FINAL

AIR QUALITY IMPACT ASSESSMENT

US 101 EXPRESS LANES PROJECT, SANTA CLARA COUNTY, CALIFORNIA

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Acronyms

AB	Assembly Bill
ABAG	Association of Bay Area Governments
BAAQMD	Bay Area Air Quality Management District
BACT	Best available control technology
BARCT	Best Available Retrofit Control Technology
BCDC	Bay Conservation and Development Commission
BMP	Best Management Practice
CAA	Federal Clean Air Act
CAAA	Clean Air Act Amendments
CAAQS	California Ambient Air Quality Standards
CALINE4	California Line Source Model
Caltrans	California Department of Transportation
CAP	Bay Area Clean Air Plan
CARB	California Air Resources Board
CCAA	California Clean Air Act
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CO	Carbon monoxide
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
EMFAC	Emission Factor Model
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
GHG	Greenhouse gas
HFC	hydrofluorocarbons
HOV	High Occupancy Vehicle
HOT	High Occupancy Toll
I-280	Interstate 280
IPCC	Intergovernmental Panel on Climate Change
ITS	Intelligent Transportation Systems
LOS	Level of service
$\mu g/m^3$	Microgram per cubic meter

MMT	Million metric tons
MT/yr	metric tons per year
mpg	Miles per gallon
mph	Miles per hour
MTC	Metropolitan Transportation Commission
MSAT	Mobile Source Air Toxics
N_2O	Nitrous oxide
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHTSA	National Highway Traffic Administration
NOAA	National Oceanic and Atmospheric Administration
NO_x	Nitrogen oxides
O_3	Ozone
OPR	Office of Planning and Research
OSTP	Office of Science and Technology Policy
PM_{10}	Particulate matter less than 10 micrometers in diameter
$PM_{2.5}$	Particulate matter less than 2.5 micrometers in diameter
PM	Post Mile
POAQC	Project of Air Quality Concern
ppm	Parts per million
PS&E	Plans, Specifications, and Estimates
project	US 101 Express Lanes Project
ROG	Reactive organic gases
RTP	Regional Transportation Plan
SB	Senate Bill
SF_6	sulfur hexaflouride
SFBAAB	San Francisco Bay Area Air Basin
SIP	State Implementation Plan
SO_x	Sulfur oxides
SP	service population
SR	State Route
TACs	Toxic air contaminants
TCM	Transportation Control Measure

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TIP	Transportation Improvement Program
TOS	Traffic Operations Systems
US 101	United States Highway 101
USC	United States Code
USEPA	United States Environmental Protection Agency
VMT	vehicle miles traveled
VTA	Santa Clara Valley Transportation Authority

This report examines the effects of the proposed United States Highway 101 (US 101) Express Lanes Project (project) in the context of the primary pollutants of concern associated with motor vehicles: ozone (O_3), carbon monoxide (CO), particulate matter ($PM_{2.5}$ and PM_{10}), and greenhouse gases (GHGs). Much of the degradation of ambient air quality in the San Francisco Bay Area Air Basin (SFBAAB) is due to emissions from mobile sources. The basin is in nonattainment for the Federal and State O_3 standards; attainment for the Federal and State CO standards; and nonattainment for the Federal and State $PM_{2.5}$ standards. The area is unclassified for the Federal PM_{10} standard, and nonattainment for the State PM_{10} standard.

This *Air Quality Impact Assessment* is intended to support the study requirements for the project to comply with the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA), and has been prepared pursuant to the University of California, Davis, *Transportation Project-Level Carbon Monoxide Protocol* (Garza, Graney, and Sperling 1997) and California Department of Transportation (Caltrans) guidelines.

PROJECT DESCRIPTION

The Santa Clara Valley Transportation Authority (VTA), in cooperation with the California Department of Transportation (Caltrans), proposes to convert the existing High Occupancy Vehicle (HOV) lanes along the United States Highway 101 (US 101) to High Occupancy Toll (HOT) lanes (hereafter known as express lanes). A second express lane would be added in each direction on northbound and southbound US 101 within the overall project limits from the East Dunne Avenue interchange in Morgan Hill to the Santa Clara/San Mateo County line just north of the Oregon Expressway/Embarcadero Road interchange in Palo Alto. The express lanes will allow HOVs and eligible clean air vehicles to continue to use the lanes for free and eligible single-occupant vehicles (SOVs) to pay a toll. The project would also convert the US 101/State Route (SR) 85 HOV direct connectors in Mountain View to express lane connectors, restripe the northern 1.1 miles of SR 85 to introduce a buffer separating the mixed flow lanes from the express lane and connect the SR 85 express lanes to the US 101 express lanes. The project length is 36.55 miles on US 101 and 1.1 miles on SR 85, for a total of 37.65 miles.

ENVIRONMENTAL CONSEQUENCES

The project would not conflict with or obstruct implementation of the applicable air quality plan and would meet all transportation conformity requirements. The project is listed in the 2009 Santa Clara Valley Transportation Plan 2035 (VTA 2009) as the following reference numbers:

- VTP ID H3 – US 101 Express Lanes: San Mateo County line to SR 85 in Mountain View (Conversion)
- VTP ID H4 – US 101 Express Lanes: SR 85 (San Jose) to Cochrane Road (Conversion)
- VTP ID H5 – US 101 Express Lanes: SR 85 in Mountain View to SR 85 in San Jose (Conversion)

The project is also included in the Metropolitan Transportation Commission's (MTC's) 2013 Regional Transportation Plan (RTP) (Association of Bay Area Governments [ABAG] and MTC 2013), as RTP Reference Numbers 240466, "US 101 Express Lanes between Whipple Avenue and Dunne Avenue." The project is included in MTC's 2013 Transportation Improvement Program (TIP), which was adopted by MTC on July 18, 2013 (TIP ID No. SCL110002). Under

Title 40, Code of Federal Regulations Part 93, the project was found to be in conformance with the State Implementation Plan (SIP). The project will not otherwise interfere with timely implementation of any Transportation Control Measure (TCM) in the applicable SIP.

The UC Davis *Transportation Project-Level Carbon Monoxide Protocol* criteria (Garza, Graney, and Sperling 1997) were used to evaluate the potential local impacts of the project, as recommended by Caltrans guidelines. California line source (CALINE4) modeling indicated that the project would not result in localized violations of CO standards.

Mobile Source Air Toxics (MSATs) are a class of compounds emitted from vehicles that may contribute to cancer risks. The assessment showed that some MSAT emissions would slightly decrease with the Build Alternative compared to the No Build Alternative, while other MSAT emissions would slightly increase. The emissions for both the No Build and Build Alternatives in 2035 are substantially lower than for existing conditions, and overall would not result in an adverse impact or substantial increase in MSAT emissions. These pollutants are addressed in a separate document (URS 2013).

In March 2006, the Federal Highway Administration (FHWA) and U.S. Environmental Protection Agency (USEPA) issued a guidance document entitled *Transportation Conformity Guidance for Qualitative Hot-Spot Analyses in* $PM_{2.5}$ *and* PM_{10} *Nonattainment and Maintenance Areas* (FHWA and USEPA 2006). This guidance details a qualitative step-by-step screening procedure to determine whether project-related particulate emissions have a potential to generate new air quality violations, worsen existing violations, or delay attainment of NAAQS for $PM_{2.5}$ or PM_{10}. The PM_{10} hot spot analysis is not required for project-level conformity because the area is in attainment or unclassified for the national PM_{10} standards. Overall, the Build Alternative would result in a slight increase in $PM_{2.5}$ emissions in opening years (2015) but a net decrease in $PM_{2.5}$ emissions in the horizon year (2035), compared with the No Build Alternative. The long-term decrease in $PM_{2.5}$ will result from project-related improvements in traffic operations and overall system efficiency, as well as from the improvements in engine technology, the retirement of higher-emitting vehicles, and the regulatory changes described above. The $PM_{2.5}$ hot-spot analysis, discussed qualitatively in a separate document, was completed in November 2012 (URS 2012). Interagency consultation with the Air Quality Conformity Task Force conducted on December 6, 2012 concluded that the proposed project is a Project of Air Quality Concern (POAQC) but would not cause or contribute to, or worsen, any new localized violation of $PM_{2.5}$ standards.

The Bay Area Air Quality Management District (BAAQMD) considers construction activities to be typically short-term or temporary in duration; however, project-generated emissions could represent a significant impact with respect to air quality. Therefore, BAAQMD requires construction emissions for projects to be quantified and compared to significance thresholds. The proposed project's unmitigated construction-related emissions would be above the BAAQMD CEQA thresholds of significance for nitrogen oxides (NO_x). All other criteria pollutants for which BAAQMD has an established threshold are below the applicable limit.

The BAAQMD CEQA guidelines also require a quantitative analysis of operational GHG emissions. Although the vehicle miles traveled per day and per year for the project horizon year would increase for the Build scenario compared to the No Build scenario, the average speeds would also increase for the Build scenario. The project would therefore result in a decrease in future operational CO_2 emissions compared to the No Build scenario.

Project construction would last approximately 2 years. Caltrans Special Provisions and Standard Specifications will include the requirement to minimize or eliminate dust through the application of water or dust palliatives. Other construction mitigation includes diesel engine emission reductions and operations, limiting idling during construction activities, use of non-combustion powered message sign boards, and post-combustion control technologies. Implementation of the measures will be specifically defined during development of the project's Plans, Specifications, and Estimates (PS&E). The BAAQMD considers any project's construction-related fugitive dust and exhaust emission impacts to be less than significant if the appropriate dust- and combustion-control measures are implemented.

1.1 PROJECT DESCRIPTION

1.1.1 Introduction

The Santa Clara Valley Transportation Authority (VTA), in cooperation with the California Department of Transportation (Caltrans), proposes to convert the existing High Occupancy Vehicle (HOV) lanes along the United States Highway 101 (US 101) to High Occupancy Toll (HOT) lanes (hereafter known as express lanes). A second express lane would be added in each direction on northbound and southbound US 101 within the overall project limits from the East Dunne Avenue interchange in Morgan Hill to the Santa Clara/San Mateo County line just north of the Oregon Expressway/Embarcadero Road interchange in Palo Alto. The express lanes will allow HOVs and eligible clean air vehicles to continue to use the lanes for free and eligible single-occupant vehicles (SOVs) to pay a toll. The project would also convert the US 101/State Route (SR) 85 HOV direct connectors in Mountain View to express lane connectors, restripe the northern 1.1 miles of SR 85 to introduce a buffer separating the mixed flow lanes from the express lane and connect the SR 85 express lanes to the US 101 express lanes. The project length is 36.55 miles on US 101 and 1.1 miles on SR 85, for a total of 37.65 miles.

1.1.2 Project Description

1.1.2.1 Existing Facilities

US 101 in Santa Clara County is a 52.55-mile long freeway that connects Gilroy to Palo Alto. US 101 passes through Gilroy, Morgan Hill, San Jose, Santa Clara, Sunnyvale, Mountain View and Palo Alto. US 101 intersects SR 85 in San Jose and in Mountain View, Interstate 280 (I-280)/I-680, I-880, SR 87, and SR 237. US 101 typically has four lanes in each direction, including three mixed-flow lanes and one HOV lane with auxiliary lanes in some locations.

1.1.2.2 Proposed Project

The project consists of converting the existing HOV lane along both northbound and southbound US 101 into an express lane and widening the freeway to add a second express lane for the majority of the corridor. The project also proposes to build new express lanes in the northbound direction between East Dunne Avenue and the existing HOV lane at Cochrane Road, and in the southbound direction between Burnett Avenue and East Dunne Avenue.

With these changes, there would be two express lanes on US 101 extending from approximately the Cochrane Road interchange in Morgan Hill to just south of the Oregon Expressway/ Embarcadero Road interchange in Palo Alto in the northbound direction, and from just south of the Oregon Expressway/Embarcadero Road interchange to just north of East Dunne Avenue in the southbound direction.

The addition of the second express lane would involve a combination of inside and outside widening. The majority of the inside widening would take place within the US 101 segments south of the SR 85/US 101 interchange in southern San Jose where a wide unpaved median exists. The project proposes to widen and pave the median to accommodate the additional lanes. Outside widening would take place in the remainder of the corridor to accommodate the additional lanes where needed. Auxiliary lanes are proposed in both directions between Great America Parkway and Lawrence Expressway, in the northbound direction between Lawrence Expressway and North Fair Oaks, and in the northbound direction between Old Bayshore Highway and North First Street.

The express lanes facility would be separated from the adjacent mixed-flow lanes by a striped buffer. The buffer zone, delineated with solid stripes, would have designated openings to provide access into and out of the express lanes facility. The express lanes would allow HOVs to continue to use the lanes without cost and eligible single-occupant vehicles (SOVs) to pay a toll.

The project proposes to construct and operate the express lane system with some non-standard cross sectional elements that would minimize the need for new right-of-way, outside widening, and structure reconstruction. The proposed project maximizes the use of the existing pavement cross section with a combination of inside and outside widening to create the additional pavement needed to accommodate the second express lane.

1.1.2.3 Right of Way

It is anticipated that the project will require Temporary Construction Easements (TCEs). Right-of-way activities are currently being coordinated based on the approval of design exceptions. Utility relocations are anticipated to accommodate the outside widening.

1.1.2.4 Construction Activities

In the section between the southern project limit and the SR 85 interchange in southern San Jose, where the median width varies between 46 and 86 feet, the pavement widening would be constructed in the median to accommodate the dual express lane facility. A retaining wall in the median is required to accommodate the inside widening where a split profile exists between northbound and southbound US 101.

A dual express lane facility is proposed for the majority of the corridor, with the exception of short segments near the SR 85 express lane connectors where a single express lane is proposed. A single express lane is proposed between the SR 85 interchange and the Blossom Hill Road interchange in San Jose, and between the Mathilda Avenue interchange and the SR 85 interchange in Mountain View. Outside widening is proposed to accommodate dual express lanes between the Blossom Hill Road interchange and the Mathilda Avenue interchange.

Bridge widening and modifications to existing abutments would be required at a number of grade separations, overcrossings, and undercrossings. Widening of creek bridges is not proposed as part of this project.

The project would install overhead signs, tolling structures, and lighting. Some Traffic Operations Systems (TOS) equipment such as traffic monitoring stations, Closed Circuit Televisions, cabinets, and controllers would be installed along the outside edge of pavement within the existing right-of-way.

Trenching would be conducted along the outside edge of pavement for installation of conduits. Conduits would be jacked across the freeway to the median where needed to provide power and communication feeds to the new overhead signage and tolling equipment.

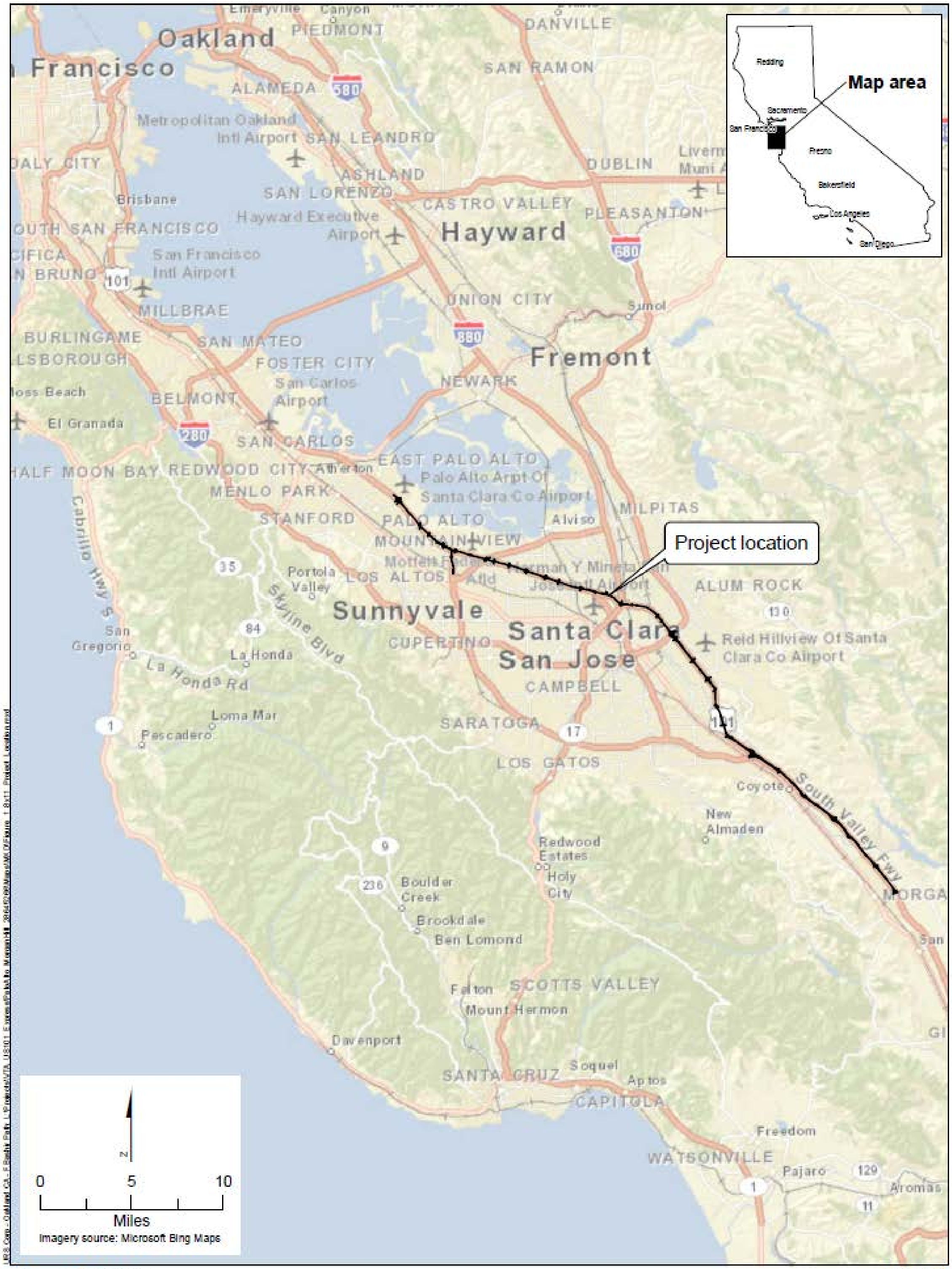
During construction, some lane and ramp closures would be required, but full freeway closures are not expected.

Biofiltration devices are proposed to provide storm water treatment for impervious areas that would be added or reworked as part of the project. These devices would be installed within the existing right-of-way.

1.1.2.5 US 101/SR 85 Direct Connectors

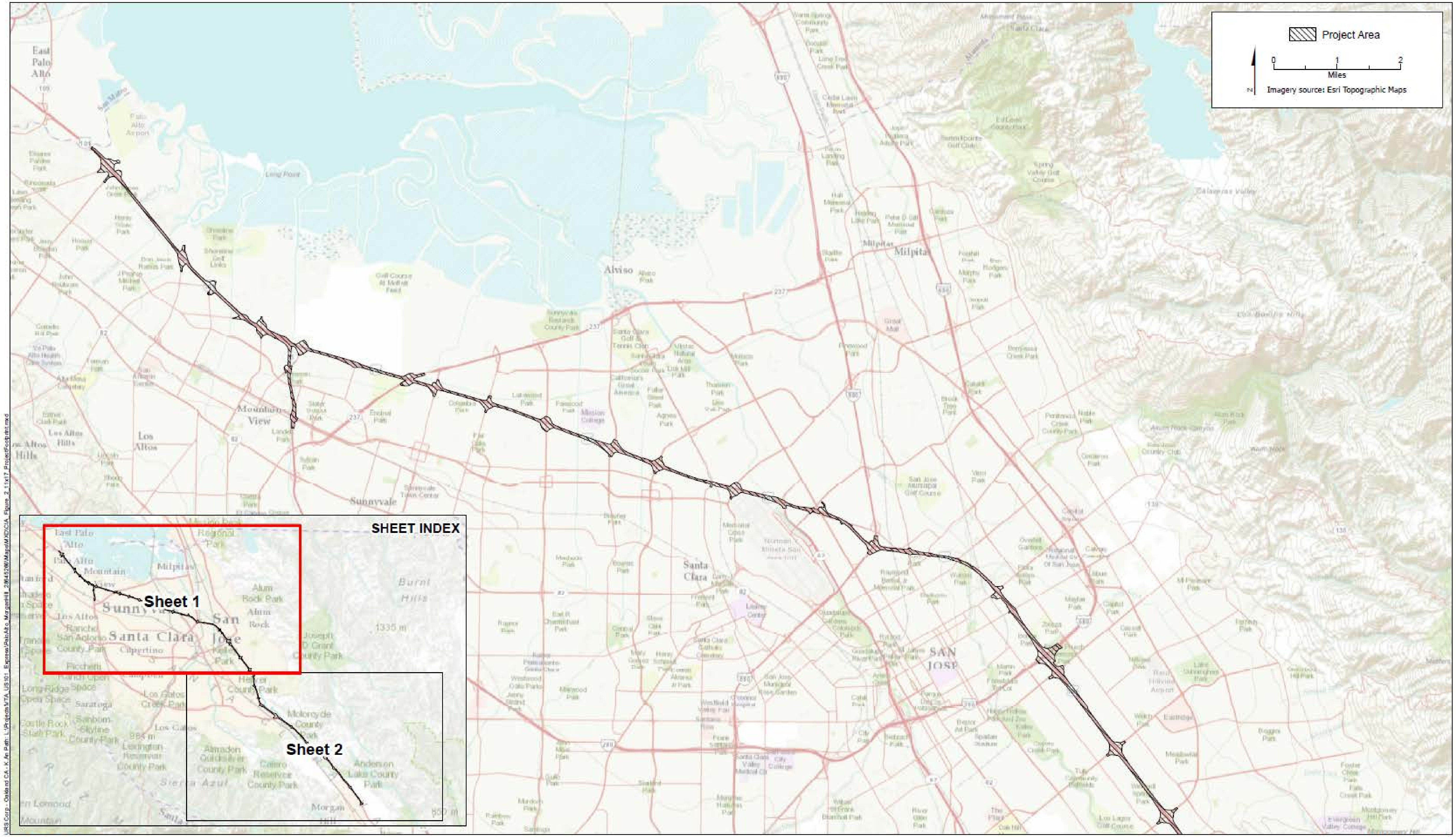
At the south end of the project in southern San Jose, both the northbound and southbound HOV direct connectors from SR 85 to US 101 (PM 26.78) would be converted to express lane connectors by the SR 85 Express Lanes Project, allowing SOVs with valid FasTrak devices to use the direct connectors.

