Table 1** for important pollutants. The federal and state ambient standards were developed independently with differing purposes and methods, although both processes attempted to avoid health-related effects. As a result, the federal and state standards differ in some cases. In general, the California state standards are more stringent. This is particularly true for ozone and suspended particulate matter ($PM_{2.5}$ and PM_{10}).

In addition to the criteria pollutants discussed above, Toxic Air Contaminants (TACs) are another group of pollutants of concern. Toxic Air Contaminants from vehicles, also known as Mobile Source Air Toxics (MSAT), are injurious in small quantities and are regulated despite the absence of criteria documents. The identification, regulation and monitoring of TACs is relatively recent compared to that for criteria pollutants. Unlike criteria pollutants, TACs are regulated on the basis of risk rather than specification of safe levels of contamination.

3.3 HEALTH EFFECTS OF POLLUTANTS

The following is a discussion of the health effects of important pollutants in the Sacramento Valley Air Basin.

Ozone

Ozone is produced by chemical reactions, involving nitrogen oxides (NOx) and reactive organic gases (ROG) that are triggered by sunlight. Nitrogen oxides are created during combustion of fuels, while reactive organic gases are emitted during combustion and evaporation of organic solvents. Since ozone is not directly emitted to the atmosphere, but is formed as a result of photochemical reactions, it is considered a secondary pollutant. In the Sacramento Valley Air Basin ozone is a seasonal problem, occurring roughly from April through October.

Ozone is a strong irritant that attacks the respiratory system, leading to the damage of lung tissue. Asthma, bronchitis and other respiratory ailments as well as cardiovascular diseases are aggravated by exposure to ozone. A healthy person exposed to high concentrations may become nauseated or dizzy, may develop headache or cough, or may experience a burning sensation in the chest.

TABLE 1
FEDERAL AND STATE AMBIENT AIR QUALITY STANDARDS

Pollutant	Averaging Time	Federal Primary Standard	State Standard
Ozone	1-Hour 8-Hour	-- 0.075 ppm	0.09 ppm 0.07 ppm
Carbon Monoxide	8-Hour 1-Hour	9.0 ppm 35.0 ppm	9.0 ppm 20.0 ppm
Nitrogen Dioxide	Annual 1-Hour	0.053 ppm 0.10 ppm-	0.030 ppm- 0.18 ppm
Sulfur Dioxide	Annual 24-Hour 1-Hour	0.03 ppm 0.14 ppm --	-- 0.04 ppm 0.25 ppm
PM_{10}	Annual 24-Hour	-- 150 ug/m^3	20 ug/m^3 50 ug/m^3
$PM_{2.5}$	Annual 24-Hour	15 ug/m^3 35 ug/m^3	12 ug/m^3 --
Lead	30-Day Avg. Calendar Quarter Rolling 3-mo. Avg..	-- 1.5 ug/m^3 0.15 ug/m^3	1.5 ug/m^3 -- --

ppm = parts per million
ug/m^3 = Micrograms per Cubic Meter
Source: California Air Resources Board, Ambient Air Quality Standards *(8/03/10) (http://www.arb.ca.gov/research/aaqs/aaqs2.pdf), accessed 8/10/10.*

Research has shown that exposure to ozone damages the alveoli (the individual air sacs in the lung where the exchange of oxygen and carbon dioxide between the air and blood takes place). Research has shown that ozone also damages vegetation.

Suspended Particulate

Suspended particulate matter (PM) is a complex mixture of tiny particles that consists of dry solid fragments, solid cores with liquid coatings, and small droplets of liquid. These particles vary greatly in shape, size and chemical composition, and can be made up of many different materials such as metals, soot, soil, and dust. "Respirable" PM consists of particles less than 10 microns in diameter, and is defined as "suspended particulate matter" or PM_{10}. Particles between 2.5 and 10 microns in diameter arise primarily from natural processes, such as wind-blown dust or soil.

Fine particles are less than 2.5 microns in diameter ($PM_{2.5}$). $PM_{2.5}$, by definition, is included in PM_{10}. Fine particles are produced mostly from combustion or burning activities. Fuel burned in cars and trucks, power plants, factories, fireplaces and wood stoves produces fine particles.

The level of fine particulate matter in the air is a public health concern because it can bypass the body's natural filtration system more easily than larger particles, and can lodge deep in the lungs. The health effects vary depending on a variety of factors, including the type and size of particles. Research has demonstrated a correlation between high PM concentrations and increased mortality rates. Elevated PM concentrations can also aggravate chronic respiratory illnesses such as bronchitis and asthma.

Carbon Monoxide

Carbon monoxide is a local pollutant in that high concentrations are found only very near the source. The major source of carbon monoxide, a colorless, odorless, poisonous gas, is automobile traffic. Elevated concentrations, therefore, are usually only found near areas of high traffic volumes.

Carbon monoxide's health effects are related to its affinity for hemoglobin in the blood. At high concentrations, carbon monoxide reduces the amount of oxygen in the blood, causing heart difficulties in people with chronic diseases, reduced lung capacity and impaired mental abilities.

Carbon monoxide concentrations are highly seasonal, with the highest concentrations occurring in the winter. This is partly due to the fact that automobiles create more carbon monoxide in colder weather and partly due to the very stable atmospheric conditions that exist on cold winter evenings when winds are calm. Concentrations typically are highest during stagnant air periods within the period November through January.

