METROPOLITAN
TRANSPORTATION
COMMISSION

Summary of State Route 85 Express Lanes Project in Santa Clara County Initial Study and Negative Declaration/Environmental Assessment and Technical Analyses: Greenhouse Gas Emissions, Vehicle Miles Traveled, and Use by Low-Income Populations

July 27, 2015

Metropolitan Transportation Commission
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Section 1: Overview

This report, prepared solely by the Metropolitan Transportation Commission (MTC), summarizes analyses of greenhouse gas (GHG) emissions effects, vehicle miles traveled (VMT) effects, and use of express lanes by low-income populations of the State Route (SR) 85 Express Lanes Project (Project). As lead agency, the California Department of Transportation (Caltrans) prepared the Initial Study with Negative Declaration/Environmental Assessment (IS/EA) and technical studies in accordance with the California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA).

This summary was prepared by MTC in accordance with the Settlement Agreement dated June 18, 2014 among MTC and the Association of Bay Area Governments (ABAG), and Communities for a Better Environment and the Sierra Club. This summary is solely the work of the MTC. Caltrans was not involved in the production of this summary.

1.1 Project Description

Caltrans has prepared an IS/EA, which addresses the proposed Project's potential to have adverse impacts on the environment. The IS/EA states that Caltrans, in cooperation with the Santa Clara Valley Transportation Authority (VTA), proposes to convert existing high-occupancy vehicle (HOV) lanes on SR 85 to express lanes. Two alternatives were considered in the environmental document: the Build Alternative and the No Build Alternative. The Build Alternative, referred to as the Project, proposes to convert the existing HOV lanes on SR 85 to express lanes and add a second express lane in both directions between SR 87 and Interstate 280 (I-280). The conversion of the HOV lanes to express lanes would allow single-occupant vehicles (SOVs) to pay a toll to use the lanes, while HOVs would continue to use the lanes for free. The express lanes would extend along the entire 24.1 mile length of SR 85 and 1.5 miles of US Highway 101 (US 101) from the southern end of SR 85 to Metcalf Road in San Jose. The Project would also convert the SR 85/US 101 HOV direct connectors in San Jose to express lane connectors, add signs to 4.1 miles of US 101 north of SR 85 in Mountain View and Palo Alto and to 1.8 miles of US 101 between Metcalf Road and Bailey Avenue in San Jose, and add an auxiliary lane to a 1.1 mile segment of northbound SR 85 between South De Anza Boulevard and Stevens Creek Boulevard in Cupertino. The total Project length is 33.7 miles (Figure 1).

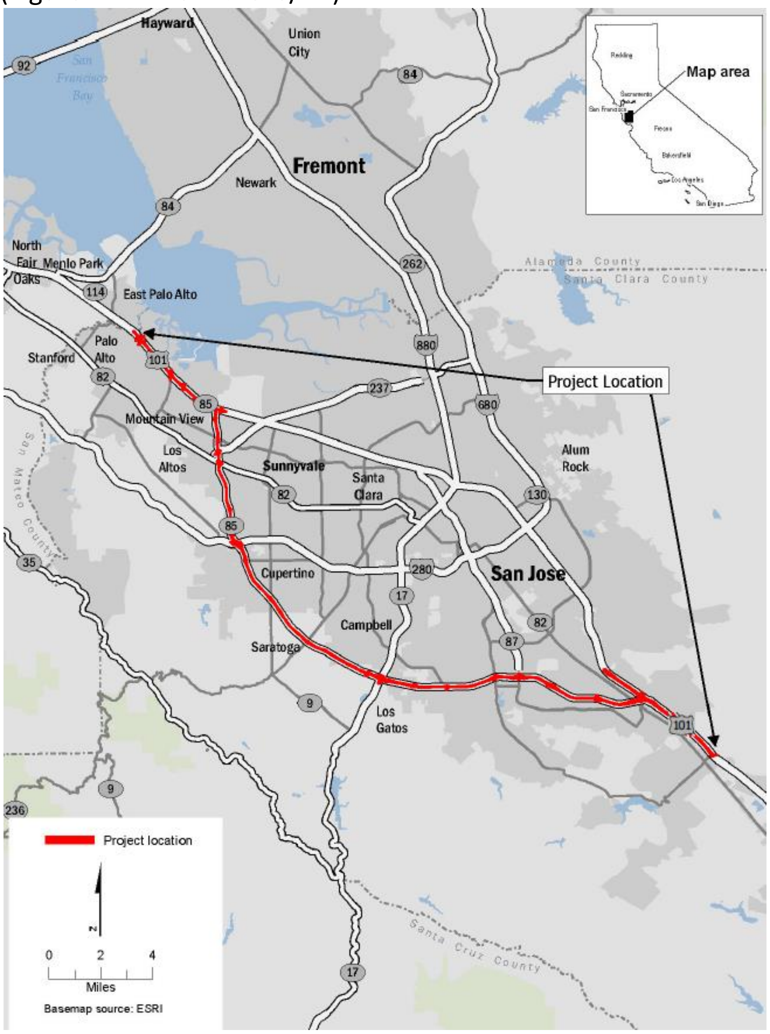
The Project is listed in the 2009 Santa Clara Valley Transportation Plan 2035, in the MTC's 2013 Regional Transportation Plan, and MTC's financially constrained 2013 Transportation Improvement Program.

The IS/EA identified the following purposes of the Project:

- Manage traffic in the congested HOV segments of the freeway between SR 87 and I-280

- Maintain consistency with provisions defined in Assembly Bill (AB) 2032[1] and AB 574[2] to implement express lanes in an HOV lane system in Santa Clara County.

Figure 1: SR 85 Project Location
(Figure 1.1-1 from the IS/EA)



The IS/EA states that the No Build Alternative assumes no modifications would be made to the current SR 85 corridor, including the continuous access HOV lane, other than routine maintenance and rehabilitation of the facility and any currently planned and programmed projects within the area.