At the north end of the project in Mountain View (PM 48.09), the US 101 Express Lanes Project would convert the existing HOV connectors to express lane connectors and will extend the buffer striping onto SR 85 to connect to the buffer constructed by the SR 85 Express Lanes Project (EA 04-4A7900). The combination of SR 85 and US 101 Express Lanes projects would provide a complete express lane system on both freeways that includes the direct connectors.



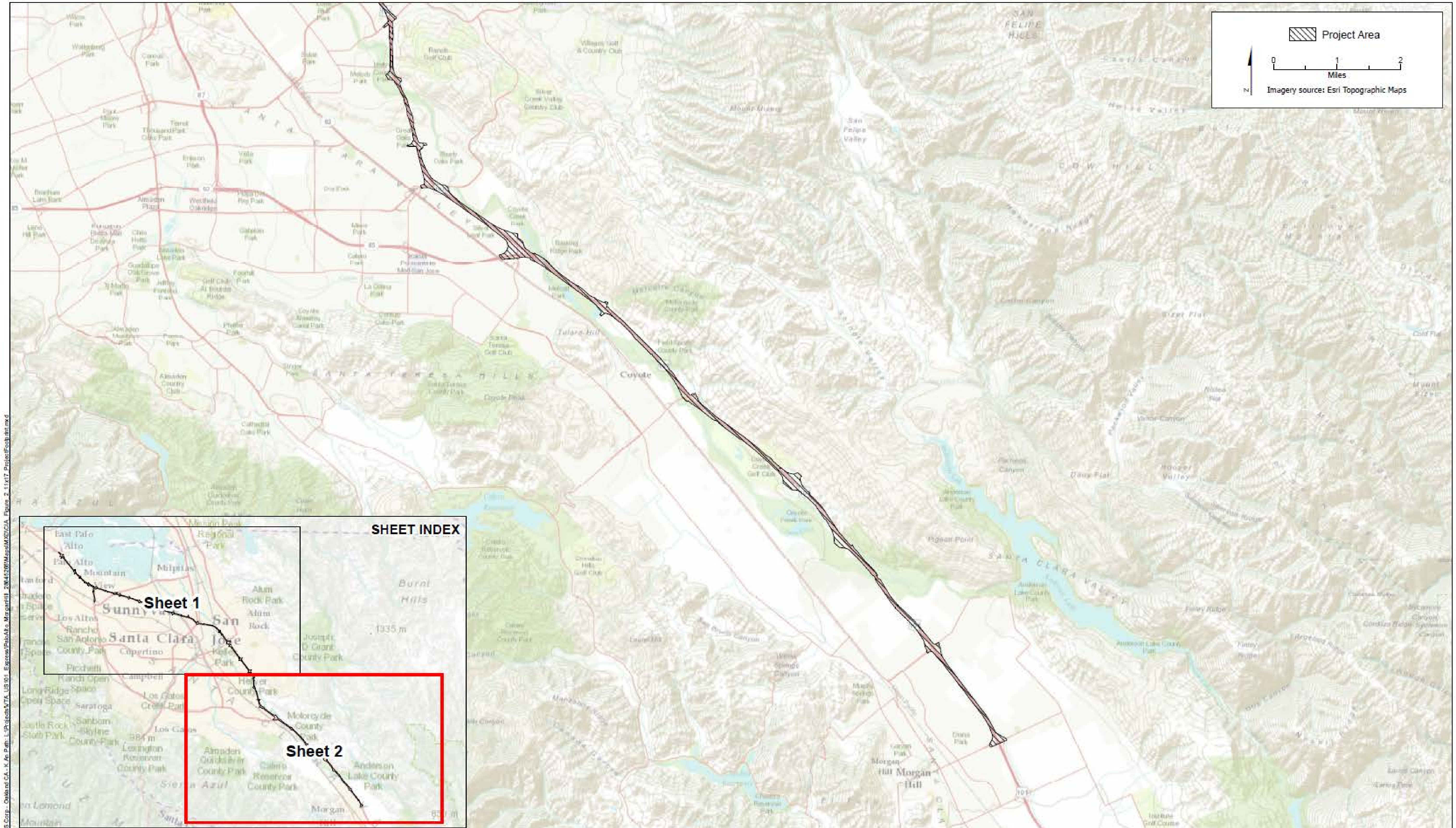
URS Caltrans
US 101 Express Lanes Project

Figure 1
Project Location and Regional Setting



URS Caltrans
US 101 Express Lanes Project

Figure 2, Sheet 1
Project Area



URS Caltrans
US 101 Express Lanes Project

Figure 2, Sheet 2
Project Area

2.1 CLIMATE, METEOROLOGY, AND TOPOGRAPHY

Due to its topographic diversity, the meteorology and climate of the Bay Area is often described in terms of different subregions and their microclimates. The proposed project is in the Santa Clara Valley subregion, as defined by the Bay Area Air Quality Management District (BAAQMD).

The Santa Clara Valley is bordered by San Francisco Bay to the north and by mountains to the east, south, and west. Temperatures are warm on summer days and cool on summer nights, and winter temperatures are fairly mild. At the northern end of the valley, mean maximum temperatures are in the low 80s during the summer and the high 50s during the winter, and mean minimum temperatures range from the high 50s in the summer to the low 40s in the winter. Further inland, where the moderating effect of the Bay is not as strong, temperature extremes are greater. For example, in San Martin, 27 miles south of the San Jose International Airport, temperatures can be more than 10 degrees warmer on summer afternoons and more than 10 degrees cooler on winter nights than mean temperatures in the valley.

Winds in the valley are greatly influenced by the terrain, resulting in a prevailing flow that roughly parallels the valley's northwest-southeast axis. A north-northwesterly sea breeze flows through the valley during the afternoon and early evening, and a light south-southeasterly drainage flow occurs during the late evening and early morning. In the summer, the southern end of the valley sometimes becomes a “convergence zone,” when air flowing from the Monterey Bay is channeled northward into the southern end of the valley and meets with the prevailing north-northwesterly winds.

Wind speeds are greatest in the spring and summer and weakest in the fall and winter. Nighttime and early morning hours frequently have calm winds in all seasons, while summer afternoons and evenings are quite breezy. Strong winds are rare and are associated mostly with winter storms.

The air pollution potential of the Santa Clara Valley is high. High summer temperatures, stable air, and mountains surrounding the valley combine to promote ozone (O_3) formation. In addition to local sources of pollution, O_3 precursors from San Francisco, San Mateo, and Alameda counties are carried by prevailing winds to the Santa Clara Valley. The valley tends to channel pollutants to the southeast. In addition, on summer days with low-level inversions, O_3 can be recirculated by southerly drainage flows in the late evening and early morning and by the prevailing northwesterly winds in the afternoon. A similar recirculation pattern occurs in the winter, affecting levels of carbon monoxide (CO) and particulate matter.

Pollution sources are plentiful and complex in this subregion. The Santa Clara Valley has a high concentration of industry at the northern end, in the Silicon Valley. Some of these industries are sources of air toxics as well as criteria air pollutants. In addition, Santa Clara Valley's large population and many work-site destinations generate the highest mobile source emissions of any subregion in the San Francisco Bay Area Air Basin (SFBAAB; BAAQMD 2012a).

2.2 REGULATORY SETTING

2.2.1 Regional Regulatory Status for National Ambient Air Quality Standards

The 1970 Federal Clean Air Act (CAA) required the establishment of National Ambient Air Quality Standards (NAAQS) for six criteria pollutants: CO, O_3, particulate matter (PM_{10} and $PM_{2.5}$), nitrogen oxides (NO_x), sulfur oxides (SO_x), and lead (Table 2-1). The NAAQS are divided into primary standards and secondary standards. Primary standards are designed to protect public health. Secondary standards are less restrictive than primary standards and are intended to protect the public from such effects as a reduction in visibility, damage to animals, crops, vegetation, and buildings and other types of impacts. The CAA and subsequent Federal Clean Air Act Amendments (CAAA) of 1977 and 1990 empower the United States Environmental Protection Agency (USEPA) to designate areas as being in attainment or nonattainment for each criteria pollutant. The CAA and CAAA require that states develop State Implementation Plans (SIPs) for areas that are in nonattainment of any of the NAAQS. The SIPs present strategies for the attainment of the NAAQS and also include comprehensive attainment plans for each nonattainment area.

The California Air Resources Board's (CARB's) emission control programs, including strict motor vehicle emission standards and the clean fuels program, have reduced CO emissions dramatically. On November 6, 1991, the USEPA designated 10 areas in California, including urbanized parts of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma counties, as nonattainment areas for the National 8-hour CO standard. By 1995, decreased vehicle emissions had helped to improve CO air quality enough that CARB's air monitoring network indicated these 10 areas could be redesignated to attainment for the National 8-hour CO standard. As one of the conditions for redesignation, CARB developed a CO maintenance plan for inclusion in the SIP in 1996 (CARB 1996). On March 31, 1998, the USEPA approved California's SIP revision and the redesignation became effective on June 1, 1998. CARB submitted a revised CO plan (CARB 2004) to the USEPA on November 8, 2004, with an update to the CO maintenance plan for 10 urban areas and showed how the 10 areas will continue to maintain the CO standard through 2018. The SIP also included updated emissions estimates and established new on-road motor vehicle emission budgets for transportation conformity purposes.

Table 2-1 State and National Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[1]		National Standards[2]	
		Concentration	Attainment Status	Concentration[3]	Attainment Status
Ozone (O_3)	8 Hour	0.070 ppm (137 µg/m^3)	N[9]	0.075 ppm (157 µg/m^3)	N[4]
	1 Hour	0.09 ppm (180 µg/m^3)	N		See Footnote 5
Carbon Monoxide (CO)	8 Hour	9.0 ppm (10 mg/m^3)	A	9 ppm (10 mg/m^3)	A[6]
	1 Hour	20 ppm (23 mg/m^3)	A	35 ppm (40 mg/m^3)	A
Nitrogen Dioxide (NO_2)	1 Hour	0.18 ppm (339 µg/m^3)	A	0.100 ppm (see Footnote 11)	U
	Annual Arithmetic Mean	0.030 ppm (57 µg/m^3)	NA	0.053 ppm (100 µg/m^3)	A
Sulfur Dioxide (SO_2) (see Footnote 12)	24 Hour	0.04 ppm (105 µg/m^3)	A	0.14 ppm (365 µg/m^3)	A
	1 Hour	0.25 ppm (655 µg/m^3)	A	0.075 ppm (196 µg/m^3)	A
	Annual Arithmetic Mean	NA	NA	0.030 ppm (80 µg/m^3)	A
Particulate Matter (PM_{10})	Annual Arithmetic Mean	20 µg/m^3	N[7]	NA	NA
	24 Hour	50 µg/m^3	N	150 µg/m^3	U
Particulate Matter - Fine ($PM_{2.5}$)	Annual Arithmetic Mean	12 µg/m^3	N[7]	12 µg/m^3	U
	24 Hour	NA	NA	35 µg/m^3 (see Footnote 10)	N
Sulfates	24 Hour	25 µg/m^3	A	NA	NA
Lead (see Footnote 13)	Calendar Quarter	NA	NA	1.5 µg/m^3	A
	30 Day Average	1.5 µg/m^3	NA	NA	A
	Rolling 3 Month Average	NA	NA	0.15 µg/m^3	See Footnote 14
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m^3)	U	NA	NA
Vinyl Chloride (chloroethene)	24 Hour	0.010 ppm (26 µg/m^3)	NIA	NA	NA
Visibility Reducing particles	8 Hour (10:00 to 18:00 PST)	See Footnote 8	U	NA	NA

Notes: A=Attainment, N=Nonattainment, NIA= No Information Available, U=Unclassified; mg/m^3=milligrams per cubic meter; ppm=parts per million; µg/m^3=micrograms per cubic meter, NA=Not Applicable, PST=Pacific Standard Time

1. California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1-hour and 24-hour), nitrogen dioxide, suspended particulate matter - PM_{10}, and visibility reducing particles are values that are not to be exceeded. The standards for sulfates, Lake Tahoe carbon monoxide, lead, hydrogen sulfide, and vinyl chloride are not to be equaled or exceeded. If the standard is for a 1-hour, 8-hour or 24-hour average (i.e., all standards except for lead and the PM_{10} annual standard), then some measurements may be excluded. In particular, measurements are excluded that CARB determines would occur less than once per year on the average. The Lake Tahoe CO standard is 6.0 ppm, a level one-half the national standard and two-thirds the state standard.

2. National standards shown are the "primary standards" designed to protect public health. National standards other than for ozone, particulates and those based on annual averages are not to be exceeded more than once a year. The 1-hour ozone standard is attained if, during the most recent 3-year period, the average number of days per year with maximum hourly concentrations above the standard is equal to or less than one. The 8-hour ozone standard is attained when the 3-year average of the 4th-highest daily concentrations is 0.075 ppm or less. The 24-hour PM_{10} standard is attained when the 3-year average of the 99th percentile of monitored concentrations is less than 150 µg/m^3. The 24-hour $PM_{2.5}$ standard is attained when the 3-year average of 98th percentiles is less than 35 µg/m^3. Except for the National particulate standards, annual standards are met if the annual average falls below the standard at every site. The National annual standard for PM_{10} is met if the 3-year average falls below the standard at every site. The annual $PM_{2.5}$ standard is met if the 3-year average of annual averages spatially-averaged across officially designed clusters of sites falls below the standard.

3. National air quality standards are set by USEPA at levels determined to be protective of public health with an adequate margin of safety.

4. Final designations effective July 20, 2012.

5. The National 1-hour ozone standard was revoked by USEPA on June 15, 2005.

6. In April 1998, the Bay Area was redesignated to attainment for the National 8-hour carbon monoxide standard.

7. In June 2002, CARB established new annual standards for $PM_{2.5}$ and PM_{10}.

8. Statewide VRP Standard (except Lake Tahoe Air Basin): Particles in sufficient amount to produce an extinction coefficient of 0.23 per kilometer when the relative humidity is less than 70 percent. This standard is intended to limit the frequency and severity of visibility impairment due to regional haze and is equivalent to a 10-mile nominal visual range.

9. The 8-hour State ozone standard was approved by CARB on April 28, 2005, and became effective on May 17, 2006.

10. USEPA lowered the 24-hour $PM_{2.5}$ standard from 65 $\mu g/m^3$ to 35 $\mu g/m^3$ in 2006. USEPA designated the Bay Area as nonattainment of the PM2.5 standard on October 8, 2009. The effective date of the designation is December 14, 2009 and the Air District has 3 years to develop a plan, called a State Implementation Plan (SIP), that demonstrates the Bay Area will achieve the revised standard by December 14, 2014. The SIP for the new PM2.5 standard must be submitted to the USEPA by December 14, 2012.

11. To attain this standard, the 3-year average of the 98th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 0.100 ppm (effective January 22, 2010).

12. On June 2, 2010, the USEPA established a new 1-hour SO2 standard, effective August 23, 2010, which is based on the 3-year average of the annual 99th percentile of 1-hour daily maximum concentrations. The existing 0.030 ppm annual and 0.14 ppm 24-hour SO2 NAAQS however must continue to be used until 1 year following USEPA initial designations of the new 1-hour SO2 NAAQS. USEPA expects to designate areas by June 2012.

13. ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure below which there are no adverse health effects determined.

14. National lead standard, rolling 3-month average: final rule signed October 15, 2008. Final designations effective December 31, 2011.

Source: BAAQMD. 2013. Air Quality Standards and Attainment Status. Available at http://hank.baaqmd.gov/pln/air_quality/ambient_air_quality.htm.

USEPA. 2013 National Ambient Air Quality Standards. Available at http://www.epa.gov/air/criteria.html.

In 1998, the SFBAAB was designated as a nonattainment area for the National O_3 1-hour standard. In April 2004, USEPA made a final finding that the Bay Area had attained this standard. In 1997, USEPA issued a new 8-hour O_3 standard, which was considered by the USEPA to be more health-protective than the 1-hour standard. Legal challenges delayed implementation of the new standard until 2000. The USEPA revoked the National 1-hour O_3 standard on June 15, 2005. In March 2008, the USEPA revised the National 8-hour primary O_3 standard to 0.075 ppm. The SFBAAB is designated a marginal nonattainment area for the National 8-hour O_3 standard. In January 2010, the USEPA proposed a stricter air quality standard for ground-level O_3. The new O_3 proposal would set the primary smog standard at a level between 0.060 and 0.070 parts per million (ppm) measured over an 8-hour period. The USEPA was expected to finalize the newly proposed national 8-hour O_3 standard by July 31, 2011. On September 2, 2011, the White House announced that it was overruling the USEPA's plan to adopt a stricter standard for ground-level O_3 until a scheduled reconsideration of acceptable pollution limits in 2013.

In 1997, USEPA promulgated new NAAQS for particulate matter with a diameter less than or equal to 2.5 microns ($PM_{2.5}$) to reflect the latest medical studies, which have found particulate matter of this size to pose potential risk to public health. USEPA lowered the 24-hour $PM_{2.5}$ standard from 65 micrograms per cubic meter ($\mu g/m^3$) to 35 $\mu g/m^3$ in 2006. USEPA designated the Bay Area as nonattainment for the $PM_{2.5}$ standard on October 8, 2009, and set a deadline of December 14, 2012 for the BAAQMD to develop a plan (called a SIP) that demonstrates that the Bay Area will achieve the revised standard by December 14, 2014. On January 9, 2013, the USEPA issued a final rule to determine that the San Francisco Bay Area has attained the 24-hour $PM_{2.5}$ NAAQS, suspending federal SIP planning requirements for the Bay Area (BAAQMD 2013b). USEPA also lowered the annual $PM_{2.5}$ standard from 15 $\mu g/m^3$ to 12 $\mu g/m^3$ in December 2012. Final designations from the USEPA based on the revised standard are not expected until December 2014.

The SFBAAB is classified as attainment or unclassified for the remaining National standards. Unclassified generally indicates that there is a lack of representative data to classify a basin.

2.2.2 Engine Standards

On May 11, 2004, the USEPA signed the final rule introducing Tier 4 emission standards, which are to be phased in over the period of 2008–2015 (69 CFR 38957–39273, June 29, 2004). The Tier 4 standards require that emissions of particulate matter and NO_x be further reduced by about 90 percent. Such emission reductions can be achieved through the use of control technologies, including advanced exhaust gas after-treatment. To enable sulfur-sensitive control technologies in Tier 4 engines, such as catalytic particulate filters and NO_x absorbers, the USEPA mandated reductions in sulfur content in non-road diesel fuels. In most cases, Federal non-road regulations also apply in California, which has only limited authority to set emission standards for new non-road engines. The CAA preempts California's authority to control emissions from new farm and construction equipment under 175 horsepower (CAA Section 209[e][1][A]) and requires California to receive authorization from the USEPA for controls over other off-road sources (CAA Section 209[e][2][A]).

Motor vehicle standards to improve fuel economy and reduce emissions have been established at both the federal and state level. The USEPA and the National Highway Traffic Safety Administration (NHTSA) have established Corporate Average Fuel Economy (CAFE) fuel standards for motor vehicles. On September 15, 2011, the USEPA and NHTSA issued a final rule of Greenhouse Gas Emissions Standards and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles (76 Federal Register 57106). This final rule is tailored to each of three regulatory categories of heavy-duty vehicles: combination tractors; heavy-duty pickup trucks and vans; and vocational vehicles. The USEPA and NHTSA estimated that the new standards in this rule will reduce CO_2 emissions by approximately 270 million metric tons (MMT), and save 530 million barrels of oil over the life of vehicles sold during the 2014 through 2018 model years.

2.2.3 Regional Regulatory Status for California Ambient Air Quality Standards

California has established California Ambient Air Quality Standards (CAAQS) for criteria pollutants (Table 2-1), as well as for other pollutants (sulfates, visibility reducing particles, vinyl chloride, and hydrogen sulfide) for which there are no corresponding NAAQS. The CAAQS for criteria pollutants are equal to or more stringent than the NAAQS. The CAAQS and air basin designations are established by CARB. CARB is also responsible for implementing the strategies of the SIP, once it has been approved by the USEPA.

In June 2002, CARB revised the annual standard for particulate matter less than 10 micrometers in diameter (PM_{10}) from 30 to 20 µg/m^3. CARB also established an annual standard for $PM_{2.5}$ of 12 µg/m^3. These new standards became effective on July 5, 2003. On April 28, 2005, CARB established a new 8-hour average standard for O_3 of 0.070 ppm. The new standard went into effect on May 17, 2006.

Analogous to the CAA and CAAA, the 1988 California Clean Air Act (CCAA) requires areas of the State to be designated as attainment or nonattainment for each criteria pollutant. Under the CCAA, air districts not meeting CAAQS for O_3, CO, SO_x, or NO_x are required to prepare attainment plans intended to improve air quality and attain the standards. The San Francisco Air Basin is currently designated a nonattainment area for O_3, PM_{10}, and $PM_{2.5}$. The San Francisco Air Basin is classified as a "serious" nonattainment area for the State O_3 standard. As a serious nonattainment area, the BAAQMD is required to adopt, among other things, measures requiring best available retrofit control technology (BARCT) on existing sources of air pollution, and best available control technology (BACT) for new and modified sources with a potential to emit 10 pounds per day or more of O_3 precursors.

In 2003, the California Legislature enacted Senate Bill 656 (SB 656, Sher), codified as California Health and Safety Code Section 39614. This legislation seeks to reduce public exposure to PM_{10} and $PM_{2.5}$ and to make progress toward attainment of State and National PM_{10} and $PM_{2.5}$ standards. SB 656 required CARB, in consultation with local air quality districts, to develop and adopt a list of the most readily available, feasible, and cost-effective control measures that could be used by CARB and air districts to reduce particulate matter. The bill required the CARB and air districts to adopt implementation schedules for appropriate CARB and air district measures.