Toxic Air Contaminants

Unlike criteria pollutants, no safe levels of exposure to Toxic Air Contaminant (TACs) can be established. There are many different types of TACs, with varying degrees of toxicity. Sources of TAC's include industrial processes such as petroleum refining and chrome plating operations, commercial operations such as gasoline stations and dry cleaners, and motor vehicle exhaust. Public exposure to TACs can result from emissions from normal operations, as well as accidental releases of hazardous materials during upset conditions. The health effects of TACs include cancer, birth defects, neurological damage and death.

Mobile Source Air Toxics (MSATs) are TACs emitted by vehicles. MSATs include benzene, formaldehyde, acetaldehyde, 1,3-butadiene and diesel particulate matter. Studies are underway to determine whether other toxic substances are present in mobile source emissions.

Diesel exhaust is a TAC of growing concern in California. The California Air Resources Board in 1998 identified diesel engine particulate matter as a TAC. The exhaust from diesel engines contains hundreds of different gaseous and particulate components, many of which are toxic. Many of these compounds adhere to the particles, and because diesel particles are so small, they penetrate deep into the lungs. Diesel engine particulate has been identified as a human carcinogen. Mobile sources, such as trucks, buses, automobiles, trains, ships and farm equipment are by far the largest source of diesel emissions.

Naturally Occurring Asbestos (NOA) is found in some areas throughout California, most commonly where ultramafic rock or serpentinite rock is present. Because asbestos is a known carcinogen, naturally-occurring asbestos is considered a TAC. Asbestos includes fibrous minerals found in certain types of rock formations. Natural weathering or human disturbance could generate microscopic NOA fibers which are easily suspended in air.

The project is not located in a known area of serpentine or ultramafic rock.[2] The project would also not require demolition of buildings or structures that would contain asbestos.

3.4 AMBIENT AIR QUALITY

The Sacramento Metropolitan Air Quality Management District (SMAQMD) and California Air Resources Board (CARB) maintain several air quality monitoring sites in the Sacramento area. **Table 2** shows data for the years 2006-2009 for the Sacramento Del Paso Manor monitoring site, the closest monitoring site to the proposed project.

3.5 REGULATORY FRAMEWORK

Attainment Status

Federal and state air quality laws require identification of areas not meeting the ambient air quality standards. These areas must develop regional air quality plans to eventually attain the standards. Under the federal Clean Air Act, Sacramento County is a serious non-attainment area for the 8-hour federal ozone standard[3], a moderate non-attainment area for the federal 24-hour PM_{10} standard[4], and a non-attainment area for the federal 24-hour and annual $PM_{2.5}$ standards. Sacramento County is a federal maintenance area for carbon monoxide. 8-hour standard. The county is in attainment of the other federal standards. Table 3 below summarizes Sacramento County's federal attainment status.

Under the California Clean Air Act Sacramento County is a serious non-attainment area for the state 1- and 8-hour ozone standards, a non-attainment area for both the 24-hour and annual

[2] California Department of Conservation, Relative Likelihood for the Presence of Naturally Occurring Asbestos in Eastern Sacramento County, California, 2006.
[3] A formal request for voluntary reclassification from "serious" to "severe" for the 8-hour ozone non-attainment area was submitted form the Air Resources Board to the USEPA on February 14, 2008. USEPA action to approve the reclassification request is pending.
[4] The standard is met. The Sacramento MAQMD must request re-designation to attainment and submit maintenance plan to be formally be designated to attainment.

PM_{10} standards, and a non-attainment area for the state annual $PM_{2.5}$ standard. The county is either in attainment or unclassified for other state standards.

TABLE 2
DAYS EXCEEDING AIR QUALITY STANDARDS AT THE SACRAMENTO DEL PASO MANOR MONITORING SITE, 2006-2009

Pollutant/Standard	Year	Highest Concentration	Days Exceeding Standard:
Ozone/State 1-Hour	2006	0.125 ppm	18
	2007	0.138 ppm	6
	2008	0.113 ppm	17
	2009	0.122 ppm	14
Ozone/State 8-Hour	2006	0.102 ppm	35
	2007	0.116 ppm	15
	2008	0.097 ppm	23
	2009	0.102 ppm	32
Ozone Fed. 8-Hour	2006	0.102 ppm	24
	2007	0.115 ppm	10
	2008	0.096 ppm	18
	2009	0.101 ppm	15
Nitrogen Dioxide/State 1- Hour	2006	0.056 ppm	0
	2007	0.051 ppm	0
	2008	0.058 ppm	0
	2009	0.049 ppm	0
PM_{10}/State-24-Hour	2006	67.0 $\mu g/m^3$	7
	2007	75.0 $\mu g/m^3$	5
	2008	72.0 $\mu g/m^3$	2
	2009	48.0 $\mu g/m^3$	0
PM_{10}/Federal 24-Hour	2006	63.0 $\mu g/m^3$	0
	2007	70.0 $\mu g/m^3$	0
	2008	71.0 $\mu g/m^3$	0
	2009	45.0 $\mu g/m^3$	0
$PM_{2.5}$/Federal 24-Hour	2006	78.0 $\mu g/m^3$	19
	2007	61.0 $\mu g/m^3$	22
	2008	74.4 $\mu g/m^3$	8
	2009	49.8 $\mu g/m^3$	3
Carbon Monoxide/Fed. And State 8-Hour	2006	3.49 ppm	0
	2007	2.90 ppm	0
	2008	2.49 ppm	0
	2009	2.77 ppm	0

Source: California Air Resources Board, Aerometric Data Analysis and Management (ADAM), 2010. (http://www.arb.ca.gov/adam). Accessed 8/10/10.