1.2 Environmental Review

[1] AB 2032 (2004) authorized VTA, as part of a demonstration project, to conduct, administer, and operate a value pricing and transit development program under which single occupancy vehicles may use HOV lanes for a fee during the HOV hours of operation.
[2] AB 574 (2007) removed the "demonstration" category from the law and allowed VTA to implement a value pricing program within any two corridors in the Santa Clara County HOV lane system.

As the lead agency under NEPA, Caltrans found the Project will have no significant impact on the human environment. The Finding of No Significant Impact is based on the EA and supporting technical reports. As the lead agency under CEQA, Caltrans found that the Project would not have significant effect on the environment. The state clearing house number for the IS/EA posted on April 30, 2015 is 2013122065 and is available at: http://www.dot.ca.gov/dist4/envdocs.htm .

Section 2: Greenhouse Gas Emissions Effects

This section summarizes the results of the analysis of greenhouse gas emissions (GHG) as reported in the "State Route 85 Express Lanes Project Initial Study with Negative Declaration/Environmental Assessment with Finding of No Significant Impact" (April 2015) and the "State Route 85 Express Lanes Project Air Quality Impact Assessment" (October 2013). The Air Quality Impact Assessment examines the effects of the 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). The final IS/EA and the Air Quality Impact Assessment are collectively referred to in the GHG Emissions Effects section as "the documents."

2.1 Methodology

The GHG analysis methodology is described in Section 2.5 of the final IS/EA and Section 3.6 of the Air Quality Impact Assessment. The documents used the latest EMFAC model (EMFAC2011) for vehicles in Santa Clara County to determine existing year (2007), opening year (2015), and horizon year (2035) No Build, and opening year (2015) and horizon year (2035) Build GHG emissions. The Air Quality Impact Assessment was prepared to support the study requirements for the Project to comply with NEPA and CEQA, and was prepared pursuant to the University of California, Davis, Transportation Project-Level Carbon Monoxide Protocol (Garza, Graney, and Sperling 1997) and Caltrans guidelines.

The documents used the Sacramento Metropolitan Air Quality Management District's Roadway Construction Emissions Model (Version 7.1.4) with conservative assumptions regarding the duration and scope of construction to determine the expected emissions for Project construction.[3] The documents included emissions produced as a result of material processing, on-site construction equipment, and arising from traffic delays due to construction as construction GHG emissions.

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[3] The Sacramento Metropolitan Air Quality Management District's Roadway Construction Emissions Model is the standard model used to estimate construction emissions for San Francisco Bay Area roadway projects in state right-of-way.

2.2 Analysis Results

The documents state that the Bay Area Air Quality Management District (BAAQMD) CEQA guidelines require a quantitative analysis of operational GHG emission. 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. The Project's effect on GHG emissions is reported in Section 2.5 of the final IS/EA and Section 3.6 of the Air Quality Impact Assessment.

2.2.1 Context

The documents state that global climate change is a cumulative impact and that an individual project does not generate enough GHG emissions to significantly influence global climate change. The documents further noted that an individual project may, however, 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, the documents state that 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 documents stated that the incremental impacts of the Project must be compared with the effects of past, current, and probable future projects.

The documents state that the Project is included in the 2013 RTP and 2013 TIP, which contain adopted strategies for GHG emissions from transportation sources. The adopted TIP demonstrates that the region will remain below all approved "vehicle emission budgets" through the RTP study year.

The documents state that Caltrans has created and is implementing a Climate Action Program to reduce GHG emissions by making California's transportation system more efficient. The highest levels of CO_2 from mobile sources, such as automobiles, occur at stop-and-go speeds (0-25 mph) and speeds over 55 mph; the most severe emissions occur from 0-25 mph (see Figure 2). To the extent that a project relieves congestion by enhancing operations and improving travel times in high congestion travel corridors, GHG emissions, particularly CO_2, may be reduced.

Figure 2: Possible Effect of Traffic Operation Strategies in Reducing On-Road CO_2 Emissions
(Figure 4 in the Air Quality Impact Assessment)[5]

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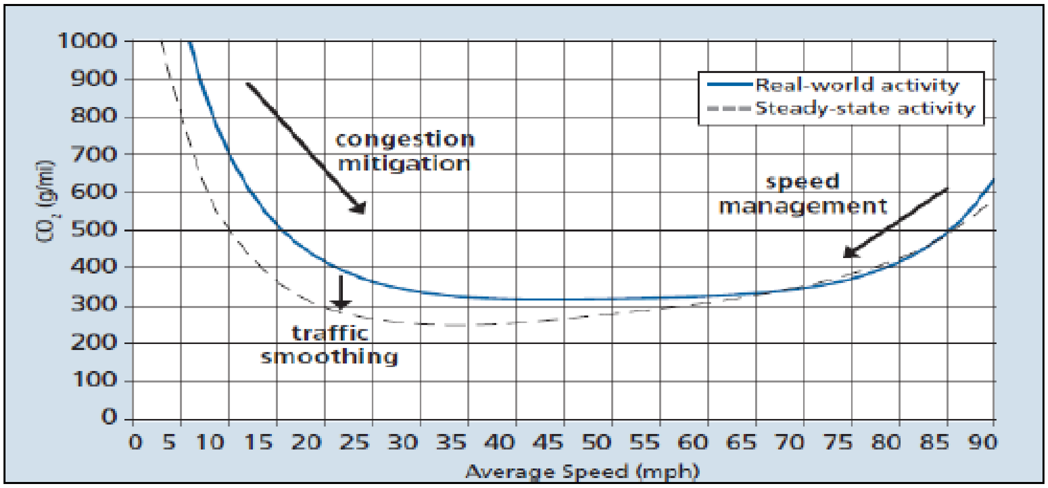
[4] This approach is supported by: Recommendations by the Association of Environmental Professionals on How to Analyze GHG Emissions and Global Climate Change in CEQA Documents (March 5, 2007), as well as the South Coast Air Quality Management District (Chapter 6: The CEQA Guide, April 2011) and the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

[5] Traffic Congestion and Greenhouse Gases: Matthew Barth and Kanok Boriboonsomsin (TR News 268 May-June 2010) http://www.uctc.net/access/35/access35_Traffic_Congestion_and_Grenhouse_Gases.shtml



2.2.2 Operational Phase

The documents state that for the opening year (2015), both the Build and No Build alternatives would have higher GHG emissions than existing conditions (2007), and Build emissions would be higher than No Build. For horizon year (2035), the No Build Alternative would have higher GHG emissions than both existing conditions and the Build Alternative, and the Build Alternative would have lower emissions than existing conditions.