2.2.4 Bay Area Air Quality Management District

The SFBAAB encompasses approximately 5,600 square miles and includes all of Alameda, Contra Costa, Marin, Napa, San Francisco, Santa Clara, and San Mateo counties, and portions of Solano and Sonoma counties. The BAAQMD and CARB have joint responsibility for developing and enforcing regulations needed to achieve and maintain NAAQS and CAAQS in the air basin.

The BAAQMD is also responsible for preparation of plans for attaining and maintaining ambient air quality standards in the region, adoption and enforcement of rules and regulations concerning air pollutant sources, issuing permits for stationary sources of air pollutants, inspecting stationary sources, monitoring ambient air quality and meteorological conditions, awarding grants to reduce motor vehicle emissions, and conducting public education campaigns.

The Bay Area Clean Air Plan (CAP) is developed in cooperation with the Metropolitan Transportation Commission (MTC) and the Association of Bay Area Governments (ABAG). Projections developed by ABAG, which estimate future population and transportation trends, are used to develop and evaluate strategies to bring the SFBAAB into compliance with NAAQS and CAAQS. The first CAP was adopted in 1991, and the most recent update is the 2010 Clean Air Plan. The 2010 CAP, adopted by BAAQMD in cooperation with the MTC and ABAG, has the dual role as an update to the State O_3 plan and a multi-pollutant plan. The 2010 CAP addresses four categories of pollutants: ground-level O_3 and its key precursors, reactive organic gases (ROG) and NO_x; particulate matter; primary $PM_{2.5}$, as well as precursors to secondary $PM_{2.5}$; air toxics; and greenhouse gases (GHGs). The 2010 CAP control strategy includes revised, updated, and new measures in the three traditional control measure categories: Stationary Source Measures, Mobile Source Measures, and Transportation Control Measures (TCMs). In addition, the CAP identifies two new categories of control measures: Land Use and Local Impact Measures, and Energy and Climate Measures (BAAQMD 2010).

In 1999, the BAAQMD, ABAG, MTC, and the Bay Area Alliance for Sustainable Communities undertook the Smart Growth Strategy/Regional Livability Footprint Project. The goal of the Smart Growth Project is to develop and implement a preferred land use vision that favors compact, mixed use development near transit stations, transit corridors, and town centers. The Smart Growth vision is reflected in ABAG's 2003 projections, the MTC's Regional Transportation Plan (RTP) 2035 (the RTP for the Bay Area), and the air quality strategies and implementation programs of the BAAQMD.

To comply with SB 656, BAAQMD reviewed the list of 103 potential particulate matter control measures prepared by CARB and developed a Particulate Matter Implementation Schedule which was adopted by BAAQMD on November 16, 2005.

2.2.5 Greenhouse Gases

While climate change has been a concern for several decades, the establishment of the Intergovernmental Panel on Climate Change (IPCC) by the United Nations and World Meteorological Organization's in 1988, has led to increased efforts devoted to GHG emissions reduction and climate change research and policy. These efforts are primarily concerned with the emissions of GHGs related to human activity that include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), tetrafluoromethane, hexafluoroethane, sulfur hexafluoride (SF_6), HFC-23 (fluoroform), HFC-134a (s, s, s, 2 –tetrafluoroethane), and HFC-152a (difluoroethane).

2.2.5.1 Regional

The BAAQMD had adopted updated CEQA guidelines, which require a quantitative analysis of projects that emit GHGs (BAAQMD 2011)[1]. These guidelines include thresholds of significance for operational-related GHG emissions that were applied for this project's air quality analysis:

- For land use development projects, the threshold is in compliance with a qualified GHG Reduction Strategy; or annual emissions less than 1,100 metric tons per year (MT/yr) of carbon dioxide equivalent (CO_2e); or 4.6 MT CO_2e/service population (SP)/yr (residents + employees). Land use development projects include residential, commercial, industrial, and public land uses and facilities.
- For stationary-source projects, the threshold is 10,000 MT/yr of CO_2e. Stationary-source projects include land uses that would accommodate processes and equipment that emit GHG emissions and would require an Air District permit to operate.

If annual emissions of operational-related GHGs exceed these levels, the proposed project would result in a cumulatively considerable contribution of GHG emissions and a cumulatively significant impact to global climate change.

2.2.5.2 State

With the passage of several pieces of legislation including State Senate and Assembly Bills and Executive Orders, California launched an innovative and pro-active approach to dealing with greenhouse gas emissions and climate change at the state level.

<u>AB 1493, Pavley. Vehicular Emissions: Greenhouse Gases (AB 1493), 2002</u>: requires the CARB to develop and implement regulations to reduce automobile and light truck greenhouse gas

[1] On March 5, 2012 the Alameda County Superior Court issued a judgment finding that the BAAQMD had procedurally failed to comply with CEQA when it adopted the thresholds. The court issued a writ of mandate ordering the BAAQMD to set aside the thresholds and cease dissemination of them until the BAAQMD had complied with CEQA. The BAAQMD appealed the Alameda County Superior Court's decision, and on August 13, 2013, the First District Court of Appeal reinstated air quality guidelines adopted by the BAAQMD, including numeric greenhouse gas (GHG) thresholds of significance. The 2011 CEQA thresholds have therefore been used for the analysis.

emissions. These stricter emissions standards were designed to apply to automobiles and light trucks beginning with the 2009-model year. In June 2009, the USEPA Administrator granted a Clean Air Act waiver of preemption to California. This waiver allowed California to implement its own GHG emission standards for motor vehicles beginning with model year 2009. In January 2012, CARB also approved the Advanced Clean Cars Program, a vehicle emission control program for model years 2017 through 2025. On August 28, 2012, the USEPA and NHTSA issued a joint final rulemaking to establish 2017 through 2025 GHG emissions and CAFE Standards. To further California's support of the national program to regulate emissions, the CARB submitted a proposal that would allow automobile manufacturer compliance with the USEPA's requirements to show compliance with California's requirements for the same model years. The Final Rulemaking Package was filed on December 6, 2012, and the final rulemaking became effective on December 31, 2012.

Executive Order S-3-05: (signed on June 1, 2005, by Governor Arnold Schwarzenegger) 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 percent below the 1990 levels by the year 2050. In 2006, this goal was further reinforced with the passage of AB 32.

AB 32, the Global Warming Solutions Act of 2006: AB 32 sets the same overall GHG emissions reduction goals as outlined in Executive Order S-3-05, while further mandating that CARB 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. CARB released the Climate Change Proposed Scoping Plan in October 2008 and adopted the plan on December 12, 2008. This plan contains an outline of the proposed state strategies to achieve the 2020 GHG emission limits. CARB is currently in the process of updating the Scoping Plan to include progress since 2005, additional reduction measures, and plans for reductions beyond 2020. CARB anticipates releasing the updated Scoping Plan in late 2013.

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 ten percent by 2020.

SB 97 (Chapter 185, 2007): required the Governor's Office of Planning and Research (OPR) to develop recommended amendments to the CEQA Guidelines for addressing greenhouse gas emissions. The Amendments became effective on March 18, 2010.

SB 375, Sustainable Communities and Climate Protection Act of 2008: SB 375 was signed into law by the Governor Schwarzenegger on September 30, 2008, and became effective January 1, 2009. This law requires CARB to develop regional reduction targets for GHG emissions, and prompts the creation of regional plans to reduce emissions from passenger vehicle use throughout the state. The targets apply to the regions in the state covered by the California's 18 metropolitan planning organizations (MPOs). The MPOs have been tasked with creating Sustainable Communities Strategies (SCS). The MPOs are required to develop the SCS through integrated land use and transportation planning and to demonstrate an ability to attain the proposed reduction targets by 2020 and 2035. This would be accomplished through either the financially constrained Sustainable Communities Strategy as part of their RTP or an unconstrained alternative planning strategy. If regions develop integrated land use, housing, and transportation plans that meet the SB 375 targets, new projects in these regions can be relieved of certain review requirements of the CEQA.

2.2.5.3 Federal

Although climate change and GHG reduction are a concern at the federal level, currently no regulations or legislation have been enacted specifically addressing GHG emissions reductions and climate change at the project level. Neither the USEPA nor the FHWA has issued explicit guidance or methods to conduct project-level GHG analysis.[2] FHWA supports the approach that climate change considerations should be integrated throughout the transportation decision-making process–from planning through project development and delivery. Addressing climate change mitigation and adaptation up front in the planning process will assist in decision-making and improve efficiency at the program level, and will inform the analysis and stewardship needs of project-level decision-making. Climate change considerations can be integrated into many planning factors, such as supporting economic vitality and global efficiency, increasing safety and mobility, enhancing the environment, promoting energy conservation, and improving the quality of life.

The four strategies outlined by FHWA to lessen climate change impacts correlate with efforts that the state is undertaking to deal with transportation and climate change; these strategies include improved transportation system efficiency, cleaner fuels, cleaner vehicles, and reduction in travel activity.

Climate change and its associated effects are also being addressed through various efforts at the federal level to improve fuel economy and energy efficiency, such as the “National Clean Car Program” and EO 13514- Federal Leadership in Environmental, Energy and Economic Performance.

Executive Order 13514 (October 5, 2009): This order is focused on reducing greenhouse gases internally in federal agency missions, programs and operations, but also directs federal agencies to participate in the Interagency Climate Change Adaptation Task Force, which is engaged in developing a national strategy for adaptation to climate change.

USEPA’s authority to regulate GHG emissions stems from the U.S. Supreme Court decision in Massachusetts v. EPA (2007). The Supreme Court ruled that GHGs meet the definition of air pollutants under the existing Clean Air Act and must be regulated if these gases could be reasonably anticipated to endanger public health or welfare. Responding to the Court’s ruling, U.S. EPA finalized an endangerment finding in December 2009. Based on scientific evidence it found that six greenhouse gases constitute a threat to public health and welfare. Thus, it is the Supreme Court’s interpretation of the existing Act and EPA’s assessment of the scientific evidence that form the basis for EPA’s regulatory actions. U.S. EPA in conjunction with NHTSA issued the first of a series of GHG emission standards for new cars and light-duty vehicles in April 2010.[3]

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[2] To date, no national standards have been established regarding mobile source GHGs, nor has USEPA established any ambient standards, criteria or thresholds for GHGs resulting from mobile sources.
[3] http://www.c2es.org/federal/executive/epa/greenhouse-gas-regulation-faq

USEPA and the National Highway Traffic Safety Administration (NHTSA) are taking coordinated steps to enable the production of a new generation of clean vehicles with reduced GHG emissions and improved fuel efficiency from on-road vehicles and engines. These next steps include developing the first-ever GHG regulations for heavy-duty engines and vehicles, as well as additional light-duty vehicle GHG regulations.

The final combined standards that made up the first phase of this national program apply to passenger cars, light-duty trucks, and medium-duty passenger vehicles, covering model years 2012 through 2016. The standards implemented by this program are expected to reduce GHG emissions by an estimated 960 million metric tons and 1.8 billion barrels of oil over the lifetime of the vehicles sold under the program (model years 2012-2016).

On August 28, 2012, USEPA and NHTSA issued a joint Final Rulemaking to extend the National Program for fuel economy standards to model year 2017 through 2025 passenger vehicles. Over the lifetime of the model year 2017-2025 standards this program is projected to save approximately four billion barrels of oil and two billion metric tons of GHG emissions.

The complementary USEPA and NHTSA standards that make up the Heavy-Duty National Program apply to combination tractors (semi-trucks), heavy-duty pickup trucks and vans, and vocational vehicles (including buses and refuse or utility trucks). Together, these standards will cut greenhouse gas emissions and domestic oil use significantly. This program responds to President Barack Obama’s 2010 request to jointly establish greenhouse gas emissions and fuel efficiency standards for the medium- and heavy-duty highway vehicle sector. The agencies estimate that the combined standards will reduce CO2 emissions by about 270 million metric tons and save about 530 million barrels of oil over the life of model year 2014 to 2018 heavy duty vehicles.

An individual project does not generate enough GHG emissions to significantly influence global climate change. Rather, global climate change is a cumulative impact. This means that a project may contribute to a potential impact through its *incremental* change in emissions when combined with the contributions of all other sources of GHG.[4] In assessing cumulative impacts, it must be determined if a project’s incremental effect is “cumulatively considerable” (CEQA Guidelines Sections 15064(h)(1) and 15130). To make this determination the incremental impacts of the project must be compared with the effects of past, current, and probable future projects. To gather sufficient information on a global scale of all past, current, and future projects to make this determination is a difficult if not impossible task.

The AB 32 Scoping Plan mandated by AB 32 includes the main strategies California will use to reduce GHG emissions. As part of its supporting documentation for the Draft Scoping Plan, the ARB released the GHG inventory for California (forecast last updated: October, 28 2010). The forecast is an estimate of the emissions expected to occur in 2020 if none of the foreseeable measures included in the Scoping Plan were implemented (see Figure 3). The base year used for forecasting emissions is the average of statewide emissions in the GHG inventory for 2006, 2007, and 2008.

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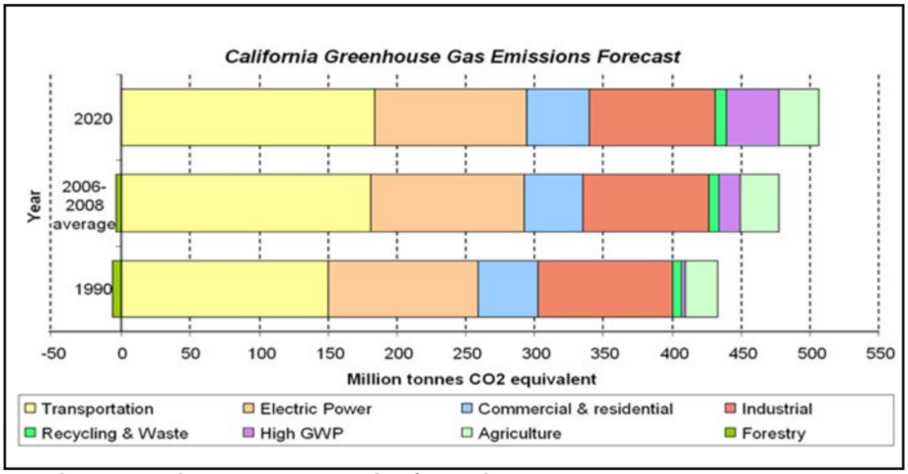
[4] This approach is supported by the AEP: *Recommendations by the Association of Environmental Professionals on How to Analyze GHG Emissions and Global Climate Change in CEQA Documents* (March 5, 2007), as well as the South Coast Air Quality Management District (Chapter 6: The CEQA Guide, April 2011) and the US Forest Service (Climate Change Considerations in Project Level NEPA Analysis, July 13, 2009).



From: http://www.arb.ca.gov/cc/inventory/data/forecast.htm

Figure 3 California Greenhouse Gas Forecast

Caltrans and its parent agency, the Transportation 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 transportation, the Department has created and is implementing the Climate Action Program at Caltrans that was published in December 2006.[5]

2.2.6 Project-Level Conformity with Air Quality Plans

USEPA has developed criteria and procedures for determining the conformity of Federal actions to the applicable SIPs. For the purposes of determining conformity with a SIP, the Federal CAA and related USEPA regulations distinguish between transportation-related plans, programs, and projects that are funded, approved, or sanctioned by the FHWA or the Federal Transit Administration (FTA) under Title 23 of the United States Code (USC), and all other Federally funded, approved, or sanctioned plans, programs, and projects. Different criteria and procedures for determining conformity have been established for these two broad categories of actions: the former is referred to as "transportation conformity" and the latter is referred to as "general conformity." Since this is a new project in an area designated as nonattainment or maintenance for transportation-related air pollutants, a new project-level conformity determination is required.

2.2.6.1 Project Design and Funding in 2013 RTP and 2013 TIP

The project is listed in the 2009 Santa Clara Valley Transportation Plan 2035 (VTA 2009) as the following reference numbers:

[5] Caltrans Climate Action Program is located at the following web address: http://www.dot.ca.gov/hq/tpp/offices/ogm/key_reports_files/State_Wide_Strategy/Caltrans_Climate_Action_Program.pdf

- VTP ID H3 – US 101 Express Lanes: San Mateo county line to SR 85 in Mountain View (Conversion)
- VTP ID H4 - US 101 Express Lanes: SR 85 (San Jose) to Cochrane Rd. (Conversion)
- VTP ID H5 - US 101 Express Lanes: SR 85 in Mountain View to SR 85 in San Jose (Conversion)

The project is included in MTC's 2013 RTP (ABAG and MTC 2013), as RTP Reference Number 240466, " US 101Express Lanes between Whipple Avenue and Dunne Avenue" and 230410, "Construct Auxiliary Lane on Southbound US 101 from Great America Parkway to Lawrence Expressway." The project is also included in the 2013 Transportation Improvement Program (TIP), which was adopted by MTC on July 18, 2013 (TIP ID No. SCL110002), as "US 101 Express Lanes." The following summarizes the regional transportation planning and conformity approvals related to this project.

MTC initiated its regional conformity analysis for the 2013 TIP in 2012 with a consultation request to partner agencies, discussing the approach to the air quality assessment. The process included public consultation and was developed in compliance with FHWA regulations and guidance on financial constraint. MTC's evaluation for the 2013 TIP determined that the regional emissions analysis was below the applicable budgets in the SIP. The evaluation used the latest available socioeconomic and land use forecasts from ABAG and the latest MTC travel demand model, which are less than 5 years old. As noted above, the 2013 TIP was approved by FHWA/FTA on August 12, 2013.The 2013 RTP was found to conform by MTC on July 18, 2013, and FHWA and FTA adopted the air quality conformity finding on August 12, 2013. The MTC's 2013 TIP was found to conform by FHWA and FTA on August 12, 2013.

The design concept and scope of the proposed project is consistent with the project description in the 2013 RTP, the 2013 TIP, and the assumptions in MTC's regional emissions analysis. Therefore, the project is in conformity with the SIP and will not otherwise interfere with timely implementation of any TCMs in the applicable SIP.

2.2.6.2 Air Pollutants of Concern

Much of the degradation of ambient air quality in the SFBAAB is due to emissions from mobile sources. The primary pollutants of concern associated with motor vehicles are O_3, CO, PM_{10} and $PM_{2.5}$. The air basin is in nonattainment of the Federal and State O_3 standards; attainment of the Federal and State CO standards; and unclassified for the Federal but nonattainment for the State PM_{10} standards; and nonattainment for the State and Federal $PM_{2.5}$ standards.

2.2.6.3 Ozone

Motor vehicles do not emit O_3 directly into the environment, but tailpipe emissions undergo complex chemical reactions in the presence of sunlight, which result in the formation of O_3. The primary chemicals involved in these reactions are NO_x and ROG, often referred to as O_3 precursors. O_3 precursors may come from sources other than motor vehicles, but the largest source in the SFBAAB is motor vehicle exhaust. O_3 exposure causes eye irritation and damage to lung tissue in humans. O_3 also harms vegetation, reduces crop yields, and accelerates deterioration of paints, finishes, rubber products, plastics, and fabrics.

2.2.6.4 Carbon Monoxide

CO is an odorless, colorless gas formed by the incomplete combustion of fuels. The single largest source of CO in the SFBAAB is motor vehicles. Emissions are highest during cold starts, hard acceleration, stop-and-go driving, and low-speed driving.

When inhaled at high concentrations, CO combines with hemoglobin in the blood and reduces the oxygen-carrying capacity of the blood. This results in reduced oxygen reaching the brain, heart, and other body tissues. This condition is especially critical for people with cardiovascular diseases, chronic lung disease, or anemia, as well as for fetuses. Even healthy people exposed to high CO concentrations may experience headaches, dizziness, fatigue, unconsciousness, and even death.

2.2.6.5 PM_{10}

PM_{10} is particulate matter that is equal to or less than 10 micrometers in diameter. PM_{10} is also released directly into the atmosphere by mobile sources. It may come from a variety of sources and consists of a wide range of solid and liquid particles, including smoke, dust, aerosols, and metallic oxides, but approximately 50 percent of the particulate matter in the air basin is due to motor vehicles. PM_{10} is emitted from automobile tailpipes, brake pads and tires, and movement of road dust from vehicle travel. It evades the respiratory system's natural defenses and can lodge deep in the lungs when inhaled, aggravating chronic respiratory diseases. Children, the elderly, and those suffering from asthma, bronchitis, heart disease, or lung disease are particularly vulnerable to the adverse health effects of PM_{10} exposure. Long-term exposure to PM_{10} at levels exceeding State standards can lead to an increase in respiratory and cardiac illness, exacerbation of asthma, and increased death rates.

2.2.6.6 $PM_{2.5}$

Also known as fine particulate matter, $PM_{2.5}$ is particulate matter that is equal to or less than 2.5 micrometers in diameter. $PM_{2.5}$ exposure has been linked to health problems, including asthma, bronchitis, acute and chronic respiratory symptoms (e.g., shortness of breath and painful breathing), and premature death. People with existing heart or lung disease (e.g., asthma, chronic obstructive pulmonary disease, and congestive heart disease) are at risk of premature death or admission to hospitals or emergency rooms when exposed to $PM_{2.5}$. The elderly, individuals with cardiopulmonary disease, and children appear to be at greatest risk. Most of the premature deaths are among the elderly, because their immune systems are generally weaker due to age or other health problems. Children are also susceptible to the health risks of $PM_{2.5}$ because their immune and respiratory systems are not yet fully matured. In addition, $PM_{2.5}$ particles are a major source of visibility impairment.

2.2.6.7 Toxic Air Contaminants

Management of toxic air contaminants (TACs) is accomplished through a combination of source identification, risk characterization, control requirements, and avoidance of land use conflicts. All stationary sources of TACs are subject to BAAQMD permitting requirements, which include an evaluation of potential TAC emissions and risks to nearby receptors. For new sensitive land uses (including residential areas and schools), it is the responsibility of the city or county to identify whether the new land uses would be located near existing sources of TACs.