TABLE 3
FEDERAL ATTAINMENT STATUS

Criteria Pollutant	Federal Attainment Status
8-Hour Federal Ozone	Non-Attainment
1-Hour Federal Ozone	Severe Non-Attainment
Particulate Matter PM_{10}	Moderate Non Attainment
Particulate Matter $PM_{2.5}$	Non Attainment
Carbon Monoxide	Maintenance

Federal Clean Air Act

Ozone

The Federal Clean Air Act Amendments (FCAAA) of 1990 set deadlines for attaining the ozone standard. The Sacramento Area was classified as a "serious" non-attainment area for the 1990 1-hour ozone standard and given a date of 1999 by which to achieve attainment. Because achieving attainment by this date was later found to be infeasible, the region was "bumped up" to "severe" classification and an attainment date of 2005 was designated. The Clean Air Act Amendments also set specific planning requirements to ensure that the attainment goal would be met. In 1994, the Air Resources Board, in cooperation with the air districts of the Sacramento non-attainment area, fulfilled one of these requirements by preparing the 1994 Sacramento Area Regional Ozone Attainment Plan. The plan identified a detailed comprehensive strategy for reducing emissions to the level needed for attainment and showed how the region would make expeditious progress toward meeting this goal.

The 1997 federal 8-hour ozone standard lowered the health-based limit for ambient ozone concentration from 0.12 parts per million of ozone averaged over one hour to 0.08 parts per million of ozone averaged over eight hours. An area's nonattainment designation is based on whether the 8-hour ozone design value for any of the monitoring sites in the area exceeds the national ambient air quality standard (NAAQS).

The Sacramento region is designated a nonattainment area, and includes all of Sacramento and Yolo counties and portions of Placer, El Dorado, Solano, and Sutter counties.

Nonattainment areas are classified as marginal, moderate, serious, severe, or extreme areas depending on the magnitude of the highest 8-hour ozone design value for the monitoring sites in the nonattainment area. In 2004, the Sacramento region was classified as a "serious" nonattainment area with an attainment deadline of June 15, 2013. This classification was based on the 8-hour ozone design value of 107 ppb at Cool, calculated from ozone concentrations monitored from 2001 to 2003.

However, since the Sacramento region needs to rely on the longer term emission reduction strategies from state and federal mobile source control programs, the 2013 attainment date cannot be met. Consequently, on February 14, 2008, CARB, on behalf of the air districts in the Sacramento region, requested a voluntary reclassification (bump-up) of the Sacramento

Federal Nonattainment Area from a "serious" to a "severe" 8-hour ozone nonattainment area with an extended attainment deadline of June 15, 2019. The reclassification was approved by EPA in May 2010.

The *Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan* was adopted in December of 2008. This plan includes the information and analyses to fulfill the federal Clean Air Act requirements for demonstrating reasonable further progress and attainment of the 1997 8-hour ozone NAAQS for the Sacramento region. In addition, this plan establishes an updated emissions inventory, provides photochemical modeling results, proposes the implementation of reasonably available control measures, and sets new motor vehicle emission budgets for transportation conformity purposes. U.S. EPA revised the ozone standard in 2007, and is reconsidering the revised standard in 2010. The current standard (0.075 ppm) was set in 2007. Nonattainment areas for the 2007 standard have not been designated by EPA, but Sacramento would almost certainly be nonattainment considering current monitoring data.

$PM_{2.5}$

The US Environmental Protection Agency (EPA) Administrator signed the final PM2.5 non-attainment designations for Sacramento on October 8, 2009. The designation became effective 30 days after publication in the Federal Register.

When an area is designated non-attainment, an attainment plan must be submitted not later than 3 years after the effective date of the designation. The plan must include transportation conformity budgets and control measures. Transportation conformity budgets will require that future transportation projects stay within specified emission levels that meet attainment and progress goals. Failure to do so can result in withholding federal transportation project approvals and funding.

California Clean Air Act

The California Clean Air Act (CCAA) of 1988 required nonattainment areas to achieve and maintain the state ambient air quality standards by the earliest practicable date and local air districts to develop plans for attaining the state ozone, carbon monoxide, sulfur dioxide, and nitrogen dioxide standards. In compliance with the CCAA, the Sacramento Metropolitan Air Quality Management District (AQMD) prepared and submitted the 1991 Air Quality Attainment Plan (AQAP) to mainly address Sacramento County's nonattainment status for ozone and carbon monoxide (CO), and although not required, particulate matter (PM_{10}). The 1991 AQAP was designed to make expeditious progress toward attaining the state ozone standard and contained preliminary implementation schedules for control programs on stationary sources, transportation, and indirect sources, and a vehicle/fuels program.

Sacramento County has met the ambient air quality standards for sulfur dioxide and nitrogen dioxide. The CCAA also requires that by the end of 1994 and once every three years thereafter, the districts are to assess their progress toward attaining the air quality standards. The triennial assessment is to report the extent of air quality improvement and the amounts of emission reductions achieved from control measures for the preceding three year period.