The speeds used in the emissions model and shown in Table 1 represent the worst-case peak hour speeds along the SR 85 corridor within the Project limits. The VMT, associated speeds, and CO_2 emissions for years 2007, 2015, and 2035 are presented in Table 1, along with emissions of methane, nitrogen oxide, and carbon dioxide equivalent (CO2e). Table 1 shows existing (2007), Opening Year (2015) for both the Build and No Build alternatives, and Horizon Year (2035) for both the Build and No Build alternatives.

Table 1: Daily and Annual GHG Emissions
(Table 2.5.1-1 in the IS/EA)

Table 2.5.1-1: Daily and Annual GHG Emissions

Scenario	Peak Hour Speeds (mph)	Annual VMT	Annual Emissions (Metric Tons per Year)			
			CO_2	NO_2	CH_4	CO_2e
Existing (2007)	43	836,973,758	325,788	30	181	338,873
No Build (2015)	38.5	933,055,022	336,103	33	198	350,586
Build (2015)	47.5	995,888,663	337,700	36	211	353,158
No Build (2035)	29.5	999,656,046	336,059	35	218	351,624
Build (2035)	37.5	1,101,694,727	318,866	39	240	336,021

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

The documents noted that the numbers shown above in Table 1 may not necessarily be an accurate reflection of what the true CO_2 emissions because CO_2 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. The IS/EA further noted that EMFAC model emission rates are only for CO_2 that is directly emitted from vehicles by the combustion of fuel. The emission rates do not account for indirect life-cycle emissions associated with the production and distribution of the fuel and fuel additives like ethanol prior to combustion in the vehicle. The CO_2 emissions presented above are only useful for a comparison among the existing, No Build, and Build scenarios and should not be considered independently.

The documents state that the Project has been designed to decrease future delays and travel times and increase vehicle speeds throughout the Project corridor. Thus, allowing single occupancy vehicles to pay to use the express lanes would shift some traffic out of the general purpose lanes, contributing to improved operations and reduced congestion. The documents found that a future increase in average vehicle speed with the Build Alternative (47.5 mph compared with 38.5 mph with the No Build Alternative in 2015, and 37.5 mph compared with 29.5 mph with the No Build Alternative in 2035) would reduce CO_2 emissions, as vehicles would be traveling in the range when emissions are lowest (see Figure 2).

2.2.3 Construction Phase

The documents found that GHG emissions will be produced at different levels throughout the construction phase, but that the frequency and occurrence of GHGs can be reduced through innovations in plans and specifications and by implementing better traffic management during construction phases. Table 2 shows the anticipated total construction-related emissions from the Project.

Table 2. Construction-Related Emission Estimates for the Project
(Table 2.2.6-5 from the final IS/EA and Table 3-3 from the Air Quality Impact Assessment)

	ROG	**NOx**	**CO**	**PM_{10} Dust**	**PM_{10} Exhaust**	**$PM_{2.5}$ Dust**	**$PM_{2.5}$ Exhaust**	**CO_2**
Construction (lbs/day)	4.9	41.7	30.4	55.6	2.2	11.6	1.9	5,904
BAAQMD CEQA Threshold (lbs/day)	54	54	NA	BMP	82	BMP	54	NA

BMP: 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 2.2.6.4.
Definitions: NA: Not applicable; lbs/day: pounds per day; BAAQMD: Bay Area Air Quality Management District; CEQA: California Environmental Quality Act; ROG: reactive organic gases; NOx: nitrogen oxides; CO: carbon monoxide; PM: particulate matter; CO_2: carbon dioxide.

The documents also state that, 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 2.2.6.4 of the final IS/EA and Section 4 of the Air Quality Impact Assessment.