Recent regulatory concern has focused on particulate matter generated by diesel engines. In 1998, CARB identified diesel engine particulate matter as a TAC. The USEPA has also identified diesel fuel emissions as a toxic air pollutant. Mobile sources, such as trucks, buses, automobiles, trains, ships, and farm equipment, are the largest source of diesel emissions. CARB estimates that 70 percent of the known statewide cancer risk from outdoor air toxics is attributable to diesel particulate matter, and approximately 24 percent is attributed to on-road diesel-fueled vehicles (CARB 2005a). CARB recommends avoiding siting new sensitive land uses within 500 feet of freeways with traffic volumes of 100,000 or more vehicles per day (CARB 2005b). Particulates from diesel exhaust are managed through vehicle emission control programs implemented on a State and Federal level, with the cooperation of fuel suppliers and vehicle and engine manufacturers. Following the identification of the diesel particulate matter as a TAC in 1998, CARB adopted the Diesel Risk Reduction Plan in October 2000 to reduce diesel particulate emissions and resultant health risk to “near zero” by 2020. This plan includes strategies such as ultra-low sulfur diesel fuel, new diesel tailpipe regulations, and regulations governing operations such as idling restrictions.

CARB also administers the Carl Moyer Program, which is a clean engine incentive program that provides incentives to substantially reduce emissions of NO_x and fine particulate matter from heavy-duty diesel engines. CARB also has the On-Road Heavy-Duty Diesel New Engine Program, which has a goal to develop and implement strategies to reduce emissions from new on-road heavy-duty diesel engines through the development of emission control regulations and test procedures for these engines. BAAQMD research indicates that mobile-source emissions of diesel particulate matter, benzene, and 1,3-butadiene represent a substantial portion of the ambient background risk from TACs in the SFBAAB (BAAQMD 2010).

2.3 AMBIENT AIR QUALITY

The BAAQMD operates a network of air monitoring sites throughout the SFBAAB. The San Jose–Jackson Street monitoring station (158 East Jackson Street, San Jose) is the closest to the project corridor, located approximately 1.0 mile south-southwest of the US 101 near the I-880/US 101 interchange.

Tables 2-2 through 2-6 summarize the last 5 years of air quality data for O_3, PM_{10}, $PM_{2.5}$, CO, and NO_2 measured at the San Jose–Jackson Street monitoring station and the number of days, if any, that the State or National standards were exceeded.

Table 2-2 O_3 Trends Summary, San Jose–Jackson Monitoring Station

Year	Number of Days Over Standard			1-Hour Averages (ppm)	8-Hour Averages (ppm)
	8-Hour		1-Hour	Maximum	Maximum
	State	Nat'l	State		
2012	0	0	1	**0.101**	0.063
2011	0	0	1	**0.098**	0.067
2010	**3**	**3**	**5**	**0.126**	**0.086**
2009	0	0	0	0.088	0.068
2008	**3**	**2**	**1**	**0.118**	**0.080**

Source: CARB 2013b. Data summaries posted only through 2012.
Notes:
- ppm = parts per million
- Exceedances of the State or National standard shown in **bold** text.
- An exceedance is not necessarily a violation. California standards are not to be exceeded; National standards are not to be exceeded more than once per year.

Table 2-3 PM_{10} Trends Summary, San Jose–Jackson Street Monitoring Station

Year	Measured Days Over Standard		Annual Average ($\mu g/m^3$)		High 24-Hr Average ($\mu g/m^3$)	
	Nat'l	State	Nat'l	State	Nat'l	State
2012	0	**1**	18.8	18.8	56.5	59.6
2011	0	0	18.6	19.2	41.3	44.3
2010	0	0	18.9	19.5	44.2	46.8
2009	0	0	19.5	20.3	41.1	43.3
2008	0	**1**	22.6	**23.4**	55.0	**57.3**

Source: CARB 2013b. Data summaries posted only through 2012.
Notes:
- $\mu g/m^3$ = micrograms per cubic meter
- Exceedances of the State or National standard shown in **bold** text.
- The National annual average standard was revoked in December 2006 and is no longer in effect.
- No exceedances of the National standard were measured.
- An exceedance is not necessarily a violation. California standards are not to be exceeded; National standards are not to be exceeded more than once per year.

Table 2-4 $PM_{2.5}$ Trends Summary, San Jose–Jackson Street Monitoring Station

Year	Estimated Days Over Standard	Annual Average ($\mu g/m^3$)		High 24-Hr Average ($\mu g/m^3$)	
	Nat'l	Nat'l	State	Nat'l	State
2012	**2.1**	9.1	*	38.4	38.4
2011	**3.1**	9.8	9.9	**50.5**	50.5
2010	**3**	*	9.0	**41.5**	41.5
2009	0.0	10.1	10.1	35.0	35.0
2008	**5**	11.5	11.5	**41.9**	41.9

Source: CARB 2013b. Data summaries posted only through 2012.
Notes:
- $\mu g/m^3$ = micrograms per cubic meter
- Exceedances of the State or National standard shown in **bold** text.
- An exceedance is not necessarily a violation. California standards are not to be exceeded; National standards are not to be exceeded more than once per year.

* Insufficient (or no) data were available to determine the value.

Table 2-5 Highest Five Daily Maximum 8-Hour CO Averages, San Jose–Jackson Street Monitoring Station

Year	2008		2009		2010		2011		2012	
	Date	Concen. (ppm)	Date	Concen. (ppm)	Date	Concen. (ppm)	Date	Concen. (ppm)	Date	Concen. (ppm)
First Highest	Dec 12	2.48	Jan 11	2.50	Jan 10	2.19	Nov 29	2.18		
Second Highest	Dec 7	2.20	Jan 15	2.26	Jan 11	1.77	Dec 24	2.03		
Third Highest	Dec 31	2.17	Feb 1	2.11	Dec 3	1.67	Feb 5	1.93		
Fourth Highest	Dec 11	2.17	Nov 25	2.07	Jan 5	1.66	Dec 10	1.87		
Days Above National Standard	0		0		0		0		0	
Days Above State Standard	0		0		0		0		0	
Year Covered	100		83		81		85		45	

Source: CARB 2013b. Data summaries posted only through 2012.
Notes:
- ppm = parts per million
- Year Covered indicates how complete monitoring was during the time of the year when concentrations are highest. Zero means there was no coverage; 100 means there was complete coverage.
- Data is for highest of either the reported state or national monitored data.

Table 2-6 NO_2 Trends Summary, San Jose–Jackson Street Monitoring Station

Year	Days Over Standard	Annual Average (ppm)	High 1-Hr Average (ppm)
	State		
2012	0	0.013	0.067
2011	0	0.014	0.061
2010	0	0.014	0.064
2009	0	0.015	0.069
2008	0	0.017	0.080

Source: CARB 2013b. Data summaries posted only through 2012.
Notes:
- ppm = parts per million
- Exceedances of the State or National standard shown in **bold** text.
- An exceedance is not necessarily a violation. California standards are not to be exceeded; National standards are not to be exceeded more than once per year.
  * Insufficient (or no) data were available to determine the value.

2.4 SENSITIVE RECEPTORS

Under the CAA, ambient air quality must meet the standards for criteria pollutants in all locations generally accessible to the public; however, some land uses are considered more sensitive to air pollution than others. Sensitive receptors are defined as facilities that house or attract children, the elderly, people with illnesses, people participating in outdoor sports, or others who are especially sensitive to the effects of air pollutants. Sensitive receptors include schools, parks, hospitals, and convalescent homes. Residential areas are also considered sensitive receptors because residents may include children, the elderly, and the infirm, and residents are often in their homes for extended periods of time.

Residential homes are within a quarter-mile of the proposed project. Emissions have been modeled from locations along the freeway up to a distance of 10 feet from the roadway to provide a worst-case analysis. As CO and PM concentrations diminish rapidly with distance from the source, concentrations at potential sensitive receptor locations will be significantly lower than in close proximity to the roadway.

3.1 AIR QUALITY IMPACTS

The analysis and evaluation of the impacts of the proposed project are based on data from the traffic analysis (CDM Smith 2013).

3.2 SIGNIFICANCE CRITERIA

The National Environmental Policy Act (NEPA) does not establish or apply “significance criteria”; however, CEQA does. The following criteria are defined only to address CEQA requirements. A transportation project could have a significant effect on air quality under CEQA if it would:

- Conflict with or obstruct 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
- Expose sensitive receptors to substantial pollutant concentrations
- Create objectionable odors affecting a substantial number of people
- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant effect on the environment
- Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs.

3.3 PERMANENT IMPACTS

Air quality issues relate to a range of different pollutants for which individual regulatory standards exist. The evaluation of air quality impacts addressed in this section focuses on the project’s conformity with the regional air quality framework and the project’s potential to result in an adverse impact to the region’s compliance with the relevant standards.

3.3.1 Conformity to the SIP

This project is in conformity with the SIP because it is included in adopted regional traffic and air quality evaluations (see Section 2.2.6).

3.3.2 Evaluation of Potential for Traffic-Related CO Impacts

The purpose of the evaluation of traffic-related CO effects is to demonstrate that the project will not cause or contribute to any new localized CO violations. Guidance from the UC Davis *Transportation Project-Level Carbon Monoxide Protocol* criteria (Garza, Graney, and Sperling 1997) was used to evaluate CO impacts.

A modeling analysis for CO impacts was completed for two locations along the US 101 mainline for both the Build and No Build Alternatives using the traffic volumes obtained from the traffic analysis in both opening year (2015) and horizon year (2035) (CDM Smith 2013). The maximum traffic flows within the project area were assumed to occur through the entire project area as a conservative scenario, with the most congested portions of the project area representing maximum CO contribution. The California line source model (CALINE4) was used for the analysis, following the guidelines contained in Appendix B of the CO Protocol.

The CALINE4 model is a Gaussian line-source dispersion model that was written by Caltrans. This model uses emission factors from the CARB emission factor (EMFAC) model, which is updated periodically and reflects changes in the vehicle fleet and emission standards. The EMFAC average vehicle fleet mix for Santa Clara County was used in this analysis.[6] CALINE4 predicts 1-hour and 8-hour CO concentrations for comparison to the 1-hour and 8-hour State and/or Federal CO standards. Peak-hour vehicle volumes for the Build and No Build Alternatives, conservative wind speed, and atmospheric stability values are used to predict the maximum hourly concentrations, based on the wind angle that produces the highest result. Eight-hour concentrations are derived from the modeled 1-hour concentrations by applying a persistence factor of 0.7 from the CO Protocol.

The background concentration is an important element in the CO impacts analysis. The second highest concentration over the last 3 years was used for background ambient CO levels, and was obtained from the closest monitoring station (San Jose–Jackson Street monitoring station). The background 8-hour CO level was 2.18 ppm (CARB 2013b), and the background 1-hour CO level was 2.6 ppm (USEPA 2013).

To evaluate the potential effects of the project on local CO concentrations, the No Build and Build Alternatives were modeled at two locations along the mainline selected to reflect the likely presence of sensitive receptors in both opening year (2015) and horizon year (2035). The highest, most conservative traffic volume between AM and PM peak volumes at these locations was used in the model. Other locations that would be potentially affected by the proposed project are not expected to experience CO concentrations higher than the highest predicted among these two locations. The assumptions used in the hot-spot analysis are consistent with those used in the regional emissions analysis.

Table 3-1 summarizes the 2015 and 2035 traffic volumes at the most congested mainline segments evaluated in the traffic analysis (CDM Smith 2013). Peak-hour travel demand volumes are presented as they represent the worst-case traffic conditions.

Table 3-1 Traffic Volumes at Most Congested Mainline Sections, No Build and Build Alternatives

Segments	Volume per hour			
	No Build (Opening Year, 2015)	Build (Opening Year, 2015)	No Build (Horizon Year, 2035)	Build (Horizon Year, 2035)
US 101, Dunne Avenue to SR 85 (AM)	12,351	12,678	14,937	16,045
US 101, Capitol Expressway to I-880 (AM)	13,945	15,025	16,405	18,374

[6] The EMFAC vehicle fleet distribution is available in the EMFAC output files available in Appendix B.

Notes:
AM = peak AM travel volumes

Emission factors for the vehicles were obtained by running the EMFAC2011 model for Santa Clara County. The CALINE4 model used input parameters (such as wind speed, standard deviation, stability class, temperature adjustment) for the Coastal Valley Region (Nokes and Benson 1985). The ambient temperature (mean minimum temperature plus temperature adjustment) was found to be 46 degrees Fahrenheit (Western Regional Climate Center 2012). The worst wind angle option in CALINE4 was selected to give worst-case CO concentrations. The CALINE4 and EMFAC2011 model outputs are included in Appendix A.

Background CO concentrations were added to the CALINE4 modeled concentration increases to generate total CO concentrations. The maximum 1-hour concentration for each mainline segment was obtained directly from the CALINE4 modeling; the 8-hour concentrations were estimated by multiplying the 1-hour modeled concentrations by a persistence factor of 0.7. This factor generally represents a ratio of 8-hour ambient levels to 1-hour ambient levels and is generally conservative. Table 3-2 presents the worst-case CO concentrations for the No Build and Build Alternatives in both opening year (2015) and horizon year (2035).

A project is considered to have significant impacts if it results in CO concentrations that exceed the 1-hour average State standard of 20 ppm, the 1-hour average Federal standard of 35 ppm and/or the 8-hour average standard of 9.0 ppm. As shown in Table 3-2, the maximum predicted concentrations (including background) at the selected segments are below these standards for both alternatives. These results support the conclusion that the proposed project will not cause or contribute to any new localized CO violations through at least the project study year and RTP planning year of 2040.

Table 3-2 CALINE4 CO Modeling Results for No Build and Build Alternatives, Including Background

	No Build Alternative		Build Alternative	
Segment	CO 1-hour Concentration (ppm)	CO 8-hour Concentration (ppm)	CO 1-hour Concentration (ppm)	CO 8-hour Concentration (ppm)
Opening Year (2015)				
US 101, Dunne Avenue to SR 85 (AM)	5.20	4.00	5.10	3.93
US 101, Capitol Expressway to I-880 (AM)	3.90	3.09	3.70	2.95
Horizon Year (2035)				
US 101, Dunne to SR 85 (AM)	4.30	3.37	4.20	3.30
US 101, Capitol Expressway to I-880 (AM)	3.40	2.74	3.30	2.67

Notes:

(1) NAAQS for 1-hour CO is 35 ppm and CAAQS for 1-hour CO is 20 ppm. NAAQS and CAAQS for 8-hour CO is 9 ppm.
(2) 1-hour and 8-hour background concentrations were obtained from San Jose – Jackson Street station (158 E Jackson St, San Jose CA 95112).
(3) 1-hour background concentration was recorded in 2010 - 2012 and was found to be 2.6 ppm.
(4) 8-hour background concentration was recorded in 2010 -2012 and was found to be 2.18 ppm.
(5) A persistence factor of 0.7 was used to convert modeled 1-hour CO concentration to 8-hour CO concentration.

3.3.3 Qualitative PM "Hot-Spot" Analysis

A quantitative particulate matter hot-spot analysis is required for transportation projects that are determined to be a Project of Air Quality Concern (POAQC) as defined in Title 40 CFR Part 93, funded or approved by the FHWA or the FTA, and in Federal nonattainment or maintenance areas for PM_{10} or $PM_{2.5}$. This project is in an area that is unclassified for the Federal PM_{10} standards, so a PM_{10} hot-spot analysis is not required for project-level conformity purposes.

The USEPA designated the SFBAAB as a Federal nonattainment area for the 35 µg/m3 $PM_{2.5}$ standard, effective December 14, 2009. The BAAQMD submitted an implementation plan for the new Federal standard to CARB on November 7, 2012, for inclusion in the SIP. Even though there is no implementation plan for $PM_{2.5}$, a $PM_{2.5}$ hot-spot analysis is required for any project that is determined to be a POAQC as defined in Title 40 CFR Part 93, because the air basin has been classified as nonattainment under the Federal $PM_{2.5}$ standard. After December 22, 2012, projects requiring detailed PM_{10} or $PM_{2.5}$ analysis must follow the December 20, 2010, Quantitative Analysis Guidance. The USEPA issued a final rule in 2013 stating that the SFBAAB has attained the standard and proposing to suspend implementation plan requirements for the Bay Area. Regardless, for the time being, a $PM_{2.5}$ hot spot analysis is required for any project that is determined to be a POAQC as defined in Title 40 CFR Part 93.

Interagency consultation with the Air Quality Conformity Task Force conducted in November and December 2012 identified the project as a potential POAQC. A $PM_{2.5}$ hot spot analysis was completed for the project (URS 2012). As project construction would not last more than five years at any individual location, the hot spot analysis did not include estimates for construction-related $PM_{2.5}$ emissions. On December 6, 2012 , the Task Force concurred that the project meets the hot spot requirements in 40 CFR 93.116 and 93.126 for $PM_{2.5}$ and that the project will not cause or contribute to a new violation of the federal $PM_{2.5}$ air quality standards. Confirmation was provided, dated December 7, 2013 (MTC 2012; included in Appendix D).

The project will conform with the SIP, including the localized impact analysis conducted with interagency consultation required by 40 CFR 93.116 and 93.123.

3.3.4 Ozone

As stated in Section 2.2.4, the BAAQMD adopted the 2010 CAP to plan for and achieve compliance with the Federal and State O_3 standards. This project will not interfere with the strategy and will provide transportation benefits that reduce pollutant emissions, including precursors to the formation of O_3, by improving traffic operations and efficiency. This project is included in the Bay Area region's RTP (Section 2.2.6), which has undergone regional evaluation for conformity with Federal air quality standards, including O_3.

3.4 CONSTRUCTION IMPACTS

The construction period is estimated at approximately 2 years (commencing in mid-2014 and ending if early 2016, if funding is available). No significant earthmoving or cut and fill operations are anticipated with this project because of the relatively flat terrain and the nature of the project (lane restriping and paving, and installation of signs, power supply, and communications). Regardless, construction activities will generate dust emissions (particulates), and heavy equipment use and off-road equipment and vehicle traffic will generate engine exhaust emissions. Dust emissions would vary from day to day depending on the level of activity, equipment use, and the specific operations. Concentrations of the pollutants emitted will vary at any given location depending on the rate of emissions, proximity of the equipment to a location, and the prevailing weather conditions.

The earth moving operations and equipment use may have a temporary potential to impact local air quality, specifically PM_{10} and $PM_{2.5}$ related to dust and particulates, and combustion emissions from construction equipment, primarily diesel-fueled engines that contribute NO_x, ROG, PM_{10} and CO.

The BAAQMD considers construction activities to be typically short-term or temporary in duration; however, project-generated emissions could represent a significant impact with respect to air quality and/or global climate change. Therefore, BAAQMD requires projects to quantify their construction emissions and compare the total daily average emissions to significance thresholds. The proposed project would involve standard construction techniques and require large-scale construction equipment and labor-intensive activities. The project is anticipated to involve four stages of construction, which are summarized as follows:

- Stage One will include inside widening of US 101 in the median area which involves shifting traffic to the outside, restriping the existing freeway for the traffic shift, and placing K-rail in preparation of the work. Median widening includes construction of retaining walls, concrete barriers, and double thrie beam barriers, inside widening of undercrossing structures, drainage, grading, and all infrastructure work (tolling equipment, overhead signs, etc.).
- Stage Two will include outside widening of US 101 which involves shifting traffic to the inside, restriping the existing freeway for the traffic shift, and placing K-rail in preparation of the outside widening work. Outside widening includes construction of retaining walls and concrete barriers, abutment modifications, outside widening of undercrossing structures, drainage, and grading.
- Stage Three will include ramp widening which involves shifting traffic, restriping the ramps, and placing K-rail in preparation of the ramp work. Ramp widening will include construction of retaining walls and concrete barriers, drainage, and grading.
- Stage Four will include the overlay (as needed) and the final striping for the express lane facility.

If daily average emissions of construction-related criteria air pollutants or precursors would not exceed any of the construction significance thresholds, the project would result in a less-than-significant impact to air quality. If daily average emissions of construction-related criteria air pollutants or precursors would exceed any applicable significance thresholds, the proposed project would result in a significant impact to air quality and would require mitigation measures for emission reductions (BAAQMD 2011). Standard construction air quality control measures are described in Section 4.

The expected emissions resulting from project construction were analyzed using the Sacramento Metropolitan Air Quality Management District's Roadway Construction Emissions Model (Version 7.1.2) with conservative assumptions regarding the duration and scope of construction. The Roadway Construction Emissions Model Version 7.1.2 uses equipment data and emission factors from OFFROAD2011 and EMFAC2011. Appendix B presents the model output. As shown in Table 3-3, the project's construction-related emissions (without any mitigation measures) would be above the BAAQMD CEQA thresholds of significance for construction-related activities for one pollutant, NO_x. All other pollutants either do not have a BAAQMD threshold or the predicted emissions do not exceed the threshold. Section 4 discusses mitigation measures and calculated.

Table 3-3 Unmitigated Construction-Related Emission Estimates for the Build Alternative

	ROG	NOx	CO	PM_{10} Dust	PM_{10} Exhaust	$PM_{2.5}$ Dust	$PM_{2.5}$ Exhaust	CO_2
Construction (lbs/day)	22	**253**	114	283	12	59	10	28,762
BAAQMD CEQA Threshold (lbs/day)	**54**	**54**	**NA**	**BMP**	**82**	**BMP**	**54**	**NA**

Notes: The BAAQMD Adopted Air Quality CEQA Thresholds of Significance (May 2011) do not establish numerical thresholds for certain types of emissions; rather, they call for implementing Best Management Practices (BMPs) as control measures. Control measures are presented in Section 4.
On March 5, 2012 the Alameda County Superior Court issued a judgment finding that the BAAQMD had failed to comply with CEQA when it adopted the thresholds. The court issued a writ of mandate ordering the BAAQMD to set aside the thresholds and cease dissemination of them until the BAAQMD had complied with CEQA. The BAAQMD appealed the Alameda County Superior Court's decision, and the judgment was reversed on August 13, 2013. The court held that BAAQMD's adoption of the 2010 thresholds was not subject to prior environmental review under CEQA. BAAQMD has not released updated guidance since this ruling, so the current BAAQMD recommendation of determining appropriate air quality thresholds of significance based on substantial evidence will be followed. For the purposes of this project, the 2011 CEQA thresholds will be used for the analysis, since the scientific evidence behind the thresholds is still valid.

NA: Not available.

Since the daily average emissions of construction-related criteria air pollutants or precursors would exceed the applicable threshold of significance listed above, the project would implement the mitigation measures listed in Section 4.

These mitigation measures would reduce the daily construction emissions to below the applicable thresholds of significance shown below. Since the mitigated daily average emissions would be below the thresholds, the project would not contribute to significant cumulative impacts.