Sacramento Metropolitan Air Quality Management District

The Sacramento Metropolitan Air Quality Management District (SMAQMD) shares responsibility with the California Air Resources Board (CARB) for ensuring that the State and national ambient air quality standards are met within Sacramento County. State law assigns local air districts the

primary responsibility for control of air pollution from stationary sources while reserving to the CARB control of mobile sources. The District is responsible for developing regulations governing emissions of air pollution, permitting and inspecting stationary sources, monitoring air quality and air quality planning activities. Under the California Environmental Quality Act (CEQA) the District may participate as a "responsible agency" or "reviewing agency" or "lead agency". The District has adopted the document *Guide to Air Quality Assessment in Sacramento County* to provide lead agencies, consultants and project proponents with uniform procedures for assessing potential air quality impacts for proposed projects and for preparing the air quality section of environmental documents.

Federal Conformity Requirements

Under the 1990 Clean Air Act Amendments, the U.S. Department of Transportation cannot fund, authorize, or approve Federal actions to support programs or projects that are not first found to conform to the Clean Air Act requirements. The proposed project as currently defined is locally funded and would be exempt form federal conformity requirements. However, this report does contain a conformity discussion that could be utilized if the project were to be modified in the future and involve federal funding. The last chapter of this report addresses the project in relation to the federal conformity requirements.

4.0 PROJECT IMPACTS AND MITIGATION MEASURES

4.1 STANDARDS OF SIGNIFICANCE

The Sacramento Metropolitan AQMD has published a guidance document for the preparation of the air quality portions of environmental documents that includes thresholds of significance to be used in evaluating land use proposals Several types of thresholds are recommended:[5]

- **Ozone Precursors Significance Thresholds** - The District considers increases in emissions of nitrogen oxides (NO_x) greater than 85 pounds per day as significant during construction. For operation of a project, the District's threshold of significance is 65 pounds per day of either NO_x or Reactive Organic Gases (ROG).

- **Other Criteria Pollutant -Significance Thresholds** - A project that may cause an exceedance of a state air quality standard, or may make a substantial contribution to an existing exceedance of an air quality standard will have a significant adverse air quality impact. "Substantial" is defined as making measurably worse, which is five percent or more of an existing exceedance of a state ambient air quality standard.

- **Offensive Odors Significance Threshold** - A qualitative assessment indicating that a project may reasonably be expected to generate odorous emissions in such quantities as to cause detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which may endanger the comfort, repose, health, or safety of any such person or the public, or which may cause, or have a natural tendency to cause, injury or damage to business or property will have a significant adverse air quality impact.

- **Toxic Air Contaminants Significance Thresholds -** The recommended significance thresholds for TACs are a lifetime probability of contracting cancer greater than 10 in one million and a ground-level concentration of non-carcinogenic toxic air pollutants would result in a Hazard Index of greater than 1.

- **Cumulative Impacts Thresholds -** A proposed project is considered cumulatively significant, if the project requires a change in the existing land use designation (i.e., general plan amendment, rezone), and projected emissions of the proposed project are greater than the emissions anticipated for the site if developed under the existing land use designation. Also, if a project will result in air pollutant emissions above the "project alone" significance threshold, the project will result in a significant cumulative air quality impact.

4.2 DISCUSSION OF IMPACTS AND MITIGATION MEASURES

Impact 1: Implementation of the proposed project would result in temporarily increased Particulate Matter levels in the immediate vicinity during construction.

During construction gaseous and particulate emissions would be released by equipment and vehicles on the site, trucks bringing materials to the site and construction employee vehicles. During the construction period, fugitive particulate emissions (PM_{10} and $PM_{2.5}$) would occur due to the action of vehicles/ equipment and wind on unpaved areas. Construction activities would

[5] Sacramento Metropolitan Air Quality Management District, Guide to Air Quality Assessment in Sacramento County, December 2009.

temporarily affect local air quality, causing a temporary increase in particulate matter and dust emissions.

The Sacramento Metropolitan Air Quality Management District's Road Construction Emissions Model (Version 6.3-2) was used to estimate emissions from construction. The model is a spreadsheet that estimates emissions based on numerous parameters regarding the type of construction, area to be disturbed, the period of construction and year of construction. Inputs were the length of the improvement, the type of improvement (new roadway or road widening), the year of construction and area of construction. Separate model runs were made for the construction of the interchange, the Rancho Cordova Parkway, and the U.S. 50 auxiliary lanes. The model output is included as **Appendix 1**.

The roadway construction emissions model estimates emissions from vehicle and equipment exhausts, fugitive dust, and construction worker trips for all phases of construction. **Table4** shows model results for ROG, NO_x and PM_{10}. The fugitive PM_{10} emissions shown in **Table 4** are based on twice-daily watering for dust control. The emissions in **Table 3** reflect the maximum emission that would occur at any time during construction.