CEQA Conclusion

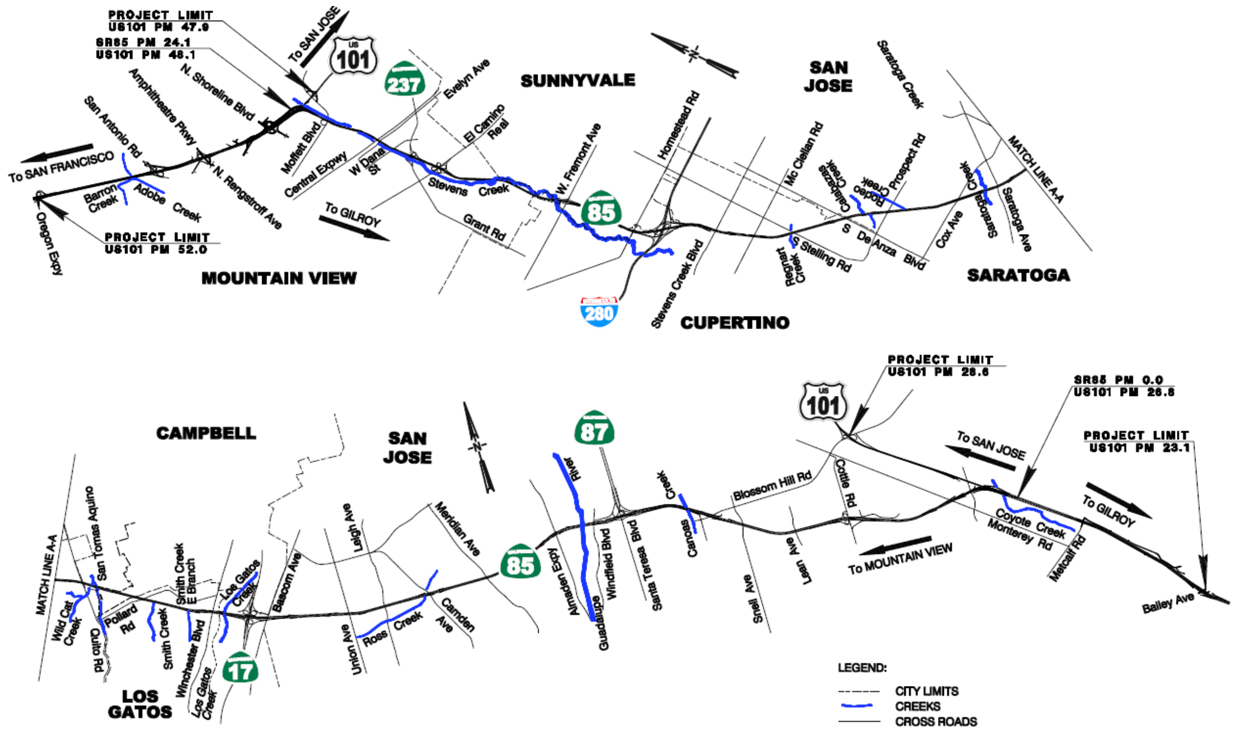
The documents state that while construction will result in a slight increase in GHG emissions during construction, it is anticipated that any increase in GHG emissions due to construction will be offset by the improvement in operational GHG emissions. While it is Caltrans's determination that in the 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 Section 2.5 of the final IS/EA and Section 3.6 of the Air Quality Impact Assessment.

Section 3: Vehicle Miles Traveled (VMT) Effects

This section summarizes VMT estimates as reported in the “State Route 85 Express Lanes Project Initial Study with Negative Declaration/Environmental Assessment with Finding of No Significant Impact” (April 2015) and the “Final Traffic Operations Analysis Report: SR 85 Express Lanes” (November 2013). The traffic study area encompasses SR 85 from just south of US 101 in Mountain View to US 101 in south San Jose to Express Lanes for both directions of the freeway and an additional 5.5 miles on US 101 in South San Jose, and 4.1 miles on US 101 in Mountain View (Figure 3). The final IS/EA and the traffic operations analysis report (TOAR), are collectively referred to in the VMT section as “the documents.”

The TOAR includes VMT as one of the system-wide measures of effectiveness, but it is not the single focus of the report.

Figure 3: Map of Traffic Study Area
(Figure 1-1 in the TOAR)



3.1 Methodology

The traffic analysis methodology is described in Section 2.1.3.1 of the IS/EA and Chapter 2 of the TOAR. The TOAR documents the existing (2015) and 20-year future 2035 horizon year conditions. Two alternatives, a No Build and a Build Alternative, were considered. The documents analyzed peak period conditions, defined as 6 AM to 9 AM (AM peak) and 3 to 7 PM (PM peak), and peak hour conditions within the peak periods (7 to 8 AM and 5 to 6 PM). The primary travel direction for the documents was reported as northbound in the AM peak and southbound in the PM peak. The documents state that the operating conditions were analyzed using the VISSIM[6] micro-simulation tool with assumptions regarding how dynamic pricing implemented during the AM and PM peak periods would influence demand for the study years.

The documents state that the VTA model is a modified version of the MTC regional model, developed to be consistent with methodologies used by MTC. The VTA countywide model includes enhancements to the MTC regional model to provide more detail in Santa Clara County and to more accurately model transit ridership and corridor-level freeway and arterial traffic volumes. The VTA model is a traditional four-step model including trip generation, trip distribution, mode choice, and transit and highway assignment.

The documents' analysis included examination of traffic operations within the "wing" segments of US 101 at both ends of SR 85. Separate VISSIM models were created for both the south and north wings. The south wing model includes the segment of US 101 from Bailey Road to Bernal Road. The north wing model covers the segment of US 101 from Ellis Street to north of Oregon/Embarcadero. The objective of including analysis of these wings was to determine whether the changes in travel demand and traffic flows resulting from implementation of the SR 85 express lanes would have a significant impact on US 101.

3.2 Analysis Results

The documents state that by increasing speed, reducing delay, and serving a higher volume of traffic, the Project can reasonably be expected to attract some vehicles that would otherwise divert to local roadways to avoid peak period congestion on SR 85. VMT forecasts referenced in this section are shown in Appendix A of this summary.

The documents state that in the peak direction of each period (northbound AM and southbound PM), the proposed Project produces an increase in VMT in 2015 and 2035 on SR-85. The increase in VMT is a reflection of two factors: 1) with reduced congestion, vehicles can more easily travel through the network and reach their destination; and 2) under the Build Alternative in 2015 and 2035, demand volumes on SR 85 increase (i.e., more vehicles want to use SR 85) which can lessen demand and improve conditions on other facilities. In the off-peak direction in each period for the SR-85, the Build alternative also serves higher VMT but the conditions expected under No Build and Build alternatives are more comparable. This is a reflection of the fact that there is little or no congestion in the off-peak direction and that traffic operates generally at free flow speeds. For the "wing" sections of US 101 in 2015 and 2035, conditions generally remain constant between the No Build and Build alternatives.

[6] VISSIM is a microscopic simulation modeling software capable of analyzing the vehicle to vehicle interaction along the roadway network.