Table 3-4 Mitigated Construction-Related Emission Estimates for the Build Alternative

	ROG	NOx	CO	PM_{10} Dust	PM_{10} Exhaust	$PM_{2.5}$ Dust	$PM_{2.5}$ Exhaust	CO_2
Construction (lbs/day)	7	53	46	85	3	3	18	9,206
BAAQMD CEQA Threshold (lbs/day)	**54**	**54**	**NA**	**BMP**	**82**	**BMP**	**54**	**NA**

NA: Not available.

3.5 MOBILE SOURCE AIR TOXICS

Mobile Source Air Toxics (MSATs) are a class of compounds emitted from vehicles that may contribute to cancer risks. An assessment of these emissions based on overall vehicle miles traveled showed that some MSAT emissions would slightly decrease with the Build Alternative compared to the No Build Alternative (formaldehyde, acetaldehyde, and naphthalene), but other pollutants would increase (diesel particulate matter, butadiene, benzene, acrolein, and polycyclic organic matter). The emissions for both the No Build and Build Alternatives in 2035 are substantially lower than for existing conditions, and overall would not result in an adverse impact or substantial increase in MSAT emissions. The evaluation of MSAT pollutants is addressed in a separate document (URS 2013).

3.6 CLIMATE CHANGE

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 (CO2) 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 4 below). To the extent that a project relieves congestion by enhancing operations and improving travel times in high congestion travel corridors GHG emissions, particularly CO2, may be reduced.

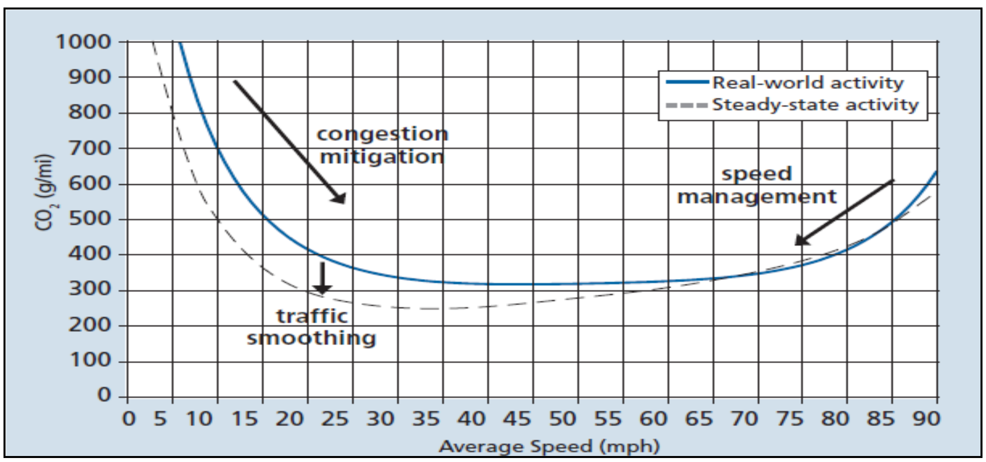


Figure 4. Possible Effect of Traffic Operation Strategies in Reducing On-Road CO_2 Emission[7]

The project focuses on improving traffic operations on US 101 in Santa Clara County. The project would improve traffic flow, reducing or avoiding delays that currently impact US 101 operations. The project considers improvements in speeds even with increased capacity on US 101 as well as increased speeds and decreased traffic volumes on the surround non-highway roads.(compared to the No Build Alternative).

Reductions in delays will also reduce emissions of pollutants, including CO_2, CH_4, and N_2O. The project is also included in the 2013 RTP and 2013 TIP, which contain adopted strategies for greenhouse gas emissions from transportation sources. Specifically, TIP reference number

[7] Traffic Congestion and Greenhouse Gases: Matthew Barth and Kanok Boriboonsomsin (TR News 268 May-June 2010)<http://onlinepubs.trb.org/onlinepubs/trnews/trnews268.pdf>

230550, “Transportation Climate Action Campaign,” is an adopted 5-year program for the Bay Area region involving outreach and education, promotion of safe routes to school and transit, and funding for transit priorities. The adopted TIP also demonstrates that the region will remain below all approved “vehicle emission budgets” through the RTP study year.

Existing, opening year No Build, opening year Build, horizon year No Build, and horizon year Build GHG emissions, represented as CO_2 equivalents (CO_2e)[8], were estimated using the latest EMFAC model (EMFAC2011) for vehicles in Santa Clara County. The vehicle miles traveled (VMT) per day and per year for opening year (2015) and horizon year (2035) would increase throughout the corridor for the Build scenario compared to the No Build scenario. However, the average speeds would increase for the Build scenario compared to the No Build scenario, resulting in a decrease in GHG emissions. Both the Build and No Build Alternatives in opening year and horizon year would have higher GHG emissions than existing conditions (defined as 2009). The speeds used in the emissions model and shown in Table 3-5 represent the worst-case peak hour speeds. The VMT, associated speeds, and CO_2 emissions for years 2009, 2015 and 2035 are presented in Table 3-5. The modeling results are provided in Appendix C.

Table 3-5 Annual GHG Emissions

Scenario	Peak Hour Speeds (mph)	Annual VMT	Annual CO_2e emissions (tonnes/yr)
Existing (2009)	40	2,006,663,369	854,873
No Build (2015)	34	2,215,043,933	2,841,870
Build (2015)	42	2,361,803,950	2,580,166
No Build (2035)	20	2,661,725,366	2,718,944
Build (2035)	24	2,908,991,248	1,732,414

Notes: The EMFAC 2011 model was run for Santa Clara County for year 2009, 2015 and 2035.

It should be noted that the numbers in Table 3-5 are not necessarily an accurate reflection of what the true GHG emissions will be because GHG emissions are dependent on other factors that are not part of the model such as the fuel mix, rate of acceleration, and the aerodynamics and efficiency of the vehicles. EMFAC model emission rates are only for direct engine-out GHG emissions, not full fuel cycle; fuel cycle emission rates can vary dramatically depending on the amount of additives like ethanol and the source of the fuel components. The GHG emissions presented in Table 3-5 are only useful for a comparison between the No Build and Build scenarios and should not be considered independently. Future Build GHG emissions in opening year and horizon year would increase compared to existing conditions. However, the GHG emissions would decrease compared to future No Build emissions in the opening year and horizon year.

[8] Because different GHGs have different individual global warming potential (GWP) values, CO_2e is used to represent the equivalent amount of CO_2 that would have the same total GWP as the given mixture of GHGs.

3.6.1 Construction Emissions

GHG emissions for transportation projects can be divided into those produced during construction and those produced during operations. Construction GHG emissions include emissions produced as a result of material processing, emissions produced by on-site construction equipment, and emissions arising from traffic delays due to construction. These emissions will be produced at different levels throughout the construction phase; their frequency and occurrence can be reduced through innovations in plans and specifications and by implementing better traffic management during construction phases. An analysis of the expected project construction-related GHG emissions was conducted using conservative assumptions regarding duration and scope of construction, as described above. In addition, with innovations such as longer pavement lives, improved traffic management plans, and changes in materials, the GHG emissions produced during construction can be mitigated to some degree by longer intervals between maintenance and rehabilitation events. Measures to reduce construction emissions are listed in Section 4 and include maintenance of construction equipment and vehicles, limiting of construction vehicle idling time, and scheduling and routing of construction traffic to reduce engine emissions.

CEQA Conclusion

While it is Caltrans' determination that in the absence of further regulatory or scientific information related to GHG emissions and CEQA significance, it is too speculative to make a significance determination regarding the project's direct impact and its contribution on the cumulative scale to climate change, Caltrans is firmly committed to implementing measures to help reduce GHG emissions. These measures are outlined in the following section.

3.6.2 Greenhouse Gas Reduction Strategies

Caltrans continues to be involved on the Governor's Climate Action Team as the ARB works to implement Executive Orders S-3-05 and S-01-07 and help achieve the targets set forth in AB 32. Many of the strategies Caltrans is using to help meet the targets in AB 32 come from the Governor Arnold Schwarzenegger's Strategic Growth Plan for California. The Strategic Growth Plan targeted a significant decrease in traffic congestion below 2008 levels and a corresponding reduction in GHG emissions, while accommodating growth in population and the economy. The Strategic Growth Plan relies on a complete systems approach to attain CO2 reduction goals: system monitoring and evaluation, maintenance and preservation, smart land use and demand management, and operational improvements as shown in Figure 5: The Mobility Pyramid.

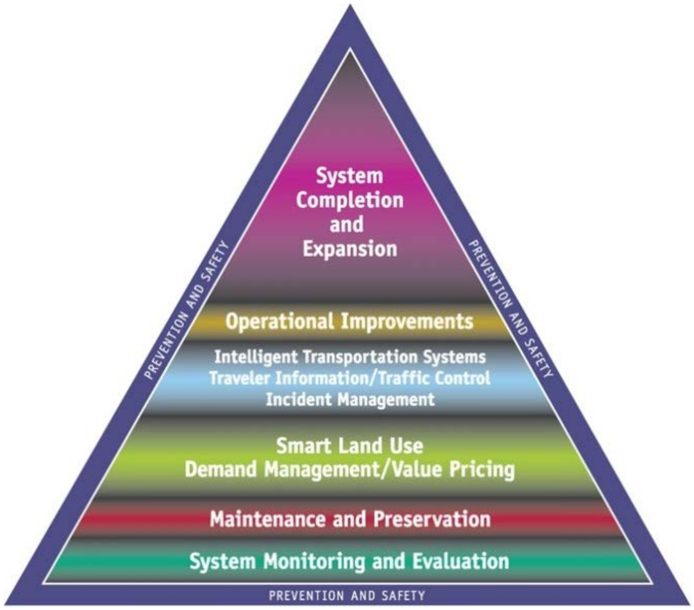


Figure 5 Mobility Pyramid

Caltrans 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. Caltrans works closely with local jurisdictions on planning activities, but does not have local land use planning authority. Caltrans assists efforts to improve the energy efficiency of the transportation sector by increasing vehicle fuel economy in new cars, light and heavy-duty trucks; Caltrans is doing this by supporting ongoing research efforts at universities, by supporting legislative efforts to increase fuel economy, and by its participating the Climate Action Team. It is important to note, however, that control of fuel economy standards is held by the USEPA and ARB. Caltrans is also working towards enhancing the state's transportation planning process to respond to future challenges. Similar to requirements for regional transportation plans under Senate Bill (SB) 375 (Steinberg 2008), SB 391(Liu 2009) requires the state's long-range transportation plan to meet California's climate change goals under Assembly Bill (AB) 32.

The California Transportation Plan (CTP) is a statewide, long-range transportation plan to meet our future mobility needs and reduce greenhouse gas (GHG) emissions. The CTP defines performance-based goals, policies, and strategies to achieve our collective vision for California's future, statewide, integrated, multimodal transportation system.

The purpose of the CTP is to provide a common policy framework that will guide transportation investments and decisions by all levels of government, the private sector, and other transportation stakeholders. Through this policy framework, the CTP 2040 will identify the statewide transportation system needed to achieve maximum feasible GHG emission reductions while meeting the State's transportation needs. Table 3-6 summarizes the Departmental and statewide efforts that Caltrans is implementing to reduce GHG emissions. More detailed information about each strategy is included in the Climate Action Program at Caltrans (December 2006).

Table 3-6 Climate Change/CO_2 Reduction Strategies

Strategy	Program	Partnership		Method/Process	Estimated CO_2 Savings Million Metric Tons (MMT)	
		Lead	Agency		2010	2020
Smart Land Use	Intergovernmental Review (IGR)	Caltrans	Local Governments	Review and seek to mitigate development proposals	Not Estimated	Not Estimated
	Planning Grants	Caltrans	Local and regional agencies & other stakeholders	Competitive selection process	Not Estimated	Not Estimated
	Regional Plans and Blueprint Planning	Regional Agencies	Caltrans	Regional plans and application process	0.975	7.8
Operational Improvements & Intelligent Trans. System (ITS) Deployment	Strategic Growth Plan	Caltrans	Regions	State ITS; Congestion Management Plan	0.07	2.17
Mainstream Energy & GHG into Plans and Projects	Office of Policy Analysis & Research; Division of Environmental Analysis	Interdepartmental effort		Policy establishment, guidelines, technical assistance	Not Estimated	Not Estimated
Educational & Information Program	Office of Policy Analysis & Research	Interdepartmental, CalEPA, CARB, CEC		Analytical report, data collection, publication, workshops, outreach	Not Estimated	Not Estimated
Fleet Greening & Fuel Diversification	Division of Equipment	Department of General Services		Fleet Replacement B20 B100	0.0045	0.0065 0.45 0.0225
Non-vehicular Conservation Measures	Energy Conservation Program	Green Action Team		Energy Conservation Opportunities	0.117	0.34
Portland Cement	Office of Rigid Pavement	Cement and Construction Industries		2.5% limestone cement mix 25% fly ash cement mix > 50% fly ash/slag mix	1.2 0.36	4.2 3.6
Goods Movement	Office of Goods Movement	CalEPA, CARB, BT&H, MPOs		Goods Movement Action Plan	Not Estimated	Not Estimated
Total					2.72	18.18

Notes: BT&H = Business, Transportation and Housing; CalEPA = California Environmental Protection Agency; ARB = California Air Resources Board;CEC = California Energy Commission; MMT = million metric tons; MPOs = Metropolitan Planning Organizations

Caltrans Director's Policy 30 (DP-30) Climate Change (June 22, 2012) is intended to establish a Department policy that will ensure coordinated efforts to incorporate climate change into Departmental decisions and activities.

Caltrans Activities to Address Climate Change (April 2013) provides a comprehensive overview of activities undertaken by Caltrans statewide to reduce greenhouse gas emissions resulting from agency operations.

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

- Caltrans and the California Highway Patrol are working with regional agencies to implement intelligent transportation systems (ITS) to help manage the efficiency of the existing highway system. ITS is commonly referred to as electronics, communications, or information processing used singly or in combination to improve the efficiency or safety of a surface transportation system.
- US 101 and SR 85 are part of the Bay Area high occupancy vehicle lane network, and the MTC and other agencies actively encourage ridesharing (e.g., the "511.org" ridesharing information link provides resources for ride sharing and trip planning). Ridesharing, or carpooling, reduces vehicle trips and their associated emissions.
- The project will utilize energy efficient lighting, which will be defined during final design.

3.6.3 Adaptation Strategies

"Adaptation strategies" refer to how Caltrans and others can plan for the effects of climate change on the state's transportation infrastructure and strengthen or protect the facilities from damage. Climate change is expected to produce increased variability in precipitation, rising temperatures, rising sea levels, storm surges and intensity, and the frequency and intensity of wildfires. These changes may affect the transportation infrastructure in various ways, such as damaging roadbeds by longer periods of intense heat; increasing storm damage from flooding and erosion; and inundation from rising sea levels. These effects will vary by location and may, in the most extreme cases, require that a facility be relocated or redesigned. There may also be economic and strategic ramifications as a result of these types of impacts to the transportation infrastructure.

At the federal level, the Climate Change Adaptation Task Force, co-chaired by the White House Council on Environmental Quality (CEQ), the Office of Science and Technology Policy (OSTP), and the National Oceanic and Atmospheric Administration (NOAA), released its interagency task force progress report on October 28, 2011 , outlining the federal government's progress in expanding and strengthening the Nation's capacity to better understand, prepare for, and respond to extreme events and other climate change impacts. The report provides an update on actions in key areas of federal adaptation, including: building resilience in local communities, safeguarding critical natural resources such as freshwater, and providing accessible climate information and tools to help decision-makers manage climate risks. Climate change adaptation must also involve the natural environment as well. Efforts are underway on a statewide level to develop strategies to cope with impacts to habitat and biodiversity through planning and conservation. The results of these efforts will help California agencies plan and implement mitigation strategies for programs and projects. On November 14, 2008, then-Governor Arnold Schwarzenegger signed EO S-13-08, which directed a number of state agencies to address California's vulnerability to sea level rise caused by climate change. This EO set in motion several agencies and actions to address the concern of sea level rise. In addition to addressing projected sea level rise, the California Natural Resources Agency (Resources Agency) was directed to coordinate with local, regional, state and federal public and private entities to develop The California Climate Adaptation Strategy (Dec 2009) , which summarizes the best-known science on climate change impacts to California, assesses California's vulnerability to the identified impacts, and outlines solutions that can be implemented within and across state agencies to promote resiliency.

The strategy outline is in direct response to EO S-13-08 that specifically asked the Resources Agency to identify how state agencies can respond to rising temperatures, changing precipitation patterns, sea level rise, and extreme natural events. Numerous other state agencies were involved in the creation of the Adaptation Strategy document, including the California Environmental Protection Agency; Business, Transportation and Housing; Health and Human Services; and the Department of Agriculture. The document is broken down into strategies for different sectors that include: Public Health; Biodiversity and Habitat; Ocean and Coastal Resources; Water Management; Agriculture; Forestry; and Transportation and Energy Infrastructure. As data continues to be developed and collected, the state's adaptation strategy will be updated to reflect current findings.

The National Academy of Science was directed to prepare a Sea Level Rise Assessment Report to recommend how California should plan for future sea level rise. The report was released in June 2012 and included:

- Relative sea level rise projections for California, Oregon and Washington taking into account coastal erosion rates, tidal impacts, El Niño and La Niña events, storm surge and land subsidence rates;
- The range of uncertainty in selected sea level rise projections;
- A synthesis of existing information on projected sea level rise impacts to state infrastructure (such as roads, public facilities and beaches), natural areas, and coastal and marine ecosystems;
- A discussion of future research needs regarding sea level rise.

In 2010, interim guidance was released by The Coastal Ocean Climate Action Team (CO-CAT) as well as Caltrans as a method to initiate action and discussion of potential risks to the states infrastructure due to projected sea level rise. Subsequently, CO-CAT updated the Sea Level Rise guidance to include information presented in the National Academies Study. All state agencies that are planning to construct projects in areas vulnerable to future sea level rise are directed to consider a range of sea level rise scenarios for the years 2050 and 2100 to assess project vulnerability and, to the extent feasible, reduce expected risks and increase resiliency to sea level rise. Sea level rise estimates should also be used in conjunction with information on local uplift and subsidence, coastal erosion rates, predicted higher high water levels, storm surge and storm wave data.

All projects that have filed a Notice of Preparation, as of the date of EO S-13-08, and/or are programmed for construction funding from 2008 through 2013, or are routine maintenance projects may, but are not required to, consider these planning guidelines. The proposed project is outside the coastal zone and direct impacts to transportation facilities due to projected sea level rise are not expected.

Executive Order S-13-08 also directed the Business, Transportation, and Housing Agency to prepare a report to assess vulnerability of transportation systems to sea level affecting safety, maintenance and operational improvements of the system and economy of the state. The Department continues to work on assessing the transportation system vulnerability to climate change, including the effect of sea level rise.

Currently, Caltrans is working to assess which transportation facilities are at greatest risk from climate change effects. However, without statewide planning scenarios for relative sea level rise and other climate change effects, Caltrans has not been able to determine what change, if any, may be made to its design standards for its transportation facilities. Once statewide planning scenarios become available, Caltrans will be able review its current design standards to determine what changes, if any, may be needed to protect the transportation system from sea level rise.

Climate change adaptation for transportation infrastructure involves long-term planning and risk management to address vulnerabilities in the transportation system from increased precipitation and flooding; the increased frequency and intensity of storms and wildfires; rising temperatures; and rising sea levels. Caltrans is an active participant in the efforts being conducted in response to EO S-13-08 and is mobilizing to be able to respond to the National Academy of Science Sea Level Rise Assessment Report.

Potential effects of climate change to the project and its immediately surrounding area are unknown. The majority of the project corridor is well inland and unlikely to experience seawater intrusion. Parts of US 101 north of the SR 85/US 101 interchange in Mountain View are within 0.5 mile of San Francisco Bay and could experience seawater intrusion if Bay elevations increased. The Bay Conservation and Development Commission (BCDC) has produced maps projecting potential inundation for two San Francisco Bay water elevation scenarios: a 16-inch sea level rise by midcentury and a 55-inch rise by end of century. The midcentury estimate shows inundation at the shoreline and across several areas of the US 101 corridor in Palo Alto and Mountain View. The end of century estimate shows inundation of the entire US 101 corridor in Palo Alto and Mountain View (BCDC 2009). Preventing inundation of the magnitude estimated for end of century would require an overall increase in the elevation of US 101 and connecting local roads. Climate change scenarios of a lesser magnitude, similar to the midcentury estimate or less, could still result in impacts to the facility. Impacts could include, for example, increased runoff potentially requiring drainage improvements, or increased life-cycle costs for roadway maintenance from increased summer heat intensity or wintertime rainfall and runoff.

Caltrans Special Provisions and Standard Specifications will include the requirement to minimize or eliminate dust through the application of water or dust palliatives. Implementation of the measures below could further minimize air quality emissions during construction. Control measures will be implemented as specified in Caltrans Standard Specifications, Section 14-9.01 "Air Pollution Control" and Section 14-9.02 "Dust Control." Temporary construction-related impacts to air quality will be avoided or minimized through implementation of the following measures:

- Water all active construction areas daily.
- Cover all trucks hauling soil, sand, and other loose materials *or* require all trucks to maintain at least 2 feet of freeboard.
- Pave, apply water daily, or apply (nontoxic) soil stabilizers on all unpaved access roads, parking areas and staging areas at construction sites.
- Sweep daily (with water sweepers) all paved access roads, parking areas and staging areas at construction sites.
- Sweep streets adjacent to active construction areas daily (with water sweepers) if visible soil material is carried onto adjacent public streets.
- Hydroseed or apply (nontoxic) soil stabilizers to inactive construction areas (previously graded areas inactive for ten days or more).
- Enclose, cover, water twice daily or apply (nontoxic) soil binders to exposed stockpiles (dirt, sand, etc.)
- Limit traffic speeds on unpaved roads to 15 mph.
- Install sandbags or other erosion control measures at active construction areas to prevent silt runoff to public roadways.
- Replant vegetation in disturbed areas as quickly as possible.

In addition, pollutant emissions in construction equipment exhaust can be mitigated by the following:

- Keep engines properly tuned;
- Limit idling
- Avoid unnecessary concurrent use of equipment.
- Use solar and battery powered signal boards.
- Limit the construction activities to no more than 30% of total activities at any given time.
- Use post-combustion control technology (such as diesel oxidation catalysts) that will reduce NOx emissions by at least 15%.