TABLE 43
MAXIMUM CONSTRUCTION EMISSIONS, IN POUNDS PER DAY

Project Component	ROG	NO_x	PM_{10}	$PM_{2.5}$	CO_2
Rancho Cordova Interchange	32.4	284.3	333.8	79.1	30,324.9
Rancho Cordova Parkway	17.2	146.6	126.3	30.7	14,313.6
U.S. 50 Auxiliary Lanes	6.5	39.4	32.3	6.2	4,950.3
SMAQMD Threshold of Significance	--	85	--		

As recommended in the SMAQMD's *Guide to Air Quality Assessment in Sacramento County* the ISCST3 dispersion model was used to quantify PM_{10} impacts. Because the bulk of emissions shown in Table 3 are associated with interchange construction and because the interchange would be constructed adjacent to existing residences, the analysis focused on impacts on residences north of U.S. 50 during interchange construction. The PM_{10} emissions shown in **Table 3** were modeled as being released by 106 equally-spaced point sources covering the roughly 48 acre interchange construction site. The ISCST-3 program calculated concentrations for 720 receptors located on a polar grid at 10-meter intervals out to a distance of 200 meters into the residential neighborhood north of the interchange site. The ISCST-3 program generated an estimate of 24-hour average concentrations using a one-year data file of hourly weather observations provided by the Sacramento Metropolitan Air Quality Management District. The model sequentially predicts concentrations for 8,760 hours of the year using the hourly observations of wind speed, wind direction, temperature and stability.

The model results were compared to the SMAQMD significance threshold for PM_{10} construction dust. Concentrations within the adjacent neighborhood exceeded the threshold. This is a ***significant impact.***

MM 1: The following measures shall be incorporated into all construction contract documents with respect to control of fugitive dust:

- Strict compliance with SMAQMD's Rule 403 shall be written into construction contracts.

- Water all exposed surfaces two times daily, or as necessary to maintain continued moist soil. Exposed surfaces include, but are not limited to, soil piles, graded areas, unpaved parking areas, staging areas, and access roads.

- Cover or maintain at least two feet of free board space on haul trucks transporting soil, sand, or other loose material on the site. Any haul trucks that would be traveling along freeways or major roadways should be covered.

- Use wet power vacuum street sweepers to remove any visible trackout mud or dirt onto adjacent public roads at least once a day. Use of dry power sweeping is prohibited.

- Limit vehicle speeds on unpaved roads to 15 miles per hour.

The following measures shall be incorporated into all construction contract documents with respect to control of equipment/vehicle particulate emissions:

- Contractors shall minimize idling time either by shuttling equipment off when not in use or reducing the time of idling to 5 minutes (as required by the state airborne toxics control measure [Title 13, Section 2485 of the California Code of Regulations]). Provide clear signage that posts this requirement for workers at the entrances to the site.

- Contractors shall maintain all construction equipment in proper working condition according to the manufacturer's specifications. The equipment must be checked by a certified mechanic and determined to be running in proper condition before it is operated

- Contractors shall ensure that emissions from all off-road diesel powered equipment used on the project site do not exceed 40 percent opacity for more than three minutes in any one hour. Any equipment found to exceed 40 percent opacity (or Ringelmann 2.0) shall be repaired immediately, and SMAQMD shall be notified within 48 hours of identification of non-compliant equipment. A visual survey of all in-operation equipment shall be made at least weekly, and a monthly summary of the visual survey results shall be submitted throughout the duration of the project, except that the monthly summary shall not be required for any 30-day period in which no construction activity occurs. The monthly summary shall include the quantity and type of vehicles surveyed as well as the dates of each survey. The SMAQMD and/or other officials may conduct periodic site inspections to determine compliance. Nothing in this section shall supercede other SMAQMD or state rules or regulations.

- Contractors shall provide a plan for approval by SMAQMD demonstrating that the heavy-duty (> 50 horsepower) off-road vehicles to be used in the construction project, including owned, leased and subcontractor vehicles, will achieve a project wide fleet-average 20 percent NOx reduction and 45 percent particulate reduction[6] compared to

[6] Acceptable options for reducing emissions may include use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, and/or other options as they become available.

the most recent CARB fleet average at time of construction; and the project sponsor shall submit to SMAQMD a comprehensive inventory of all off-road construction equipment, equal to or greater than 50 horsepower, that will be used an aggregate of 40 or more hours during any portion of the construction project. The inventory shall include the horsepower rating, engine production year, and projected hours of use or fuel throughput for each piece of equipment. The inventory shall be updated and submitted monthly throughout the duration of the project, except that an inventory shall not be required for any 30-day period in which no construction activity occurs. At least 48 hours prior to the use of subject heavy-duty off-road equipment, the project representative shall provide SMAQMD with the anticipated construction timeline including start date, and name and phone number of the project manager and on-site foreman.

The above mitigation measures would reduce fugitive dust emissions by over 80% and exhaust particulate emissions by 45%. Based on the ISCST-3 modeling, this would be sufficient to reduce project impacts to less than the SMAQMD significance threshold. After mitigation this impact would be less-than-significant.

Impact 2: Implementation of the proposed project would result in temporarily increased Toxic Air Contaminant levels in the immediate vicinity during construction.

Sacramento County is among the counties listed as containing serpentine and ultramafic rock.[7] However, areas of serpentine and ultramafic rock in Sacramento County are located in the Sierra Foothills east of the project area.[8] Therefore, the impact from Naturally Occurring Asbestos (NOA) during project construction would be minimal to none.