Additionally, the Air Quality Impact Assessment states that the VMT per day and per year on SR-85 for opening year 2015 and horizon year 2035 would increase for the Build scenario compared to the No Build scenario because the Build condition would serve more demand.

3.2.1 Near-Term (2015) VMT Forecasts

The documents state that in the northbound direction, the Build Alternative results in a 14% increase in VMT during the AM peak period compared to the No Build alternative. In the off-peak northbound direction on SR-85 the Build alternative results in a VMT increase of 6% during the PM peak period.

The documents state that in the southbound direction for SR-85, comparing the Build Alternative to the No Build, there is a 2% increase in AM peak period, which is the result of differences in demands between No Build and Build. The documents state that in the peak southbound direction, the Build alternative results in a VMT increase of 6% during the PM peak period.

The documents state that in the AM peak period on southbound US 101, the Build Alternative shows small increases in VMT, which is incorrect. The correct results are included in Table 6-6 in the TOAR, and show that in the AM peak period on southbound US 101 the Build alternative results in less VMT than the No Build alternative. In the PM peak period, VMT on the southbound US 101 shows a modest increase in VMT. (VMT results for northbound US 101 were not discussed in the documents. Data can be found in Appendix A.)

The documents summarized the VMT findings along with other performance measures. 2015 VMT forecasts are shown in Appendix A.

3.2.2 Long-Term (2035) VMT Forecasts

The documents state that in the AM peak period on northbound SR 85, the Build Alternative results in a 14% increase in VMT compared to the No Build Alternative. In the PM peak period on northbound SR 85, the Build Alternative results in a 10% increase in VMT compared to the No Build Alternative.

The documents state that in the AM peak period on southbound SR 85, the Build Alternative results in a modest increase (5%) in VMT compared to the No Build Alternative. In the PM peak period on southbound SR 85, the Build Alternative results in a 7% increase in VMT compared to the No Build Alternative.

During the PM peak period, the documents state that VMT on northbound US 101 essentially does not change. The documents state that conditions on southbound US 101 during the AM peak period shows a modest increase in VMT (1%). (VMT results for the AM peak period on northbound US 101 and the PM peak period on southbound US 101 were not discussed in the documents. Data can be found in Appendix A.)

The documents summarized the VMT findings along with other performance measures. 2035 VMT forecasts are shown in Appendix A.

Section 4: Use of Express Lanes by Low-Income Populations

This section summarizes information on the use of the Project by low-income populations as reported in the "State Route 85 Express Lanes Project Initial Study with Negative Declaration/Environmental Assessment with Finding of No Significant Impact" (April 2015), and the "State Route 85 Express Lanes Project Community Impact Assessment" (July 2012). The purpose of the Community Impact Assessment (CIA) is to identify land use, growth, and community impacts that may result from the implementation of the SR 85 Express Lanes Project. All projects involving a federal action (funding, permit, or land) must comply with Executive Order (EO) 12898.[7] The IS/EA and the CIA are collectively referred to in this section as "the documents." The summary focuses on portions of the IS/EA and CIA that relate to the use of the Project by low-income populations.

4.1 Methodology

4.1.1 Identification of Low-Income Populations

The CIA was prepared pursuant to the Caltrans Standard Environmental Reference, including Environmental Handbook Volume 4, Community Impact Assessment (Caltrans 2011). The detailed methodology can be found in Section 5.3 of the CIA. The documents identify the study area by census tract block groups whose borders lie within a 0.5-mile radius of the Project corridor.

The documents state that low-income is defined based on the Department of Health and Human Service Poverty guidelines. Low-income persons were defined as those individuals with household incomes below the Census poverty threshold, which is a ratio of income to poverty level in the past 12 months that is below 1.0. For 2013, this was $23,550 for a family of four. The documents state that based on the data collected, the minority or low-income communities, also referred to as environmental justice (EJ) communities, were identified within the study area. The documents state that EJ communities are traditionally defined as a Census block group population that meets either or both of the following criteria: 1) contains 50 percent or more minority persons, and/or the block group contains 25 percent or more low-income person; 2) the percentage of minority and/or low-income persons is substantially greater than the average of the surrounding region.

4.1.2 Data Sources

The documents state that the 2006-2010 American Community Survey estimates of Census block group data for low-income populations were used for the CIA. The documents state that VTA has studied and conducted public outreach relating to the fairness of charging tolls. VTA began seeking public input on express lanes for SR 85 and US 101 in Santa Clara County in 2004. A primary focus of the public outreach

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[7] EO 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations directs federal agencies to take the appropriate and necessary steps to identify and address disproportionally high and adverse effects of federal projects on the health or environment of minority and low-income populations to the greatest extent practicable and permitted by law.

was on fairness and equity issues of charging tolls for express lane use. The outreach efforts are summarized in Section 1.3 of the CIA.

4.2 Analysis Results

4.2.1 Existing Conditions

The documents state that the percentage of low-income persons in San Mateo County and Santa Clara County is 6.8 percent and 10.5 percent, respectively. These percentages are both below 25 percent, and thus the first criterion mentioned previously in the summary was not appropriate to determine the presence of an EJ community for low-income populations as most of the Census block groups in the study area would be below 25 percent.

The documents state that for the second criterion, the "surrounding region" of the study area was defined as San Mateo and Santa Clara Counties. The average low-income population for these counties was calculated to be 9 percent. Thus, a Census block group that would be identified as an EJ community would have a low-income population of more than 19 percent (more than 10 percentage points greater than the average low-income population of 9 percent).

Table 3 presents population estimates with minority and low-income percentages for the region as a whole and also for the population living within the 0.5-mile EJ study area. Approximately 98 percent of the population living within the EJ study area is in Santa Clara County, with the remaining 2 percent in southern San Mateo County. The documents state that according to the 2010 ACS estimate, 9.4 percent of the surrounding region (previously defined as San Mateo and Santa Clara counties) are living below the U.S. Census poverty threshold. Within the study area, these percentages are lower, with low-income individuals representing 6.1 percent of the study area population (Table 3).