BAAQMD. 2010. *Bay Area Clean Air Plan 2010*. Bay Area Air Quality Management District. Adopted September.

BAAQMD. 2011. *California Environmental Quality Act. Air Quality Guidelines*. Bay Area Air Quality Management District. May.

BAAQMD. 2012a. *California Environmental Quality Act. Air Quality Guidelines*. Bay Area Air Quality Management District. May.

BAAQMD. 2013a. Ambient Air Quality Standards and Bay Area Attainment Status. Bay Area Air Quality Management District. URL: http://hank.baaqmd.gov/pln/air_quality/ambient_air_quality.htm . Accessed October 2013.

BAAQMD. 2013b. Particulate Matter (PM) Planning. URL: http://www.baaqmd.gov/Divisions/Planning-and-Research/Plans/PM-Planning.aspx. Accessed September 2013.

BCDC. 2009. URL: http://www.bcdc.ca.gov/planning/climate_change/index_map.shtml. Accessed June 28, 2012

Caltrans. 2006. Climate Action Program at Caltrans. California Department of Transportation. December. URL: http://www.dot.ca.gov/docs/climatereport.pdf.

CARB. 1996. Rulemaking 1996 04-25 Res. 96-13-CO Maintenance Plan. California Air Resources Board. URL: http://www.arb.ca.gov/planning/sip/co/1996_co_bd_resolution.pdf. Posted July 2002.

CARB. 2004. Revision to the California State Implementation. Plan for Carbon Monoxide – Updated Maintenance Plan for Ten Federal Planning Areas. California Air Resources Board. URL: http://www.arb.ca.gov/planning/sip/co/part2.pdf. Posted September 2007.

CARB. 2005a. *The California Almanac of Emissions and Air Quality*. California Air Resources Board.

CARB. 2005b. *Air Quality and Land Use Handbook: A Community Health Perspective.* California Air Resources Board. March.

CARB. 2013a. *California Ambient Air Quality Standards (CAAQS).*URL: http://www.arb.ca.gov/research/aaqs/aaqs2.pdf. Updated June 2013

CARB. 2013b. Air Monitoring Data. URL: http://www.arb.ca.gov/adam/topfour/topfour1.php, Accessed September 2013.

California Natural Resources Agency. 2009. *2009 California Climate Change Adaptation Strategy.* http://resources.ca.gov/climate_adaptation/docs/Statewide_Adaptation_Strategy.pdf

Center for Clean Air Policy. 2004. http://www.ccap.org/Presentations/Winkelman%20TRB%202004%20(1-13-04).pdf

ABAG and MTC 2013. Plan Bay Area: Strategy for a Sustainable Region. Approved July 18, 2013.

CDM Smith. 2013. US 101 Express Lanes, Technical Memorandum,Forecasted Travel Demand. (and subsequent traffic data updates provided to URS). November 2013.

FHWA and USEPA. 2006. Transportation Conformity Guidance for Qualitative Hot-spot Analyses in $PM_{2.5}$ and PM_{10} Nonattainment and Maintenance Areas. Federal Highway Administration, and U.S. Environmental Protection Agency.

Garza, V.J., P. Graney, and D. Sperling. 1997. Transportation Project-Level Carbon Monoxide Protocol. Institute of Transportation Studies, University of California, Davis, Research Report UCD-ITS-RR-97-21.

Hendrix, M. and Wilson, C. 2007. *Alternative Approaches to Analyzing Greenhouse Gas Emissions and Global Climate Change in CEQA Documents*. June. URL: http://www.califaep.org/content.asp?pid=81.

MTC. 2010a. *2011 Transportation Improvement Program for the Nine County San Francisco Bay Area*. Metropolitan Transportation Commission. August.

MTC 2010b. *Transportation-Air Quality Conformity Analysis for the Transportation 2035 Plan & 2011 Transportation Improvement Program.* URL: http://mtc.ca.gov/planning/air_quality/T2035_and_2011_TIP_Final_Conformity_Report.pdf.

Nokes, W. W. and Benson, P. E. 1985. *Development of Worst Case Meteorology Criteria*, Prepared for Caltrans, FHWA/CA/TL-85/14, November.

URS Corporation. 2012. *$PM_{2.5}$ Hot Spot Analysis.* US 101 Express Lanes Project, Santa Clara County, California. Prepared for State of California Department of Transportation and Santa Clara Valley Transportation Authority. November.

URS Corporation. 2013. *Mobile Source Air Toxics.* US 101 Express Lanes Project, Santa Clara County. Prepared for State of California Department of Transportation and Santa Clara Valley Transportation Authority. February.

USEPA. 2010. Notice of Intent to Establish 2017 and Later Model Year Light-Duty Vehicle Greenhouse Gas Emissions and CAFÉ Standards. United States Environmental Protection Agency. URL: http://www.epa.gov/otaq/climate/regulations.htm.

USEPA. 2013. Air Monitoring Data. United States Environmental Protection Agency. URL: http://www.epa.gov/airdata/ad_rep_mon.html. Accessed September 2013.

VTA. 2009. Valley Transportation Plan 2035. Santa Clara Valley Transportation Authority. Adopted January 2009. URL: http://www.vta.org/studies/vtp2035/index.html.

Western Regional Climate Center. 2012. URL: http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca7864. Accessed October 2012.

Appendix A
EMFAC 2011 and CO Modeling Results

Mainline CO Analysis - US 101 Express Lanes

Model: Evening - (Wind Speed :1.0 m/s, stdev 5 deg, Stability Class 7, 9 C)

US 101 Express Lanes - Caline4 Model Input and Result

Year	2015		2035	
Mainline Section	**Capitol to I880**	**Dunne to SR 85**	**Capitol to I880**	**Dunne to SR 85**
AM/PM	AM	AM	AM	AM
No Build (vph) - Total	13,945	12,351	16,405	14,937
Build (vph) - Total	15,025	12,678	18,374	16,045
Caline Result - No Build (ppm)	1.3	2.6	0.8	1.7
Caline Result - Build (ppm)	1.1	2.5	0.7	1.6
Background CO 1hr (ppm)	2.60	2.60	2.60	2.60
Background CO 8hr (ppm)	2.18	2.18	2.18	2.18
1- hr concentration - No Build (ppm)	3.90	5.20	3.40	4.30
1- hr concentration - Build (ppm)	3.70	5.10	3.30	4.20
8-hr concentration - No Build (ppm)	3.09	4.00	2.74	3.37
8-hr concentration - Build (ppm)	2.95	3.93	2.67	3.30

Note: Background CO was taken from San Jose Jackson Street station (second highest data from the last three years)

US 101 - Capitol to I880 Activity

Year	Peak Period	Case	Direction	VPH	Speed	CO EF (g/mi)
2015	AM	No Build	All	13,945	24	2.1149
2015	AM	Build	All	15,025	37	1.684188
2035	AM	No Build	All	16,405	15	1.063211
2035	AM	Build	All	18,374	20	0.940383

US 101 - Dunne to SR 85

Year	Peak Period	Case	Direction	VPH	Speed	CO EF (g/mi)
2015	AM	No Build	All	12,351	41	1.603891
2015	AM	Build	All	12,678	46	1.537462
2035	AM	No Build	All	14,937	25	0.859793
2035	AM	Build	All	16,045	32	0.771921

Region Ty	Region	CalYr	Season	Veh	Fuel	Veh & Tech	MdlYr	Speed	ROG_RUNEX	TOG_RUNEX	CO_RUNEX	NOx_RUNEX	CO2_RUNEX	CO2(Pavley I +	PM10_RUNEX	PM2_5_RUNEX	SOx_RUNEX
County	Santa Clara	2015	Annual	AllVehicles Combined	TOT	AllVehicles Combined - TOT	AllMYr	5 MPH	0.374800546	0.501467988	3.755199181	1.099622732	1389.966543	1240.364132	0.026235539	0.024136315	0.004472393
County	Santa Clara	2015	Annual	AllVehicles Combined	TOT	AllVehicles Combined - TOT	AllMYr	10 MPH	0.251008503	0.332430084	3.159292286	0.861294064	1044.545089	933.6452661	0.018566132	0.017075399	0.004472393
County	Santa Clara	2015	Annual	AllVehicles Combined	TOT	AllVehicles Combined - TOT	AllMYr	15 MPH	0.165808018	0.219748743	2.667151724	0.678559013	806.7200792	721.2417535	0.013140842	0.012082493	0.004472393
County	Santa Clara	2015	Annual	AllVehicles Combined	TOT	AllVehicles Combined - TOT	AllMYr	20 MPH	0.113547306	0.151024188	2.314163514	0.559191161	643.150472	574.8444067	0.0094185	0.008657595	0.004472393
County	Santa Clara	2015	Annual	AllVehicles Combined	TOT	AllVehicles Combined - TOT	AllMYr	25 MPH	0.089543913	0.118001202	2.065083833	0.516481379	539.640023	482.8347865	0.007692698	0.00706997	0.004472393
County	Santa Clara	2015	Annual	AllVehicles Combined	TOT	AllVehicles Combined - TOT	AllMYr	30 MPH	0.073848368	0.096539211	1.875132234	0.48422736	469.3650533	420.332664	0.00656487	0.006032572	0.004472393
County	Santa Clara	2015	Annual	AllVehicles Combined	TOT	AllVehicles Combined - TOT	AllMYr	35 MPH	0.063672186	0.082646375	1.727991297	0.462569845	422.2114888	378.3647122	0.0058767	0.005399591	0.004472393
County	Santa Clara	2015	Annual	AllVehicles Combined	TOT	AllVehicles Combined - TOT	AllMYr	40 MPH	0.05739644	0.074081721	1.618483908	0.449219129	393.1300236	352.440166	0.005539543	0.005089396	0.004472393
County	Santa Clara	2015	Annual	AllVehicles Combined	TOT	AllVehicles Combined - TOT	AllMYr	45 MPH	0.054282501	0.069696465	1.545517834	0.44321468	379.017829	339.8053669	0.00550217	0.005054806	0.004472393
County	Santa Clara	2015	Annual	AllVehicles Combined	TOT	AllVehicles Combined - TOT	AllMYr	50 MPH	0.054018682	0.068921225	1.505237474	0.445563636	377.5160111	338.3825249	0.005736621	0.00527005	0.004472393
County	Santa Clara	2015	Annual	AllVehicles Combined	TOT	AllVehicles Combined - TOT	AllMYr	55 MPH	0.056385575	0.071681222	1.50637965	0.458672733	389.5790619	349.0048677	0.006231141	0.005724244	0.004472393
County	Santa Clara	2015	Annual	AllVehicles Combined	TOT	AllVehicles Combined - TOT	AllMYr	60 MPH	0.062407057	0.078919622	1.562419016	0.477729641	415.0365996	371.5444888	0.006975179	0.00640754	0.004472393
County	Santa Clara	2015	Annual	AllVehicles Combined	TOT	AllVehicles Combined - TOT	AllMYr	65 MPH	0.072265167	0.090959877	1.689621625	0.492509261	459.0165265	410.5145187	0.007887914	0.007245492	0.004472393
County	Santa Clara	2015	Annual	AllVehicles Combined	TOT	AllVehicles Combined - TOT	AllMYr	70 MPH	0.097276834	0.119844867	2.189106755	0.569470954	502.8551181	444.7249722	0.009182381	0.008429779	0.004472393

INTERPOLATED SPEED VALUES

Region Ty	Region	CalYr	Season	Veh	Fuel	Veh & Tech	MdlYr	Speed	ROG_RUNEX	TOG_RUNEX	CO_RUNEX	NOx_RUNEX	CO2_RUNEX	CO2(Pavley I +	PM10_RUNEX	PM2_5_RUNEX	SOx_RUNEX
Capitol to I880 - No Build																	
County	Santa Clara	2015	Annual	AllVehicles Combined	TOT	AllVehicles Combined - TOT	AllMYr	20 MPH	0.113547306	0.151024188	2.314163514	0.559191161	643.150472	574.8444067	0.0094185	0.008657595	0.004472393
County	Santa Clara	2015	Annual	AllVehicles Combined	TOT	AllVehicles Combined - TOT	AllMYr	25 MPH	0.089543913	0.118001202	2.065083833	0.516481379	539.640023	482.8347865	0.007692698	0.00706997	0.004472393
							Interpolated EF:	24 MPH	0.094344591	0.124605799	2.114899769	0.525023335	560.3421128	501.2367106	0.008037859	0.007387495	0.004472393
Capitol to I880 - Build																	
County	Santa Clara	2015	Annual	AllVehicles Combined	TOT	AllVehicles Combined - TOT	AllMYr	35 MPH	0.063672186	0.082646375	1.727991297	0.462569845	422.2114888	378.3647122	0.0058767	0.005399591	0.004472393
County	Santa Clara	2015	Annual	AllVehicles Combined	TOT	AllVehicles Combined - TOT	AllMYr	40 MPH	0.05739644	0.074081721	1.618483908	0.449219129	393.1300236	352.440166	0.005539543	0.005089396	0.004472393
							Interpolated EF:	37 MPH	0.061161888	0.079220513	1.684188341	0.457229558	410.5789027	367.9948937	0.005741837	0.005275513	0.004472393
Dunne to SR 85 - No Build																	
County	Santa Clara	2015	Annual	AllVehicles Combined	TOT	AllVehicles Combined - TOT	AllMYr	40 MPH	0.05739644	0.074081721	1.618483908	0.449219129	393.1300236	352.440166	0.005539543	0.005089396	0.004472393
County	Santa Clara	2015	Annual	AllVehicles Combined	TOT	AllVehicles Combined - TOT	AllMYr	45 MPH	0.054282501	0.069696465	1.545517834	0.44321468	379.017829	339.8053669	0.00550217	0.005054806	0.004472393
							Interpolated EF:	41 MPH	0.056773652	0.07320467	1.603890693	0.448018239	390.3075847	349.9132062	0.005532068	0.005082478	0.004472393
Dunne to SR 85 - Build																	
County	Santa Clara	2015	Annual	AllVehicles Combined	TOT	AllVehicles Combined - TOT	AllMYr	45 MPH	0.054282501	0.069696465	1.545517834	0.44321468	379.017829	339.8053669	0.00550217	0.005054806	0.004472393
County	Santa Clara	2015	Annual	AllVehicles Combined	TOT	AllVehicles Combined - TOT	AllMYr	50 MPH	0.054018682	0.068921225	1.505237474	0.445563636	377.5160111	338.3825249	0.005736621	0.00527005	0.004472393
							Interpolated EF:	46 MPH	0.054229737	0.069541417	1.537461762	0.443684471	378.7174654	339.5207985	0.00554906	0.005097855	0.004472393

Region_Type	Region	CalYr	Season	Veh	Fuel	Veh & Tech	MdlYr	Speed	ROG_RUNEX	TOG_RUNEX	CO_RUNEX	NOx_RUNEX	CO2_RUNEX	CO2(Pavley I + L(	PM10_RUNEX	PM2_5_RUNEX	SOx_RUNEX
County	Santa Clara	2035	Annual	AllVehicles Combined	TOT	AllVehicles Combined - TOT	AllMYr	5 MPH	0.183749451	0.251815098	1.416307214	0.389601844	1409.400885	959.3694659	0.016634401	0.015401972	0.004546
County	Santa Clara	2035	Annual	AllVehicles Combined	TOT	AllVehicles Combined - TOT	AllMYr	10 MPH	0.119648412	0.162742012	1.226571346	0.314555111	1061.325399	726.9663967	0.011573695	0.010709718	0.004546
County	Santa Clara	2035	Annual	AllVehicles Combined	TOT	AllVehicles Combined - TOT	AllMYr	15 MPH	0.074974639	0.102896536	1.063210806	0.253092043	820.8869542	563.0045506	0.008416718	0.007784485	0.004546
County	Santa Clara	2035	Annual	AllVehicles Combined	TOT	AllVehicles Combined - TOT	AllMYr	20 MPH	0.048269103	0.067156511	0.940383174	0.208191122	654.2299801	448.2366074	0.00642	0.005935181	0.004546
County	Santa Clara	2035	Annual	AllVehicles Combined	TOT	AllVehicles Combined - TOT	AllMYr	25 MPH	0.039277081	0.053649611	0.859793155	0.188935474	550.4487503	378.8252632	0.005233822	0.004836373	0.004546
County	Santa Clara	2035	Annual	AllVehicles Combined	TOT	AllVehicles Combined - TOT	AllMYr	30 MPH	0.033348216	0.044856691	0.793879069	0.173853063	479.7979965	331.435393	0.004527087	0.004181478	0.004546
County	Santa Clara	2035	Annual	AllVehicles Combined	TOT	AllVehicles Combined - TOT	AllMYr	35 MPH	0.029500648	0.039173052	0.738984842	0.162909253	432.244477	299.4184161	0.004149168	0.003830839	0.004546
County	Santa Clara	2035	Annual	AllVehicles Combined	TOT	AllVehicles Combined - TOT	AllMYr	40 MPH	0.027216946	0.035767455	0.695757999	0.15531831	402.7865068	279.4468448	0.004015202	0.003705776	0.004546
County	Santa Clara	2035	Annual	AllVehicles Combined	TOT	AllVehicles Combined - TOT	AllMYr	45 MPH	0.026275809	0.034218839	0.664847681	0.150843985	388.3495067	269.4873317	0.004077339	0.003761928	0.004546
County	Santa Clara	2035	Annual	AllVehicles Combined	TOT	AllVehicles Combined - TOT	AllMYr	50 MPH	0.026603806	0.034378946	0.644954534	0.149797645	386.5899246	268.0161983	0.004310313	0.003975876	0.004546
County	Santa Clara	2035	Annual	AllVehicles Combined	TOT	AllVehicles Combined - TOT	AllMYr	55 MPH	0.028388999	0.036393898	0.641104333	0.152785626	398.4652661	275.6476882	0.00470441	0.00433862	0.004546
County	Santa Clara	2035	Annual	AllVehicles Combined	TOT	AllVehicles Combined - TOT	AllMYr	60 MPH	0.032096101	0.040770479	0.658074316	0.160158338	423.825381	292.3266072	0.005278958	0.004867968	0.004546
County	Santa Clara	2035	Annual	AllVehicles Combined	TOT	AllVehicles Combined - TOT	AllMYr	65 MPH	0.038163655	0.048138661	0.70506624	0.160491813	467.7819689	321.3739137	0.005940037	0.005477648	0.004546
County	Santa Clara	2035	Annual	AllVehicles Combined	TOT	AllVehicles Combined - TOT	AllMYr	70 MPH	0.049153395	0.061438986	0.899457968	0.180721294	510.6087977	348.8265248	0.006658614	0.006139811	0.004546

INTERPOLATED SPEED VALUES

Region_Type	Region	CalYr	Season	Veh	Fuel	Veh & Tech	MdlYr	Speed	ROG_RUNEX	TOG_RUNEX	CO_RUNEX	NOx_RUNEX	CO2_RUNEX	CO2(Pavley I + L(	PM10_RUNEX	PM2_5_RUNEX	SOx_RUNEX
Capitol to I880 - No Build																	
County	Santa Clara	2035	Annual	AllVehicles Combined	TOT	AllVehicles Combined - TOT	AllMYr	15 MPH	0.074974639	0.102896536	1.063210806	0.253092043	820.8869542	563.0045506	0.008416718	0.007784485	0.004546
County	Santa Clara	2035	Annual	AllVehicles Combined	TOT	AllVehicles Combined - TOT	AllMYr	20 MPH	0.048269103	0.067156511	0.940383174	0.208191122	654.2299801	448.2366074	0.00642	0.005935181	0.004546
							Interpolated EF:	15 MPH	0.074974639	0.102896536	1.063210806	0.253092043	820.8869542	563.0045506	0.008416718	0.007784485	0.004546
Capitol to I880 - Build																	
County	Santa Clara	2035	Annual	AllVehicles Combined	TOT	AllVehicles Combined - TOT	AllMYr	20 MPH	0.048269103	0.067156511	0.940383174	0.208191122	654.2299801	448.2366074	0.00642	0.005935181	0.004546
County	Santa Clara	2035	Annual	AllVehicles Combined	TOT	AllVehicles Combined - TOT	AllMYr	25 MPH	0.039277081	0.053649611	0.859793155	0.188935474	550.4487503	378.8252632	0.005233822	0.004836373	0.004546
							Interpolated EF:	20 MPH	0.048269103	0.067156511	0.940383174	0.208191122	654.2299801	448.2366074	0.00642	0.005935181	0.004546
Dunne to SR 85 - No Build																	
County	Santa Clara	2035	Annual	AllVehicles Combined	TOT	AllVehicles Combined - TOT	AllMYr	25 MPH	0.039277081	0.053649611	0.859793155	0.188935474	550.4487503	378.8252632	0.005233822	0.004836373	0.004546
County	Santa Clara	2035	Annual	AllVehicles Combined	TOT	AllVehicles Combined - TOT	AllMYr	30 MPH	0.033348216	0.044856691	0.793879069	0.173853063	479.7979965	331.435393	0.004527087	0.004181478	0.004546
							Interpolated EF:	25 MPH	0.039277081	0.053649611	0.859793155	0.188935474	550.4487503	378.8252632	0.005233822	0.004836373	0.004546
Dunne to SR 85 - Build																	
County	Santa Clara	2035	Annual	AllVehicles Combined	TOT	AllVehicles Combined - TOT	AllMYr	30 MPH	0.033348216	0.044856691	0.793879069	0.173853063	479.7979965	331.435393	0.004527087	0.004181478	0.004546
County	Santa Clara	2035	Annual	AllVehicles Combined	TOT	AllVehicles Combined - TOT	AllMYr	35 MPH	0.029500648	0.039173052	0.738984842	0.162909253	432.244477	299.4184161	0.004149168	0.003830839	0.004546
							Interpolated EF:	32 MPH	0.031809189	0.042583236	0.771921378	0.169475539	460.7765887	318.6286022	0.004375919	0.004041223	0.004546

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Capitol to I-880 NB 2015
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTAN Carbon Monoxide

I. SITE VARIABLES

U=	1	M/S	Z0=	100	CM	ALT=	0 (M)
BRG=	WORST	CASE	VD=	0	CM/S		
CLAS=	7	(G)	VS=	0	CM/S		
MIXH=	1000	M	AMB=	0	PPM		
SIGTH=	5	DEGREES	TEMP=	7.8	DEGREE	(C)	