During construction various diesel-powered vehicles and equipment would be in use on the site. The California Air Resources Board identified particulate matter from diesel-fueled engines as a toxic air contaminant (TAC). CARB has completed a risk management process that identified potential cancer risks for a range of activities using diesel-fueled engines.[9] High volume freeways, stationary diesel engines and facilities attracting heavy and constant diesel vehicle traffic were identified as having the highest associated risk. Health risks from Toxic Air Contaminants are function of both concentration and duration of exposure. While construction diesel emissions are temporary, sensitive land uses are located directly down-wind of the interchange construction site and these sensitive uses are subject to TAC emissions from the adjacent freeway. Temporary health risks from construction emissions of diesel particulate would be a ***significant impact.***

MM 2: The following measures shall be incorporated into all construction contract documents with respect to control of equipment/vehicle particulate emissions:

- Contractors shall provide a plan for approval by SMAQMD demonstrating that the heavy-duty (> 50 horsepower) off-road vehicles to be used in the construction project, including owned, leased and subcontractor vehicles, will achieve a project wide fleet-average 20 percent NO_x

[7] Governor's Office of Planning and Research, A General Location Guide for Ultramafic Rocks in California - Areas More Likely to Contain Naturally Occurring Asbestos, Open-File Report 2000-19. October 26, 2000).
[8] California Department of Conservation, Relative Likelihood for the Presence of Naturally Occurring Asbestos in Eastern Sacramento County, California, 2006.
[9] California Air Resources Board, Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles, October 2000.

reduction and 45 percent particulate reduction[10] compared to the most recent CARB fleet average at time of construction; and the project sponsor shall submit to SMAQMD a comprehensive inventory of all off-road construction equipment, equal to or greater than 50 horsepower, that will be used an aggregate of 40 or more hours during any portion of the construction project. The inventory shall include the horsepower rating, engine production year, and projected hours of use or fuel throughput for each piece of equipment. The inventory shall be updated and submitted monthly throughout the duration of the project, except that an inventory shall not be required for any 30-day period in which no construction activity occurs. At least 48 hours prior to the use of subject heavy-duty off-road equipment, the project representative shall provide SMAQMD with the anticipated construction timeline including start date, and name and phone number of the project manager and on-site foreman.

- No equipment or vehicles will be left idling for more than 5 minutes.
- Any pre-1996 off-road vehicles or equipment shall be fueled with emulsified fuel designed to reduce emissions.
- Where feasible, electrical or non-diesel powered equipment will be used.

The above mitigation measures would reduce exhaust particulate emissions a minimum of 45%. Due to the proximity of the sensitive land uses and exposure of these land uses to freeway TAC's this impact is considered to remain significant after mitigation.

Impact 3: Implementation of the proposed project could result in temporary construction emissions of Nitrogen Oxides that would exceed the SMAQMD threshold of 85 pounds per day.

Daily emissions of NOx and other pollutants over the course of construction are shown in **Table 4.** Since construction emissions of NOx exceed the SMAQMD's threshold of significance of 85 pounds per day, construction exhaust NOx emissions would have a ***significant impact*** on regional air quality.

MM 3: See Mitigation Measure 2.

The above mitigation measure would reduce project construction NOx emissions by 20%, but they would still exceed 85 pounds per day. After mitigation this impact would remain significant.

The SMAQMD has instituted a voluntary program for off-site mitigation for construction NOx impacts. The project's construction emissions could be reduced to less than 85 pounds per day through the purchase of an off-set created by the SMAQMD. Fees collected in the program are used to reduce emissions within the region through engine re-powers, retrofits of existing equipment with new emission control technology and development of cleaner fuel alternatives for construction equipment. As of this writing, the mitigation fee rate was $16,000 per ton of emissions.

[10] Acceptable options for reducing emissions may include use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, and/or other options as they become available.

The SMAQMD has developed a mitigation fee calculator to estimate the necessary mitigation fee necessary for a construction project. The mitigation fee calculator has been applied to the proposed project under the worst-case assumption that interchange construction and construction of the Rancho Cordova Parkway would occur simultaneously. Based on an estimated 15-month construction period and emissions estimates generated by the Sacramento Metropolitan Air Quality Management District's Road Construction Emissions Model the estimated fee to reduce this impact to a less- than-significant level is roughly $484,000. This estimate is based on current knowledge of project scheduling and current mitigation fee.

Impact 4: Project traffic would change traffic volumes on the freeway, ramps and surface streets in the project vicinity, changing concentrations of local pollutants such as carbon monoxide.

The most significant local criteria pollutant is carbon monoxide. Sacramento County and the Sacramento Valley Air Basin are considered in attainment area for this pollutant, meaning that the state and federal ambient air quality standards are met. Concentrations of this pollutant have been falling for the last 25 years and are forecast to continue falling in the future, despite increased traffic, due to the gradual reduction in per-mile emissions as older cars are retired and replaced with newer cars with more stringent emission controls.

CALINE-4 computer models of existing U.S. Highway 50 and the proposed interchange/Rancho Cordova Parkway were created to estimate concentrations of carbon monoxide at existing sensitive receptors located along the north side of U.S. 50 adjacent the proposed interchange and ramps. Twenty discrete receptors were located in the rear yards of the houses closest to the freeway right-of-way.

The modeling procedures and assumptions were based on the *Transportation Project-Level Carbon Monoxide Protocol*. The assumptions made in running the program were:

- Windspeed: 0.5 meter per second
- Wind Direction: Worst Case
- Roughness: 100 cm
- Sigma Theta: 5 degrees
- Temperature: 30 degrees Fahrenheit

The EMFAC2007 program generated emissions factors in 2016. The default vehicle mix for Sacramento County was utilized.

The CALINE4 program procedure provides a worst-case estimate of 1-hour concentrations of carbon monoxide generated by vehicles. To calculate 8-hour concentrations, the 1-hour projections were multiplied by a persistence factor of 0.7.