Table 3: Minority and Low-Income Percentages in the Region and Environmental Justice Study Area (Table 5-1 from the CIA)

Location	Total Population 2010[a]	% Minority[a]	% Low-Income[b]
State			
California	37,253,956	59.9%	15.8%
Region			
San Francisco Bay Area	7,150,739	57.6%	11.1%
San Mateo County	718,451	57.7%	6.8%
Santa Clara County	1,781,642	64.8%	10.5%
Communities			
Palo Alto	64,403	39.4%	5.2%
Mountain View	74,066	54.0%	6.7%
Sunnyvale	140,081	65.5%	6.6%
Los Altos	28,976	32.2%	2.5%
Cupertino	58,302	70.7%	3.8%
Saratoga	29,926	48.4%	3.8%
Los Gatos	29,413	23.0%	3.9%
San Jose	945,942	71.3%	11.5%
EJ Study Area	**341,347**	**54.6%**	**6.1%**

Sources:

[a] U.S. Census Bureau, 2010 Census

[b] U.S. Census Bureau, American Community Survey 2010 1-year estimates for State and Regional data, 2008-2010 3-year estimates for Community data, and 2006-2010 5-year estimates for the EJ Study Area.

4.2.2 Impact Analysis Results[8]

Use of the express lanes requires the ability to obtain a FasTrak® transponder. The documents identified a number of options to obtain a FasTrak transponder and noted that with all the options persons of all income levels and races would have generally similar access to a FasTrak account.

The documents noted that the initial cost to establish an account is less when paid with a credit card than with cash or check ($25 versus $70, although $20 of the $70 is refunded when the account is closed). The documents found that the higher initial cost for cash or check accounts could be considered an additional economic burden to those who do not pay by credit card, a portion of whom could be low-income or minority persons but, as the choice to use the express lanes (and establish the necessary FasTrak account) is voluntary, the higher initial costs for cash or check accounts do not constitute a disproportionately high and adverse effect.

The documents stated that the use of the express lanes also requires the ability to pay tolls, which will vary based on traffic conditions and that VTA has studied the issue of equity or fairness in charging tolls and whether this practice has a disproportionately high and adverse effect on any minority or low-

[8]Because low-income falls under the environmental justice definition, all environmental justice impact results from the documents are listed in the summary. The documents analyze all environmental census track block groups and do not separately analyze impacts or use by low-income and minority populations.

income populations. The documents stated that more than 10 years of data are available in California for express lanes in Orange and San Diego counties, where FasTrak is also used. The documents stated that the data indicate that both high- and low-income drivers use express lanes during periods of traffic congestion and that additional study by Cal Poly San Luis Obispo of the SR 91 Express Lanes in Orange County found that roughly one-quarter of the motorists who elect to use the toll lanes at any given time are in the high-income bracket, but the majority are low- and middle-income motorists. The document also stated that in focus groups of drivers who use SR 85, respondents from all income levels said they would use express lanes.

The documents stated that although express lane tolls would represent a slightly greater economic burden to low-income drivers than to middle- and high-income drivers, the burden was not disproportionate because express lane use is voluntary and that drivers have the option to choose to pay a toll and are not denied a mobility option they previously had; rather, the option of paying a toll to obtain travel time savings would be available to drivers of all income groups. The documents further found that unlike sales taxes for transportation measures, express lane tolls do not affect non-users and non-drivers.

The documents state that the Project study area contains lower percentages of minority and low-income individuals than the surrounding region. The CIA found that the data indicated the presence of EJ communities in the study area with a substantial population of minority and/or low-income residents. As such, the documents found that the Project's impacts, including increase in noise levels and temporary construction-period impacts (e.g., dust and noise impacts), would be borne by these communities. However, the documents stated that as the Project's purpose is to relieve congestion and improve traffic flow on SR 85 and US 101 within the Project limits, the Project would directly benefit these same communities.

The documents state that construction would occur primarily in the median of the corridor and potential impacts would be minimal and temporary. The documents found that construction impacts are not expected to adversely affect adjacent and surrounding communities, including those communities identified as EJ. The documents found that express lanes allow drivers of all income groups an additional travel option that they did not have previously. Therefore, the Project would not have disproportionately high and adverse impacts on minority and low-income populations.

Appendix A: Measures of Effectiveness from the TOAR

Table 3-1
2015 AM Peak Network Performance Measure Comparison – Northbound SR 85

PERFORMANCE MEASURE	NO BUILD	BUILD	BUILD – NO BUILD	
			DIFFERENCE	**% DIFFERENCE**
Peak Period				
Total Distance Traveled (VMT) (mi)	359,911	408,928	49,017	14%
Total Travel Time (VHT) (hr)	9,811	7,752	-2,059	-21%
Total Delay (VHD) (hr)	4,603	1,917	-2,686	-58%
Average Delay per Vehicle (sec)	312	127	-185	-59%
Average Speed (mph)	37	53	16	43%
Peak Hour				
Total Distance Traveled (VMT) (mi)	131,657	147,519	15,862	12%
Total Travel Time (VHT) (hr)	3,366	2,762	-604	-18%
Total Delay (VHD) (hr)	1,463	654	-809	-55%
Average Delay per Vehicle (sec)	248	111	-137	-55%
Average Speed (mph)	39	53	14	37%

Source: URS, 2013
(Table 6-1 from the TOAR)