II. LINK VARIABLES

LINK * LINK COORDINATES (M) * EF H W
DESCRIPTI * X1 Y1 X2 Y2 * TYPE VPH (G/MI) (M) (M)
----------------*-------------------------*------------------------------

A.	Link	A	*	64866	29179	60292	34922	*	AG	13945	2.1	0	20
B.	Link	B	*	60292	34922	59409	35542	*	AG	13945	2.1	0	20
C.	Link	C	*	59409	35542	57277	35841	*	AG	13945	2.1	0	20

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Capitol to I-880 NB 2015
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

* RECEPTOR	*	COORDINATES (M) X	Y	Z
1	Recpt 1 *	57280	35769	1.8
2	Recpt 2 *	59293	35501	1.8
3	Recpt 3 *	60232	34890	1.8
4	Recpt 4 *	60950	34017	1.8
5	Recpt 5 *	61732	33021	1.8
6	Recpt 6 *	62538	32015	1.8
7	Recpt 7 *	63206	31172	1.8
8	Recpt 8 *	63785	30459	1.8
9	Recpt 9 *	64357	29717	1.8
10	Recpt 10 *	64795	29127	1.8
11	Recpt 11 *	64924	29201	1.8
12	Recpt 12 *	64444	29772	1.8
13	Recpt 13 *	63880	30504	1.8
14	Recpt 14 *	63306	31221	1.8
15	Recpt 15 *	62642	32050	1.8
16	Recpt 16 *	61818	33052	1.8
17	Recpt 17 *	61054	34040	1.8
18	Recpt 18 *	60311	34932	1.8
19	Recpt 19 *	59301	35633	1.8
20	Recpt 20 *	57306	35910	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Capitol to I-880 NB 2015
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

*	* BRG	PRED *	* CONC	CONC/LINK *	(PPM)					
RECEPTOR	*	(DEG)	*	(PPM)	*	A	B	C		
1	Recpt	1	*	91	*	0.5	*	0	0	0.5
2	Recpt	2	*	285	*	0.5	*	0	0	0.5
3	Recpt	3	*	135	*	0.5	*	0.5	0	0
4	Recpt	4	*	328	*	0.6	*	0.5	0	0
5	Recpt	5	*	328	*	0.6	*	0.5	0	0
6	Recpt	6	*	327	*	0.6	*	0.6	0	0
7	Recpt	7	*	327	*	0.6	*	0.6	0	0
8	Recpt	8	*	327	*	0.7	*	0.7	0	0
9	Recpt	9	*	327	*	0.6	*	0.6	0	0
10	Recpt	10	*	328	*	0.5	*	0.5	0	0
11	Recpt	11	*	316	*	0.7	*	0.6	0	0.1
12	Recpt	12	*	316	*	0.8	*	0.8	0	0.1
13	Recpt	13	*	316	*	0.7	*	0.6	0	0.1
14	Recpt	14	*	316	*	0.7	*	0.6	0	0.1
15	Recpt	15	*	316	*	0.7	*	0.6	0	0.1
16	Recpt	16	*	317	*	1	*	0.9	0.1	0
17	Recpt	17	*	315	*	0.8	*	0.6	0.2	0
18	Recpt	18	*	299	*	1.3	*	0	1.1	0.2
19	Recpt	19	*	128	*	1.2	*	0.2	0.9	0.1
20	Recpt	20	*	106	*	0.6	*	0	0.1	0.5

CALINE4:	CALIFORNIA	LINE	SOURCE	DISPERSION	MODEL										
JUNE	1989	VERSION													
PAGE	1														
JOB:	Capitol	to	I-880	B	2015										
RUN:	Hour	1	(WORST	CASE	ANGLE)										
POLLUTANT:	Carbon	Monoxide													
I.	SITE	VARIABLES													
U=	1	M/S	Z0=	100	CM	ALT=	0	(M)							
BRG=	WORST	CASE	VD=	0	CM/S										
CLAS=	7	(G)	VS=	0	CM/S										
MIXH=	1000	M	AMB=	0	PPM										
SIGTH=	5	DEGREES	TEMP=	7.8	DEGREE	(C)									
II.	LINK	VARIABLES													
LINK	*	LINK	COORDINATES	(M)	*	EF	H	W							
DESCRIPTION	*	X1	Y1	X2	Y2	*	TYPE	VPH	(G/MI)	(M)	(M)				
----------------*-------------------------*------------------------------															
A.	Link	A	*	64866	29179	60292	34922	*	AG	15025	1.7	0	20		
B.	Link	B	*	60292	34922	59409	35542	*	AG	15025	1.7	0	20		
C.	Link	C	*	59409	35542	57277	35841	*	AG	15025	1.7	0	20		

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Capitol to I-880 B 2015
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

*	COORDINATES (M)				
RECEPTOR	*	X	Y	Z	
1	Recpt	1 *	57280	35769	1.8
2	Recpt	2 *	59293	35501	1.8
3	Recpt	3 *	60232	34890	1.8
4	Recpt	4 *	60950	34017	1.8
5	Recpt	5 *	61732	33021	1.8
6	Recpt	6 *	62538	32015	1.8
7	Recpt	7 *	63206	31172	1.8
8	Recpt	8 *	63785	30459	1.8
9	Recpt	9 *	64357	29717	1.8
10	Recpt	10 *	64795	29127	1.8
11	Recpt	11 *	64924	29201	1.8
12	Recpt	12 *	64444	29772	1.8
13	Recpt	13 *	63880	30504	1.8
14	Recpt	14 *	63306	31221	1.8
15	Recpt	15 *	62642	32050	1.8
16	Recpt	16 *	61818	33052	1.8
17	Recpt	17 *	61054	34040	1.8
18	Recpt	18 *	60311	34932	1.8
19	Recpt	19 *	59301	35633	1.8
20	Recpt	20 *	57306	35910	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Capitol to I-880 B 2015
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

*	*	PRED	*	CONC/LINK						
*	BRG	*	CONC	*	(PPM)					
RECEPTOR	*	(DEG)	*	(PPM)	*	A	B	C		
-------------*-------*-------*---------------										
1	Recpt	1	*	91	*	0.4	*	0	0	0.4
2	Recpt	2	*	285	*	0.5	*	0	0	0.5
3	Recpt	3	*	135	*	0.5	*	0.5	0	0
4	Recpt	4	*	328	*	0.5	*	0.5	0	0
5	Recpt	5	*	328	*	0.5	*	0.5	0	0
6	Recpt	6	*	327	*	0.5	*	0.5	0	0
7	Recpt	7	*	327	*	0.5	*	0.5	0	0
8	Recpt	8	*	327	*	0.6	*	0.6	0	0
9	Recpt	9	*	327	*	0.5	*	0.5	0	0
10	Recpt	10	*	328	*	0.4	*	0.4	0	0
11	Recpt	11	*	316	*	0.6	*	0.5	0	0
12	Recpt	12	*	316	*	0.7	*	0.6	0	0.1
13	Recpt	13	*	316	*	0.6	*	0.5	0	0.1
14	Recpt	14	*	316	*	0.6	*	0.5	0	0.1
15	Recpt	15	*	316	*	0.6	*	0.5	0	0
16	Recpt	16	*	317	*	0.8	*	0.7	0.1	0
17	Recpt	17	*	315	*	0.6	*	0.5	0.1	0
18	Recpt	18	*	299	*	1.1	*	0	1	0.1
19	Recpt	19	*	128	*	1	*	0.1	0.8	0.1
20	Recpt	20	*	106	*	0.5	*	0	0.1	0.4

CALINE4:	CALIFORNIA	LINE	SOURCE	DISPERSION	MODEL		
JUNE	1989	VERSION					
PAGE	1						
JOB:	Capitol	to	I-880	NB	2035		
RUN:	Hour	1	(WORST	CASE	ANGLE)		
POLLUTANT:	Carbon	Monoxide					

I. SITE VARIABLES

U=	1	M/S	Z0=	100	CM	ALT=	0	(M)
BRG=	WORST	CASE	VD=	0	CM/S			
CLAS=	7	(G)	VS=	0	CM/S			
MIXH=	1000	M	AMB=	0	PPM			
SIGTH=	5	DEGREES	TEMP=	7.8	DEGREE	(C)		

II. LINK VARIABLES

LINK	*	LINK	COORDINATES	(M)	*	EF	H	W					
DESCRIPTION	*	X1	Y1	X2	Y2	*	TYPE	VPH	(G/MI)	(M)	(M)		
----------------*-------------------------*------------------------------													
A.	Link	A	*	64866	29179	60292	34922	*	AG	16405	1.1	0	20
B.	Link	B	*	60292	34922	59409	35542	*	AG	16405	1.1	0	20
C.	Link	C	*	59409	35542	57277	35841	*	AG	16405	1.1	0	20

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Capitol to I-880 NB 2035
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

*	COORDINATES (M)			
RECEPTOR	*	X	Y	Z
1 Recpt	1 *	57280	35769	1.8
2 Recpt	2 *	59293	35501	1.8
3 Recpt	3 *	60232	34890	1.8
4 Recpt	4 *	60950	34017	1.8
5 Recpt	5 *	61732	33021	1.8
6 Recpt	6 *	62538	32015	1.8
7 Recpt	7 *	63206	31172	1.8
8 Recpt	8 *	63785	30459	1.8
9 Recpt	9 *	64357	29717	1.8
10 Recpt	10 *	64795	29127	1.8
11 Recpt	11 *	64924	29201	1.8
12 Recpt	12 *	64444	29772	1.8
13 Recpt	13 *	63880	30504	1.8
14 Recpt	14 *	63306	31221	1.8
15 Recpt	15 *	62642	32050	1.8
16 Recpt	16 *	61818	33052	1.8
17 Recpt	17 *	61054	34040	1.8
18 Recpt	18 *	60311	34932	1.8
19 Recpt	19 *	59301	35633	1.8
20 Recpt	20 *	57306	35910	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Capitol to I-880 NB 2035
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

*	* PRED	* CONC/LINK						
*	BRG	* CONC	* (PPM)					
RECEPTOR	* (DEG)	* (PPM)	* A	B	C			
-------------*-------*-------*---------------								
1 Recpt	1 *	91 *	0.3 *			0	0	0.3
2 Recpt	2 *	285 *	0.3 *			0	0	0.3
3 Recpt	3 *	135 *	0.3 *			0.3	0	0
4 Recpt	4 *	328 *	0.3 *			0.3	0	0
5 Recpt	5 *	328 *	0.3 *			0.3	0	0
6 Recpt	6 *	327 *	0.4 *			0.3	0	0
7 Recpt	7 *	327 *	0.4 *			0.3	0	0
8 Recpt	8 *	327 *	0.4 *			0.4	0	0
9 Recpt	9 *	327 *	0.3 *			0.3	0	0
10 Recpt	10 *	328 *	0.3 *			0.3	0	0
11 Recpt	11 *	316 *	0.4 *			0.3	0	0
12 Recpt	12 *	316 *	0.5 *			0.4	0	0
13 Recpt	13 *	316 *	0.4 *			0.4	0	0
14 Recpt	14 *	316 *	0.4 *			0.4	0	0
15 Recpt	15 *	316 *	0.4 *			0.4	0	0
16 Recpt	16 *	317 *	0.6 *			0.5	0	0
17 Recpt	17 *	315 *	0.4 *			0.3	0.1	0
18 Recpt	18 *	299 *	0.8 *			0	0.7	0.1
19 Recpt	19 *	128 *	0.7 *			0.1	0.5	0.1
20 Recpt	20 *	106 *	0.3 *			0	0.1	0.3

CALINE4:	CALIFORNIA	LINE	SOURCE	DISPERSION	MODEL
JUNE	1989	VERSION			
PAGE	1				

JOB:	Capitol	to	I-880	B	2035
RUN:	Hour	1	(WORST	CASE	ANGLE)
POLLUTANT:	Carbon	Monoxide			

I. SITE VARIABLES

U=	1	M/S	Z0=	100	CM	ALT=	0	(M)
BRG=	WORST	CASE	VD=	0	CM/S			
CLAS=	7	(G)	VS=	0	CM/S			
MIXH=	1000	M	AMB=	0	PPM			
SIGTH=	5	DEGREES	TEMP=	7.8	DEGREE	(C)		

II. LINK VARIABLES

LINK	*	LINK	COORDINATES	(M)	*	EF	H	W					
DESCRIPTION	*	X1	Y1	X2	Y2	*	TYPE	VPH	(G/MI)	(M)	(M)		
----------------*-------------------------*------------------------------													
A.	Link	A	*	64866	29179	60292	34922	*	AG	18374	0.9	0	20
B.	Link	B	*	60292	34922	59409	35542	*	AG	18374	0.9	0	20
C.	Link	C	*	59409	35542	57277	35841	*	AG	18374	0.9	0	20

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Capitol to I-880 B 2035
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

*	COORDINATES (M)			
RECEPTOR	*	X	Y	Z
1 Recpt 1	*	57280	35769	1.8
2 Recpt 2	*	59293	35501	1.8
3 Recpt 3	*	60232	34890	1.8
4 Recpt 4	*	60950	34017	1.8
5 Recpt 5	*	61732	33021	1.8
6 Recpt 6	*	62538	32015	1.8
7 Recpt 7	*	63206	31172	1.8
8 Recpt 8	*	63785	30459	1.8
9 Recpt 9	*	64357	29717	1.8
10 Recpt 10	*	64795	29127	1.8
11 Recpt 11	*	64924	29201	1.8
12 Recpt 12	*	64444	29772	1.8
13 Recpt 13	*	63880	30504	1.8
14 Recpt 14	*	63306	31221	1.8
15 Recpt 15	*	62642	32050	1.8
16 Recpt 16	*	61818	33052	1.8
17 Recpt 17	*	61054	34040	1.8
18 Recpt 18	*	60311	34932	1.8
19 Recpt 19	*	59301	35633	1.8
20 Recpt 20	*	57306	35910	1.8

CALINE4:	CALIFORNIA	LINE	SOURCE	DISPERSION	MODEL					
JUNE	1989	VERSION								
PAGE	3									
JOB:	Capitol	to	I-880	B	2035					
RUN:	Hour	1	(WORST	CASE	ANGLE)					
POLLUTANT:	Carbon	Monoxide								
IV.	MODEL	RESULTS	(WORST	CASE	WIND	ANGLE	)			
*	*	PRED	*	CONC/LINK						
*	BRG	*	CONC	*	(PPM)					
RECEPTOR	*	(DEG)	*	(PPM)	*	A	B	C		
-------------*-------*-------*---------------										
1	Recpt	1	*	91	*	0.3	*	0	0	0.3
2	Recpt	2	*	285	*	0.3	*	0	0	0.3
3	Recpt	3	*	135	*	0.3	*	0.3	0	0
4	Recpt	4	*	328	*	0.3	*	0.3	0	0
5	Recpt	5	*	328	*	0.3	*	0.3	0	0
6	Recpt	6	*	327	*	0.4	*	0.3	0	0
7	Recpt	7	*	327	*	0.3	*	0.3	0	0
8	Recpt	8	*	327	*	0.4	*	0.4	0	0
9	Recpt	9	*	327	*	0.3	*	0.3	0	0
10	Recpt	10	*	328	*	0.3	*	0.3	0	0
11	Recpt	11	*	316	*	0.4	*	0.3	0	0
12	Recpt	12	*	316	*	0.5	*	0.4	0	0
13	Recpt	13	*	316	*	0.4	*	0.4	0	0
14	Recpt	14	*	316	*	0.4	*	0.4	0	0
15	Recpt	15	*	316	*	0.4	*	0.4	0	0
16	Recpt	16	*	317	*	0.6	*	0.5	0	0
17	Recpt	17	*	315	*	0.4	*	0.3	0.1	0
18	Recpt	18	*	299	*	0.7	*	0	0.7	0.1
19	Recpt	19	*	128	*	0.7	*	0.1	0.5	0.1
20	Recpt	20	*	106	*	0.3	*	0	0.1	0.3

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Dunne to SR85 NB 2015
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	1 M/S	Z0=	10 CM	ALT=	0 (M)
BRG=	WORST CASE	VD=	0 CM/S		
CLAS=	7 (G)	VS=	0 CM/S		
MIXH=	1000 M	AMB=	0 PPM		
SIGTH=	5 DEGREES	TEMP=	7.8 DEGREE (C)		

II. LINK VARIABLES

LINK	*	LINK	COORDINATES	(M)	*	EF	H	W					
DESCRIPTION	*	X1	Y1	X2	Y2	*	TYPE	VPH	(G/MI)	(M)	(M)		
----------------*-------------------------*------------------------------													
A.	Link	A	*	21389	10352	21091	10917	*	AG	12351	1.6	0	20
B.	Link	B	*	21091	10917	19121	13363	*	AG	12351	1.6	0	20
C.	Link	C	*	19121	13363	16668	16225	*	AG	12351	1.6	0	20
D.	Link	D	*	16668	16225	13351	18832	*	AG	12351	1.6	0	20
E.	Link	E	*	13351	18832	12608	19758	*	AG	12351	1.6	0	20
F.	Link	F	*	12608	19758	11506	20817	*	AG	12351	1.6	0	20
G.	Link	G	*	11506	20817	9288	22357	*	AG	12351	1.6	0	20

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Dunne to SR85 NB 2015
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

*	COORDINATES (M)			
RECEPTOR	*	X	Y	Z
1 Recpt	1 *	21321	10665	1.8
2 Recpt	2 *	20882	11294	1.8
3 Recpt	3 *	19936	12495	1.8
4 Recpt	4 *	19208	13372	1.8
5 Recpt	5 *	18278	14477	1.8
6 Recpt	6 *	16211	16744	1.8
7 Recpt	7 *	15223	17657	1.8
8 Recpt	8 *	13065	19327	1.8
9 Recpt	9 *	12479	20041	1.8
10 Recpt	10 *	10261	21795	1.8
11 Recpt	11 *	9349	22202	1.8
12 Recpt	12 *	10718	21278	1.8
13 Recpt	13 *	11525	20720	1.8
14 Recpt	14 *	12755	19488	1.8
15 Recpt	15 *	13985	18321	1.8
16 Recpt	16 *	15585	17082	1.8
17 Recpt	17 *	18088	14485	1.8
18 Recpt	18 *	18590	13786	1.8
19 Recpt	19 *	19793	12437	1.8
20 Recpt	20 *	21052	10866	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Dunne to SR85 NB 2015
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

* RECEPTOR		* BRG (DEG)	*	PRED CONC (PPM)	*	A	B	C	D	E	F	G
1	Recpt	1	*	318	*	0.6 *	0.1	0.4	0	0	0	0	0
2	Recpt	2	*	315	*	0.4 *	0	0.3	0	0	0	0	0
3	Recpt	3	*	149	*	0.3 *	0	0.3	0	0	0	0	0
4	Recpt	4	*	314	*	0.4 *	0	0	0.3	0.1	0	0	0
5	Recpt	5	*	313	*	0.4 *	0	0	0.3	0.1	0	0	0
6	Recpt	6	*	140	*	0.4 *	0	0	0.2	0.1	0	0	0
7	Recpt	7	*	137	*	0.3 *	0	0	0.1	0.1	0	0	0
8	Recpt	8	*	311	*	0.5 *	0	0	0	0	0.2	0.1	0.1
9	Recpt	9	*	149	*	0.3 *	0	0	0	0	0.3	0	0
10	Recpt	10	*	133	*	0.4 *	0	0	0	0.1	0	0	0.3
11	Recpt	11	*	118	*	0.3 *	0	0	0	0	0	0	0.3
12	Recpt	12	*	312	*	0.3 *	0	0	0	0	0	0	0.3
13	Recpt	13	*	128	*	0.4 *	0	0	0	0	0	0.4	0
14	Recpt	14	*	134	*	0.6 *	0	0	0	0.2	0.4	0	0
15	Recpt	15	*	312	*	2.2 *	0	0	0	2	0.2	0	0.1
16	Recpt	16	*	130	*	2.6 *	0	0	0.1	2.4	0	0	0
17	Recpt	17	*	134	*	0.4 *	0	0.1	0.4	0	0	0	0
18	Recpt	18	*	327	*	0.2 *	0	0	0.2	0	0	0	0
19	Recpt	19	*	327	*	0.4 *	0	0.3	0.1	0	0	0	0
20	Recpt	20	*	327	*	0.4 *	0	0.4	0	0	0	0	0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Dunne to SR85 B 2015
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	1 M/S	Z0=	10 CM	ALT=	0 (M)
BRG=	WORST CASE	VD=	0 CM/S		
CLAS=	7 (G)	VS=	0 CM/S		
MIXH=	1000 M	AMB=	0 PPM		
SIGTH=	5 DEGREES	TEMP=	7.8 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	*	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Link A	*	21389	10352	21091	10917	*	AG	12678	1.5	0	20
B. Link B	*	21091	10917	19121	13363	*	AG	12678	1.5	0	20
C. Link C	*	19121	13363	16668	16225	*	AG	12678	1.5	0	20
D. Link D	*	16668	16225	13351	18832	*	AG	12678	1.5	0	20
E. Link E	*	13351	18832	12608	19758	*	AG	12678	1.5	0	20
F. Link F	*	12608	19758	11506	20817	*	AG	12678	1.5	0	20
G. Link G	*	11506	20817	9288	22357	*	AG	12678	1.5	0	20

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Dunne to SR85 B 2015
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

* RECEPTOR		*	COORDINATES (M) X	Y	Z
1	Recpt 1	*	21321	10665	1.8
2	Recpt 2	*	20882	11294	1.8
3	Recpt 3	*	19936	12495	1.8
4	Recpt 4	*	19208	13372	1.8
5	Recpt 5	*	18278	14477	1.8
6	Recpt 6	*	16211	16744	1.8
7	Recpt 7	*	15223	17657	1.8
8	Recpt 8	*	13065	19327	1.8
9	Recpt 9	*	12479	20041	1.8
10	Recpt 10	*	10261	21795	1.8
11	Recpt 11	*	9349	22202	1.8
12	Recpt 12	*	10718	21278	1.8
13	Recpt 13	*	11525	20720	1.8
14	Recpt 14	*	12755	19488	1.8
15	Recpt 15	*	13985	18321	1.8
16	Recpt 16	*	15585	17082	1.8
17	Recpt 17	*	18088	14485	1.8
18	Recpt 18	*	18590	13786	1.8
19	Recpt 19	*	19793	12437	1.8
20	Recpt 20	*	21052	10866	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Dunne to SR85 B 2015
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