The other contribution to the total concentration is the background level attributed to more distant traffic. Background concentrations were forecast using a methodology developed by the Sacramento Metropolitan Air Quality Management District.[11] The resulting predicted 1-hour

[11] Sacramento Metropolitan Air Quality Management District, *Guide to Air Quality Assessment in Sacramento County*, December 2009.

background level was 2.7 parts per million (PPM) in 2016. The CALINE-4 model output is included in **Appendix 2**.

Under the No Build assumption, the maximum concentration predicted would be 3.9 parts per million (ppm) for the 1-hour averaging time and 2.7 ppm for the 8-hour averaging time. With the proposed project, the maximum concentration predicted would be 4.8 ppm for the 1-hour averaging time and 3.4 for the 8-hour averaging time.

While the project would increase concentrations of carbon monoxide at homes adjacent to the project, concentrations would remain well below the applicable state/national standards. Since the project would not cause or contribute to exceedances of the state/national standards, project impacts on carbon monoxide would be ***less-than-significant***.

Impact 5: Project traffic would change traffic volumes on the freeway and ramps, changing concentrations of mobile source TACs.

Land uses near freeways are also exposed to heightened levels of mobile-source Toxic Air Contaminants emitted by cars and trucks. The primary source of health risk near transportation facilities is from diesel particulate. The project is not expected to result in increased truck travel along U.S. 50. The project could result in minor changes in exposure to mobile-source TACs along the new Rancho Cordova Parkway, the new interchange, and the freeway ramps. However, project impacts with respect to TACs are far overshadowed by the impacts of statewide emission control programs designed to drastically reduce health risks from diesel vehicles.

The US Environmental Protection Agency also regulates air toxics generated by vehicles, which in federal nomenclature are known as Mobile Source Air Toxics (MSATs). 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 most important MSAT's, in terms of risk are:

- Benzene
- Acrolein
- Formaldehyde
- 1,3-butadiene
- Acetaldehyde
- Diesel exhaust

The USEPA is the lead Federal Agency for administering the Clean Air Act and has certain responsibilities regarding the health effects of MSATs. Current projections are that even with a 145 percent increase in VMT, a combined reduction of 72 percent in the total annual emission rate for the priority MSAT is projected from 1999 to 2050.[12]

[12] FHWA, Interim Guidance Update on Mobile Source Air Toxics (MSAT) Analysis in NEPA Documents, September 2009.

Available technical tools do not allow prediction of project-specific health impacts of the emission changes associated with the project. Evaluating the environmental and health impacts from MSATs for 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.

Firstly, tools to estimate MSAT emissions from motor vehicles are not sensitive to key variables determining emissions of MSATs in the context of highway projects.

Secondly, the tools to predict how MSATs disperse are also limited. The EPA's current regulatory models 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.

Lastly, even if emission levels and concentrations of MSATs could be accurately predicted, shortcomings in current techniques for exposure assessment and risk analysis preclude 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.

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. However, it is possible to qualitatively assess the levels of future MSAT emissions. The following qualitative assessment presented below is derived in part from a study conducted by the FHWA entitled *Interim Guidance Update on Mobile Source Air Toxics (MSAT) Analysis in NEPA Documents* .

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

- No analysis for projects with no potential for meaningful MSAT effects;
- Qualitative analysis for projects with low potential MSAT effects; or
- Quantitative analysis to differentiate alternatives for projects with higher potential MSAT effects.

The Project would fall into the second category. Types of projects included in this category are those that serve to improve operations of highway, transit or freight without adding substantial new capacity or without creating a facility that is likely to meaningfully increase MSAT emissions. For these projects, FHWA recommends that a qualitative assessment of emissions projections should be conducted.

For the No Build and Project alternatives, the amount of MSATs emitted would be proportional to the vehicle miles traveled (VMT) assuming that other variables such as fleet mix are the same.

Because no change in vehicle mix is anticipated and the VMT estimated for the Project is very similar (less than 8% change in the peak hours) to that of the No Build Alternative, substantially higher levels of regional MSATs are not expected from the project. Regardless of the alternative chosen, emissions will likely be lower than present levels in the design year as a result of state and national control programs that are projected to result ina 72% reduction in total annual emission rate for the priority MSAT from 1999 to 2050. The magnitude of the EPA-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.

Because of the specific characteristics of the project alternatives (i.e. new overpass, ramps), there may be localized areas where VMT would increase, and other areas where VMT would decrease. Therefore it is possible that localized increases and decreases in MSAT emissions may occur. The localized increases in MSAT emissions would likely be most pronounced along the new Rancho Cordova Parkway and near the new interchange and ramps. However, even if these increases do occur, they too will be substantially reduced in the future due to implementation of state and federal vehicle and fuel regulations. On a regional basis, state and national vehicle and fuel regulations, coupled with fleet turnover, will over time cause substantial reductions that, in almost all cases, will cause region-wide MSAT levels to be significantly lower than today.

TAC/MSAT air quality impacts are considered to be ***less-than-significant***.

Impact 6: The project would change traffic volumes and average vehicle speed within the study area, resulting in changes in air pollutant emissions within the region.

The project would not generate any new vehicle trips within the region but the project would increase Vehicle Miles Traveled (VMT) within the study area. At the same time the project would change average vehicle speeds.