Table 3-2
2015 AM Peak Network Performance Measure Comparison – Southbound SR 85

PERFORMANCE MEASURE	NO BUILD	BUILD	BUILD – NO BUILD	
			DIFFERENCE	**% DIFFERENCE**
Peak Period				
Total Distance Traveled (VMT) (mi)	200,617	205,373	4,755	2%
Total Travel Time (VHT) (hr)	3,244	3,311	67	2%
Total Delay (VHD) (hr)	264	261	-3	-1%
Average Delay per Vehicle (sec)	24	24	0	-1%
Average Speed (mph)	62	62	0	0%
Peak Period				
Total Distance Traveled (VMT) (mi)	75,713	76,083	371	0%
Total Travel Time (VHT) (hr)	1,215	1,220	4	0%
Total Delay (VHD) (hr)	85	86	1	1%
Average Delay per Vehicle (sec)	21	21	0	0%
Average Speed (mph)	62	62	0	0%

Source: URS, 2013
(Table 6-2 from the TOAR)

Table 3-3
2015 PM Peak Network Performance Measure Comparison – Northbound SR 85

PERFORMANCE MEASURE	NO BUILD	BUILD	BUILD – NO BUILD	
			Difference	**% Difference**
Peak Period				
Total Distance Traveled (VMT) (mi)	344,853	367,092	22,239	6%
Total Travel Time (VHT) (hr)	5,801	6,134	333	6%
Total Delay (VHD) (hr)	806	729	-77	-10%
Average Delay per Vehicle (sec)	43	38	-5	-11%
Average Speed (mph)	59	60	1	1%
Peak Period				
Total Distance Traveled (VMT) (mi)	99,941	108,358	8,417	8%
Total Travel Time (VHT) (hr)	1,744	1,907	164	9%
Total Delay (VHD) (hr)	302	315	13	4%
Average Delay per Vehicle (sec)	55	56	1	2%
Average Speed (mph)	57	57	0	-1%

Source: URS, 2013
(Table 6-7 from the TOAR)

Table 3-4
2015 PM Peak Network Performance Measure – Southbound SR 85

PERFORMANCE MEASURE	NO BUILD	BUILD	BUILD – NO BUILD	
			DIFFERENCE	**% DIFFERENCE**
Peak Period				
Total Distance Traveled (VMT) (mi)	527,858	557,672	29,814	6%
Total Travel Time (VHT) (hr)	13,235	13,367	132	1%
Total Delay (VHD) (hr)	5,453	5,143	-310	-6%
Average Delay per Vehicle (sec)	236	218	-18	-8%
Average Speed (mph)	40	42	2	4%
Peak Hour				
Total Distance Traveled (VMT) (mi)	136,267	145,781	9,514	7%
Total Travel Time (VHT) (hr)	3,860	3,694	-166	-4%
Total Delay (VHD) (hr)	1,849	1,548	-301	-16%
Average Delay per Vehicle (sec)	272	223	-50	-18%
Average Speed (mph)	35	40	4	12%

Source: URS, 2013
(Table 6-8 from the TOAR)

Table 3-5
2015 AM Peak Network Performance Measure Comparison – US 101 "Wings"[1]

PERFORMANCE MEASURE	NO BUILD	BUILD	BUILD – NO BUILD	
			DIFFERENCE	**% DIFFERENCE**
NORTHBOUND				
Total Distance Traveled (VMT) (mi)	351,748	351,866	118	0%
Total Travel Time (VHT) (hr)	11,008	11,973	965	9%
Total Delay (VHD) (hr)	1,033	1,225	192	19%
Average Delay per Vehicle (sec)	66	78	12	18%
Average Speed (mph)	32	29	-3	-8%
SOUTHBOUND				
Total Distance Traveled (VMT) (mi)	402,527	401,178	-1,349	0%
Total Travel Time (VHT) (hr)	7,666	7,758	92	1%
Total Delay (VHD) (hr)	87	104	17	20%
Average Delay per Vehicle (sec)	6	8	2	20%
Average Speed (mph)	53	52	-1	-2%

Note: 1. Includes both the north (Ellis Street to north of Oregon/Embarcadero) and south (Bailey Road to Bernal Road) wings.
Source: URS, 2013
(Table 6-6 from the TOAR)

Table 3-6
2015 PM Peak Network Performance Measure Comparison – US 101 "Wings"[1]

PERFORMANCE MEASURE	NO BUILD	BUILD	BUILD – NO BUILD	
			DIFFERENCE	**% DIFFERENCE**
Northbound				
Total Distance Traveled (VMT) (mi)	393,316	390,511	-2,805	-1%
Total Travel Time (VHT) (hr)	11,953	11,239	-715	-6%
Total Delay (VHD) (hr)	810	655	-155	-19%
Average Delay per Vehicle (sec)	45.1	37.0	-8.1	-18.0%
Average Speed (mph)	32.9	34.8	1.8	6%
Southbound				
Total Distance Traveled (VMT) (mi)	567,260	571,070	3,809	1%
Total Travel Time (VHT) (hr)	21,931	21,875	-57	0%
Total Delay (VHD) (hr)	2,169	2,177	8	0%
Average Delay per Vehicle (sec)	103.6	103.0	-0.6	-1%
Average Speed (mph)	25.9	26.1	0.2	1%

Note: 1. Includes both the north (Ellis Street to north of Oregon/Embarcadero) and south (Bailey Road to Bernal Road) wings.
Source: URS, 2013
(Table 6-12 from the TOAR)

Table 3-7
2035 AM Peak Network Performance Measure Comparison – Northbound SR 85

PERFORMANCE MEASURE	NO BUILD	BUILD	BUILD – NO BUILD	
			DIFFERENCE	**% DIFFERENCE**
Peak Period				
Total Distance Traveled (VMT) (mi)	367,024	418,602	51,578	14%
Total Travel Time (VHT) (hr)	12,400	9,287	-3,113	-25%
Total Delay (VHD) (hr)	7,097	3,318	-3,779	-53%
Average Delay per Vehicle (sec)	463	212	-251	-54%
Average Speed (mph)	30	45	15	52%
Peak Period				
Total Distance Traveled (VMT) (mi)	133,270	150,357	17,087	13%
Total Travel Time (VHT) (hr)	4,442	3,124	-1,318	-30%
Total Delay (VHD) (hr)	2,520	976	-1,544	-61%
Average Delay per Vehicle (sec)	400	158	-242	-60%
Average Speed (mph)	30	48	18	60%