*	*	PRED	*	CONC/LINK							
*	BRG	*	CONC	*	(PPM)						
RECEPTOR	*	(DEG)	*	(PPM)	*	A	B	C	D	E	F G
-------------*-------*-------*-----------------------------------											
1 Recpt	1 *	318 *	0.6 *	0.1	0.4	0	0	0	0	0	
2 Recpt	2 *	315 *	0.4 *	0	0.3	0	0	0	0	0	
3 Recpt	3 *	149 *	0.3 *	0	0.3	0	0	0	0	0	
4 Recpt	4 *	314 *	0.4 *	0	0	0.3	0.1	0	0	0	
5 Recpt	5 *	313 *	0.4 *	0	0	0.3	0.1	0	0	0	
6 Recpt	6 *	140 *	0.4 *	0	0	0.2	0.1	0	0	0	
7 Recpt	7 *	137 *	0.3 *	0	0	0.1	0.1	0	0	0	
8 Recpt	8 *	311 *	0.5 *	0	0	0	0	0.2	0.1	0.1	
9 Recpt	9 *	149 *	0.3 *	0	0	0	0	0.3	0	0	
10 Recpt	10 *	133 *	0.4 *	0	0	0	0.1	0	0	0.3	
11 Recpt	11 *	118 *	0.3 *	0	0	0	0	0	0	0.3	
12 Recpt	12 *	312 *	0.3 *	0	0	0	0	0	0	0.3	
13 Recpt	13 *	128 *	0.4 *	0	0	0	0	0	0.4	0	
14 Recpt	14 *	134 *	0.6 *	0	0	0	0.2	0.3	0	0	
15 Recpt	15 *	312 *	2.2 *	0	0	0	1.9	0.2	0	0.1	
16 Recpt	16 *	130 *	2.5 *	0	0	0.1	2.4	0	0	0	
17 Recpt	17 *	134 *	0.4 *	0	0.1	0.4	0	0	0	0	
18 Recpt	18 *	327 *	0.2 *	0	0	0.2	0	0	0	0	
19 Recpt	19 *	327 *	0.4 *	0	0.3	0.1	0	0	0	0	
20 Recpt	20 *	327 *	0.4 *	0	0.4	0	0	0	0	0	

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Dunne to SR85 NB 2035
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT Carbon Monoxide

I. SITE VARIABLES

U=		1	M/S	Z0=	10	CM	ALT=	0 (M)
BRG=	WORST		CASE	VD=	0	CM/S		
CLAS=		7	(G)	VS=	0	CM/S		
MIXH=		1000	M	AMB=	0	PPM		
SIGTH=		5	DEGREES	TEMP=	7.8	DEGREE	(C)	

II. LINK VARIABLES

LINK	*	LINK	COORDINA	(M)	*	EF	H	W					
DESCRIPTIC	*	X1	Y1	X2	Y2	*	TYPE	VPH	(G/MI)	(M)	(M)		
-----------------	*-------------------------	*------------------------------											
A.	Link	A	*	21389	10352	21091	10917	*	AG	14937	0.9	0	20
B.	Link	B	*	21091	10917	19121	13363	*	AG	14937	0.9	0	20
C.	Link	C	*	19121	13363	16668	16225	*	AG	14937	0.9	0	20
D.	Link	D	*	16668	16225	13351	18832	*	AG	14937	0.9	0	20
E.	Link	E	*	13351	18832	12608	19758	*	AG	14937	0.9	0	20
F.	Link	F	*	12608	19758	11506	20817	*	AG	14937	0.9	0	20
G.	Link	G	*	11506	20817	9288	22357	*	AG	14937	0.9	0	20

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Dunne to SR85 NB 2035
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT Carbon Monoxide

III. RECEPTOR LOCATIONS

*	COORDINATES (M)			
RECEPTOR	*	X	Y	Z
1	Recpt 1 *	21321	10665	1.8
2	Recpt 2 *	20882	11294	1.8
3	Recpt 3 *	19936	12495	1.8
4	Recpt 4 *	19208	13372	1.8
5	Recpt 5 *	18278	14477	1.8
6	Recpt 6 *	16211	16744	1.8
7	Recpt 7 *	15223	17657	1.8
8	Recpt 8 *	13065	19327	1.8
9	Recpt 9 *	12479	20041	1.8
10	Recpt 10 *	10261	21795	1.8
11	Recpt 11 *	9349	22202	1.8
12	Recpt 12 *	10718	21278	1.8
13	Recpt 13 *	11525	20720	1.8
14	Recpt 14 *	12755	19488	1.8
15	Recpt 15 *	13985	18321	1.8
16	Recpt 16 *	15585	17082	1.8
17	Recpt 17 *	18088	14485	1.8
18	Recpt 18 *	18590	13786	1.8
19	Recpt 19 *	19793	12437	1.8
20	Recpt 20 *	21052	10866	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Dunne to SR85 NB 2035
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTAN' Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

*	*	PRED	*	CONC/LINK										
*	BRG	*	CONC	*	(PPM)									
RECEPTOR	*	(DEG)	*	(PPM)	*		A	B	C	D	E	F	G
1	Recpt	1	*	318	*	0.4	*	0.1	0.3	0	0	0	0	0
2	Recpt	2	*	315	*	0.3	*	0	0.2	0	0	0	0	0
3	Recpt	3	*	149	*	0.2	*	0	0.2	0	0	0	0	0
4	Recpt	4	*	314	*	0.3	*	0	0	0.2	0	0	0	0
5	Recpt	5	*	313	*	0.3	*	0	0	0.2	0.1	0	0	0
6	Recpt	6	*	140	*	0.3	*	0	0	0.1	0.1	0	0	0
7	Recpt	7	*	137	*	0.2	*	0	0	0.1	0.1	0	0	0
8	Recpt	8	*	311	*	0.3	*	0	0	0	0	0.1	0.1	0.1
9	Recpt	9	*	149	*	0.2	*	0	0	0	0	0.2	0	0
10	Recpt	10	*	133	*	0.3	*	0	0	0	0	0	0	0.2
11	Recpt	11	*	118	*	0.2	*	0	0	0	0	0	0	0.2
12	Recpt	12	*	312	*	0.2	*	0	0	0	0	0	0	0.2
13	Recpt	13	*	128	*	0.3	*	0	0	0	0	0	0.2	0
14	Recpt	14	*	134	*	0.4	*	0	0	0	0.1	0.2	0	0
15	Recpt	15	*	312	*	1.4	*	0	0	0	1.3	0.1	0	0
16	Recpt	16	*	130	*	1.7	*	0	0	0.1	1.6	0	0	0
17	Recpt	17	*	134	*	0.3	*	0	0	0.2	0	0	0	0
18	Recpt	18	*	327	*	0.2	*	0	0	0.2	0	0	0	0
19	Recpt	19	*	327	*	0.3	*	0	0.2	0	0	0	0	0
20	Recpt	20	*	327	*	0.3	*	0	0.2	0	0	0	0	0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Dunne to SR85 B 2035
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT Carbon Monoxide

I. SITE VARIABLES

U=		1	M/S	Z0=	10	CM	ALT=	0 (M)
BRG=	WORST		CASE	VD=	0	CM/S		
CLAS=		7	(G)	VS=	0	CM/S		
MIXH=		1000	M	AMB=	0	PPM		
SIGTH=		5	DEGREES	TEMP=	7.8	DEGREE	(C)	

II. LINK VARIABLES

LINK DESCRIPTIC	*	LINK COORDINA (M) X1	Y1	X2	Y2	*	EF TYPE	H VPH	W (G/MI)	(M)	(M)
A. Link A	*	21389	10352	21091	10917	*	AG	16045	0.8	0	20
B. Link B	*	21091	10917	19121	13363	*	AG	16045	0.8	0	20
C. Link C	*	19121	13363	16668	16225	*	AG	16045	0.8	0	20
D. Link D	*	16668	16225	13351	18832	*	AG	16045	0.8	0	20
E. Link E	*	13351	18832	12608	19758	*	AG	16045	0.8	0	20
F. Link F	*	12608	19758	11506	20817	*	AG	16045	0.8	0	20
G. Link G	*	11506	20817	9288	22357	*	AG	16045	0.8	0	20

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Dunne to SR85 B 2035
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

*	COORDINATES (M)			
RECEPTOR	*	X	Y	Z
1	Recpt 1 *	21321	10665	1.8
2	Recpt 2 *	20882	11294	1.8
3	Recpt 3 *	19936	12495	1.8
4	Recpt 4 *	19208	13372	1.8
5	Recpt 5 *	18278	14477	1.8
6	Recpt 6 *	16211	16744	1.8
7	Recpt 7 *	15223	17657	1.8
8	Recpt 8 *	13065	19327	1.8
9	Recpt 9 *	12479	20041	1.8
10	Recpt 10 *	10261	21795	1.8
11	Recpt 11 *	9349	22202	1.8
12	Recpt 12 *	10718	21278	1.8
13	Recpt 13 *	11525	20720	1.8
14	Recpt 14 *	12755	19488	1.8
15	Recpt 15 *	13985	18321	1.8
16	Recpt 16 *	15585	17082	1.8
17	Recpt 17 *	18088	14485	1.8
18	Recpt 18 *	18590	13786	1.8
19	Recpt 19 *	19793	12437	1.8
20	Recpt 20 *	21052	10866	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Dunne to SR85 B 2035
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTAN Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

*	*	PRED	*	CONC/LINK							
*	BRG	*	CONC	*	(PPM)						
RECEPTOR	*	(DEG)	*	(PPM)	* A	B	C	D	E	F	G
1	Recpt	1 *	318 *	0.4 *	0.1	0.3	0	0	0	0	0
2	Recpt	2 *	315 *	0.3 *	0	0.2	0	0	0	0	0
3	Recpt	3 *	149 *	0.2 *	0	0.2	0	0	0	0	0
4	Recpt	4 *	314 *	0.3 *	0	0	0.2	0	0	0	0
5	Recpt	5 *	313 *	0.3 *	0	0	0.2	0.1	0	0	0
6	Recpt	6 *	140 *	0.3 *	0	0	0.1	0.1	0	0	0
7	Recpt	7 *	137 *	0.2 *	0	0	0.1	0.1	0	0	0
8	Recpt	8 *	311 *	0.3 *	0	0	0	0	0.1	0.1	0.1
9	Recpt	9 *	149 *	0.2 *	0	0	0	0	0.2	0	0
10	Recpt	10 *	133 *	0.3 *	0	0	0	0	0	0	0.2
11	Recpt	11 *	118 *	0.2 *	0	0	0	0	0	0	0.2
12	Recpt	12 *	312 *	0.2 *	0	0	0	0	0	0	0.2
13	Recpt	13 *	128 *	0.3 *	0	0	0	0	0	0.2	0
14	Recpt	14 *	134 *	0.4 *	0	0	0	0.1	0.2	0	0
15	Recpt	15 *	312 *	1.4 *	0	0	0	1.2	0.1	0	0
16	Recpt	16 *	130 *	1.6 *	0	0	0.1	1.5	0	0	0
17	Recpt	17 *	134 *	0.3 *	0	0	0.2	0	0	0	0
18	Recpt	18 *	327 *	0.2 *	0	0	0.2	0	0	0	0
19	Recpt	19 *	327 *	0.3 *	0	0.2	0	0	0	0	0
20	Recpt	20 *	327 *	0.3 *	0	0.2	0	0	0	0	0

Appendix B
Sacramento Roadway Construction Emission Model Results

Road Construction Emissions Model, Version 7.1.2

Emission Estimates for -> US 101				Total	Exhaust	Fugitive Dust	Total	Exhaust	Fugitive Dust	
Project Phases (English Units)	**ROG (lbs/day)**	**CO (lbs/day)**	**NOx (lbs/day)**	**PM10 (lbs/day)**	**PM10 (lbs/day)**	**PM10 (lbs/day)**	**PM2.5 (lbs/day)**	**PM2.5 (lbs/day)**	**PM2.5 (lbs/day)**	**CO2 (lbs/day)**
Grubbing/Land Clearing	23.6	114.1	282.3	344.1	11.6	332.5	79.4	10.2	69.2	29,748.6
Grading/Excavation	27.0	139.1	312.3	346.3	13.8	332.5	81.4	12.2	69.2	33,834.6
Drainage/Utilities/Sub-Grade	17.6	84.6	171.8	341.6	9.1	332.5	77.3	8.1	69.2	18,864.4
Paving	13.5	83.7	113.3	7.1	7.1	-	6.3	6.3	-	15,422.4
Maximum (pounds/day)	27.0	139.1	312.3	346.3	13.8	332.5	81.4	12.2	69.2	33,834.6
Total (tons/construction project)	5.4	27.6	61.2	71.2	2.8	68.4	16.7	2.5	14.2	6,960.4
Average Daily Emissions (pounds per day)	22	114	253	294	12	283	69	10	59	28,762

Notes: Project Start Year -> 2014

Project Length (months) -> 22

Total Project Area (acres) -> 40

Maximum Area Disturbed/Day (acres) -> 10

Total Soil Imported/Exported (yd^3/day)-> 0

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns H and I. Total PM2.5 emissions shown in Column J are the sum of exhaust and fugitive dust emissions shown in columns K and L.

Emission Estimates for -> US 101				Total	Exhaust	Fugitive Dust	Total	Exhaust	Fugitive Dust	
Project Phases (Metric Units)	**ROG (kgs/day)**	**CO (kgs/day)**	**NOx (kgs/day)**	**PM10 (kgs/day)**	**PM10 (kgs/day)**	**PM10 (kgs/day)**	**PM2.5 (kgs/day)**	**PM2.5 (kgs/day)**	**PM2.5 (kgs/day)**	**CO2 (kgs/day)**
Grubbing/Land Clearing	10.7	51.9	128.3	156.4	5.3	151.1	36.1	4.7	31.4	13,522.1
Grading/Excavation	12.3	63.2	142.0	157.4	6.3	151.1	37.0	5.5	31.4	15,379.4
Drainage/Utilities/Sub-Grade	8.0	38.4	78.1	155.3	4.2	151.1	35.1	3.7	31.4	8,574.7
Paving	6.1	38.1	51.5	3.2	3.2	-	2.9	2.9	-	7,010.2
Maximum (kilograms/day)	12.3	63.2	142.0	157.4	6.3	151.1	37.0	5.5	31.4	15,379.4
Total (megagrams/construction project)	4.9	25.0	55.5	64.6	2.5	62.0	15.1	2.2	12.9	6,313.3

Notes: Project Start Year -> 2014

Project Length (months) -> 22

Total Project Area (hectares) -> 16

Maximum Area Disturbed/Day (hectares) -> 4

Total Soil Imported/Exported ($meters^3$/day)-> 0

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns H and I. Total PM2.5 emissions shown in Column J are the sume of exhaust and fugitive dust emissions shown in columns K and L.

Road Construction Emissions Model, Version 7.1.2

Emission Estimates for -> US 101 Project Phases (English Units)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	Total PM10 (lbs/day)	Exhaust PM10 (lbs/day)	Fugitive Dust PM10 (lbs/day)	Total PM2.5 (lbs/day)	Exhaust PM2.5 (lbs/day)	Fugitive Dust PM2.5 (lbs/day)	CO2 (lbs/day)
Grubbing/Land Clearing	8.0	47.7	73.2	103.1	3.4	99.8	23.6	2.9	20.7	9,683.6
Grading/Excavation	8.7	54.0	79.4	103.7	3.9	99.8	24.1	3.4	20.7	10,652.4
Drainage/Utilities/Sub-Grade	5.9	36.7	43.4	102.4	2.6	99.8	23.0	2.2	20.7	7,225.2
Paving	5.2	38.3	33.9	2.3	2.3	-	1.9	1.9	-	7,100.9
Maximum (pounds/day)	8.7	54.0	79.4	103.7	3.9	99.8	24.1	3.4	20.7	10,652.4
Total (tons/construction project)	1.8	11.1	15.1	21.3	0.8	20.5	4.9	0.7	4.3	2,227.8
Average Daily Emissions (pounds per day)	7	46	53	88	3	85	20	3	18	9,206

Notes: Project Start Year -> 2014

Project Length (months) -> 22

Total Project Area (acres) -> 40

Maximum Area Disturbed/Day (acres) -> 10

Total Soil Imported/Exported (yd^3/day)-> 0

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns H and I. Total PM2.5 emissions shown in Column J are the sum of exhaust and fugitive dust emissions shown in columns K and L.

Emission Estimates for -> US 101 Project Phases (Metric Units)	ROG (kgs/day)	CO (kgs/day)	NOx (kgs/day)	Total PM10 (kgs/day)	Exhaust PM10 (kgs/day)	Fugitive Dust PM10 (kgs/day)	Total PM2.5 (kgs/day)	Exhaust PM2.5 (kgs/day)	Fugitive Dust PM2.5 (kgs/day)	CO2 (kgs/day)
Grubbing/Land Clearing	3.6	21.7	33.3	46.9	1.5	45.3	10.7	1.3	9.4	4,401.6
Grading/Excavation	4.0	24.5	36.1	47.1	1.8	45.3	11.0	1.5	9.4	4,842.0
Drainage/Utilities/Sub-Grade	2.7	16.7	19.7	46.5	1.2	45.3	10.4	1.0	9.4	3,284.2
Paving	2.3	17.4	15.4	1.1	1.1	-	0.9	0.9	-	3,227.7
Maximum (kilograms/day)	4.0	24.5	36.1	47.1	1.8	45.3	11.0	1.5	9.4	4,842.0
Total (megagrams/construction project)	1.6	10.1	13.7	19.3	0.7	18.6	4.5	0.6	3.9	2,020.7

Notes: Project Start Year -> 2014

Project Length (months) -> 22

Total Project Area (hectares) -> 16

Maximum Area Disturbed/Day (hectares) -> 4

Total Soil Imported/Exported (meters^3/day)-> 0

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns H and I. Total PM2.5 emissions shown in Column J are the sume of exhaust and fugitive dust emissions shown in columns K and L.

Appendix C

EMFAC 2011 GHG Analysis

GHG Calculation - US101 Express Lanes

All		VMT (Annual)	Speed (Peak Hour)	Emission Factors (g/mile)		
				CO_2	N_2O	CH_4
Existing Conditions	2009	2,006,663,369	40	4.10E+02	3.51E-02	2.14E-01
No Build Alternative	2015	2,215,043,933	34	1.27E+03	3.49E-02	2.08E-01
Build Alternative	2015	2,361,803,950	42	1.08E+03	3.47E-02	2.09E-01
No Build Alternative	2035	2,661,725,366	20	1.01E+03	3.64E-02	1.81E-01
Build Alternative	2035	2,908,991,248	24	5.79E+02	3.62E-02	2.02E-01

		Emissions (Metric Tons/Year)			**Total GHG Emissions (Metric Tons/Year)**
		CO_2	N_2O	CH_4	**CO_2e**
Existing Conditions	2009	822,258	71	430	**854,873**
No Build Alternative	2015	2,806,431	77	460	**2,841,870**
Build Alternative	2015	2,542,426	82	494	**2,580,166**
No Build Alternative	2035	2,676,835	97	481	**2,718,944**
Build Alternative	2035	1,685,084	105	587	**1,732,414**

Note: Numbers might not add up due to rounding

Global Warming Potential	CO_2	N_2O	CH_4
	1	310	25

Source: Global Warming Potential (GWP) values were obtained from IPCC Fourth Assessment Report (2007)

ADDITIONAL DATA FOR URS FOR AQ ANALYSIS

VMT IN WINDOW AROUND US101

EXPANDED TO DAILY	2009	2015 NOBUILD	2015 BUILD	2035 NOBUILD	2035 BUILD
VMT_ALL	6,047,479	6,675,475	7,117,765	8,021,638	8,766,823
GROWTH, NO BUILD		627,996		1,974,159	
DIFF, BUILD-NOBUILD			442,290		745,185

	PEAK HOUR SPEED (MPH)				
	2009	2015 NOBUILD	2015 BUILD	2035 NOBUILD	2035 BUILD
Congested Speed, FWY	**40**	**34**	**42**	**20**	**24**

Appendix D
Project Level $PM_{2.5}$ Conformity Documentation

McIntyre, Lynn

From: Molseed, Roy <Roy.Molseed@VTA.ORG>
Sent: Friday, December 07, 2012 4:25 PM
To: Trinh, Lam; Zimmerman, Jeff; Chazbek, Chadi; McIntyre, Lynn; Christensen, Sarah
Subject: FW: FMS POAQC Project TIP ID SCL110002 (FMS ID: 4198.00) update: Interagency Review Complete

Confirmation that consultation process was completed....

-----Original Message-----
From: Surani, Amin
Sent: Friday, December 07, 2012 3:39 PM
To: Molseed, Roy
Cc: Yu, Jane; Chatradhi, Shanthi
Subject: FW: FMS POAQC Project TIP ID SCL110002 (FMS ID: 4198.00) update: Interagency Review Complete

fyi

-----Original Message-----
From: fms@mtc.ca.gov [mailto:fms@mtc.ca.gov]
Sent: Friday, December 07, 2012 12:03 PM
To: Surani, Amin; Emoto, Casey
Cc: fms@mtc.ca.gov
Subject: FMS POAQC Project TIP ID SCL110002 (FMS ID: 4198.00) update: Interagency Review Complete

Dear Project Sponsor

On December 06, 2012, the Air Quality Conformity Task Force reviewed your PM2.5 Hot Spot Analysis completed for TIP ID SCL110002 (FMS ID: 4198.00). As of this date, all of the interagency consultation requirements of PM2.5 project level conformity have been completed. As the project sponsor, you are receiving this email notifying you may proceed forward with obtaining federal approvals for the PM2.5 Hot Spot Analysis. Please save this email as documentation of completing the consultation process for PM2.5 project level conformity.

If there are any questions regarding the status of the project, please direct them to Brenda Dix at bdix@mtc.ca.gov or by phone at (510) 817-5827 or Stefanie Hom of MTC by email at shom@mtc.ca.gov or by phone at (510) 817-5756