The impact of the project on regional air quality was evaluated based upon AM and PM peak hour VMT and average speed estimates based on transportation modeling performed for the project. Emissions were calculated by multiplying peak hour VMT (multiplied by 3 to account for a three-hour peak traffic period) by speed-adjusted emission factors generated by the EMFAC2007 emission program. The analysis was conducted in the year 2016 and 2037. The output of the spreadsheet model used to calculate emissions is included in **Appendix 3**.

The results of the regional emission analysis are shown in **Table 5**. Construction of the project would result in small increases in regional emissions. None of the emission increases would approach the SMAQMD regional thresholds of significance. The impact of the project on regional air quality would be ***less-than-significant***

.

TABLE 5
REGIONAL EMISSION CHANGES, IN POUNDS PER DAY

Alternative	ROG	NO_x	PM_{10}
2016			
No-Build	38.2	268.8	18.1

Project (Net Change)	41.1 (+2.9)	323.3 (+54.5)	20.1 (+2.0)
2037			
No-Build	15.7	65.1	17.9
Project (Net Change)	19.5 (+3.8)	78.7 (+13.6)	21.3 (+3.4)
SMAQMD Threshold of Significance	65.0	65.0	–

5.0 FEDERAL CONFORMITY

Conformity with the Clean Air Act takes place on two levels—first, at the regional level and second, at the project level. A proposed project subject to the transportation conformity rule must conform at both levels to be approved.

REGIONAL CONFORMITY

Regional level conformity is concerned with how well the region is meeting the standards set for the pollutants listed above. At the regional level, Regional Transportation Plans are developed that include all of the transportation projects planned for a region over a period of years, usually 20. Based on the projects included in the RTP, an air quality model is run to determine whether or not the implementation of those projects would result in a violation of the Clean Air Act, including non-federal regionally-significant projects. If no violations would occur, then the regional planning organization (the Sacramento Area Council of Governments) and the appropriate federal agencies, such as the Federal Highway Administration, make the determination that the Regional Transportation Plan is in conformity with the Clean Air Act, and all projects that are part of the Regional Transportation Plan are deemed to be in conformity at the regional level.

The current Regional Transportation Plan is the 2035 Metropolitan Transportation Plan. On March 20, 2008 SACOG made a determination that the 2035 MTP conformed with the State Implementation Plan. The proposed project was part of the 2035 MTP, and thus was found to also be in conformity. Pages of the MTP and TIP where the project is listed are included in **Appendix 4.**

PROJECT LEVEL CONFORMITY

Conformity at the project-level is also required for localized pollutants. Sacramento is currently a federal maintenance area for carbon monoxide and a non-attainment area for PM_{10} and $PM_{2.5}$.

Transportation Project-Level Carbon Monoxide Protocol[13] identifies two types of criteria for determination of conformity:

- All projects involving federal funding and/or approval are subject to NEPA. According to NEPA, the project must not violate any national ambient air quality standard or the project must incorporate all practicable means to avoid or minimize expected exceedances of the national ambient air quality standards.

- All projects involving federal funding and/or approval, and not otherwise exempt, require a federal conformity determination. Within federal nonattainment and maintenance areas, a project must not cause or contribute to any new localized CO violations or increase the frequency or severity of any existing CO violations.

- The analysis of CO impacts (See Impact 4) indicates that the project meets the above criteria for carbon monoxide.

[13] Garza, Vincente J.; Peter Granly; Daniel Sperling, *Transportation Project-Level Carbon Monoxide Protocol*, Institute of Transportation Studies, University of California, Davis; Report UCD-ITS-RR-97-21, December 1997.

Federal regulations also require qualitative hot-spot analyses to determine transportation conformity in PM_{10} or $PM_{2.5}$ non-attainment areas. Such analyses are only required, however, for a "project of air quality concern". Guidance developed by the U.S. Environmental Protection Agency and the Federal Highway Administration identifies examples of projects that would be "projects of air quality concern" and "projects that are not an air quality concern".[14] Projects of concern are generally those that would substantially increase diesel truck or bus traffic. Projects that are not a concern are those that do not result in a significant increase in truck/bus traffic or that improve highway operations.

The proposed project does not appear to be a project of air quality concern for PM_{10} or $PM_{2.5}$ (POAQC) because it does not meet the definition of a POAQC as defined in EPA Transportation Conformity Guidance. However, this determination is made after the project has undergone Interagency Consultation (IAC). IAC participants would determine whether a PM hot-spot analysis is required.

If the project is determined to be a POAQC, current regulations provide that a qualitataive PM_{10}/PM_{25} hotspot analysis would be needed. However, the U.S. Environmental Protection Agency (EPA) has released draft conformity guidance for quantifying the local air quality impacts of certain transportation projects on the $PM_{2.5}$ and PM_{10} national ambient air quality standards (NAAQS). Once finalized, this guidance will be used by state and local agencies to conduct "hot-spot analyses" for new highway and transit projects that involve significant diesel emissions. EPA intends to finalize the guidance in 2010, and, after a grace period, quantitative hot-spot analyses would apply in $PM_{2.5}$ and PM_{10} nonattainment and maintenance areas. Until then, qualitative analyses continue to apply in PM areas, using previously issued joint EPA-FHWA guidance on such analyses.

[14] U.S. Environmental Protection Agency, Transportation Conformity Guidance for Qualitative Hot-spot Analysis in $PM_{2.5}$ and PM_{10} Nonattainment and Maintenance Areas, EPA 410-B-06-902, March 2006.