Source: URS, 2013
(Table 7-1 from the TOAR)

Table 3-8
2035 AM Peak Network Performance Measure Comparison – Southbound SR 85

PERFORMANCE MEASURE	NO BUILD	BUILD	BUILD – NO BUILD	
			DIFFERENCE	**% DIFFERENCE**
Peak Period				
Total Distance Traveled (VMT) (mi)	260,794	278,199	17,405	5%
Total Travel Time (VHT) (hr)	4,485	4,663	178	3%
Total Delay (VHD) (hr)	593	562	-31	-4%
Average Delay per Vehicle (sec)	44	40	-4	-5%
Average Speed (mph)	58	60	2	2%
Peak Period				
Total Distance Traveled (VMT) (mi)	96,696	101,987	5,291	5%
Total Travel Time (VHT) (hr)	1,651	1,706	55	3%
Total Delay (VHD) (hr)	208	200	-8	-4%
Average Delay per Vehicle (sec)	40	38	-2	-5%
Average Speed (mph)	59	60	1	2%

Source: URS, 2013
(Table 7-2 from the TOAR)

Table 3-9
2035 PM Peak Network Performance Measure Comparison – Northbound SR 85

PERFORMANCE MEASURE	NO BUILD	BUILD	BUILD – NO BUILD	
			DIFFERENCE	**% DIFFERENCE**
Peak Period				
Total Distance Traveled (VMT) (mi)	398,216	436,357	38,140	10%
Total Travel Time (VHT) (hr)	7,853	8,460	607	8%
Total Delay (VHD) (hr)	2,095	2,031	-64	-3%
Average Delay per Vehicle (sec)	102	92	-9	-9%
Average Speed (mph)	51	52	1	2%
Peak Period				
Total Distance Traveled (VMT) (mi)	111,640	123,244	11,605	10%
Total Travel Time (VHT) (hr)	2,402	2,640	239	10%
Total Delay (VHD) (hr)	795	827	32	4%
Average Delay per Vehicle (sec)	132	130	-2	-1%
Average Speed (mph)	47	47	0	0%

Source: URS, 2013
(Table 7-7 from the TOAR)

Table 3-10
2035 PM Peak Network Performance Measure Comparison – Southbound SR 85

PERFORMANCE MEASURE	NO BUILD	BUILD	BUILD – NO BUILD	
			DIFFERENCE	**% DIFFERENCE**
Peak Period				
Total Distance Traveled (VMT) (mi)	520,663	557,778	37,114	7%
Total Travel Time (VHT) (hr)	21,830	18,340	-3,491	-16%
Total Delay (VHD) (hr)	14,168	10,119	-4,049	-29%
Average Delay per Vehicle (sec)	597	416	-181	-30%
Average Speed (mph)	24	31	7	27%
Peak Period				
Total Distance Traveled (VMT) (mi)	128,687	141,710	13,023	10%
Total Travel Time (VHT) (hr)	6,360	5,513	-847	-13%
Total Delay (VHD) (hr)	4,460	3,426	-1,034	-23%
Average Delay per Vehicle (sec)	597	465	-133	-22%
Average Speed (mph)	20	26	6	27%

Source: URS, 2013
(Table 7-8 from the TOAR)

Table 3-11
2035 AM Peak Network Performance Measure Comparison – US 101 "Wings"[1]

PERFORMANCE MEASURE	NO BUILD	BUILD	BUILD – NO BUILD	
			DIFFERENCE	**% DIFFERENCE**
Northbound				
Total Distance Traveled (VMT) (mi)	407,928	399,959	-7,969	-2%
Total Travel Time (VHT) (hr)	13,268	12,535	-733	-6%
Total Delay (VHD) (hr)	1,012	635	-377	-37%
Average Delay per Vehicle (sec)	56	35	-21	-37%
Average Speed (mph)	31	31.9	1	4%
Southbound				
Total Distance Traveled (VMT) (mi)	461,363	463,896	2,534	1%
Total Travel Time (VHT) (hr)	11,979	12,060	81	1%
Total Delay (VHD) (hr)	543	552	9	2%
Average Delay per Vehicle (sec)	31	32	1	2%
Average Speed (mph)	39	39	-0	0%

Note: 1. Includes both the north (Ellis Street to north of Oregon/Embarcadero) and south (Bailey Road to Bernal Road) wings.
Source: URS, 2013
(Table 7-6 from the TOAR)

Table 3-12
2035 PM Peak Network Performance Measure Comparison – US 101 "Wings"[1]

PERFORMANCE MEASURE	NO BUILD	BUILD	BUILD – NO BUILD	
			DIFFERENCE	**% DIFFERENCE**
Northbound				
Total Distance Traveled (VMT) (mi)	479,754	479,885	131	0%
Total Travel Time (VHT) (hr)	8,253	8,721	468	6%
Total Delay (VHD) (hr)	127	120	-6	-5%
Average Delay per Vehicle (sec)	6.0	5.8	-0.2	-4%
Average Speed (mph)	58.1	55.0	-3.1	-5%
Southbound				
Total Distance Traveled (VMT) (mi)	679,942	676,038	-3,904	-1%
Total Travel Time (VHT) (hr)	23,286	23,450	164	1%
Total Delay (VHD) (hr)	1,212	1,392	179	15%
Average Delay per Vehicle (sec)	45.3	52.0	6.8	15%
Average Speed (mph)	29.2	28.8	-0.4	-1%

Note: 1. Includes both the north (Ellis Street to north of Oregon/Embarcadero) and south (Bailey Road to Bernal Road) wings.
Source: URS, 2013
(Table 7-12 from the TOAR)