METROPOLITAN
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COMMISSION

Summary of United States Highway 101 Express Lanes Project in Santa Clara County Initial Study with Mitigated Negative Declaration/Environmental Assessment with Finding of No Significant Impact and Technical Analyses: Greenhouse Gas Emissions, Vehicle Miles Traveled and Use by Low-Income Populations

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Metropolitan Transportation Commission
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Oakland, CA 94607

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 United States Highway 101 (US 101) Express Lane Project (Project) in both directions between East Dunne Avenue in Morgan Hill and approximately the Oregon Expressway/Embarcadero Road interchange in Palo Alto (Figure 1). The Project is proposed by the State of California Department of Transportation (Caltrans) in cooperation with the Santa Clara Valley Transportation Authority (VTA). As the lead agency, Caltrans prepared the Initial Study with Mitigated Negative Declaration/Environmental Assessment (IS/EA) with Finding of No Significant Impact (FONSI) and technical studies in accordance with the California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA). The IS/EA and technical studies follow the formats and procedures outlined in Caltrans' Standard Environmental Reference.

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 prepared an IS/EA, which addresses the proposed Project's potential to have adverse impacts on the environment.

Two alternatives were considered in the environmental document: the Build Alternative and the No Build Alternative. The Build Alternative, also referred to as the Project, would convert the existing northbound and southbound high occupancy vehicle (HOV) lanes (a single lane in each direction) to high occupancy toll (HOT) lanes (referred to as express lanes) and widen the freeway to add a second express lane in both directions from Cochrane Road in Morgan Hill to SR 85 in San Jose, and from Blossom Hill Road in San Jose to North Fair Oaks Avenue in Sunnyvale to create a dual express lane facility in these segments (Figure 2). The proposed dual express lanes would transition to a single express lane at each end of the corridor where they begin to conform to the existing highway lanes. The Project would also convert the US 101/SR 85 HOV direct connectors in Mountain View to express lane connectors. Auxiliary lanes would be added in both directions on US 101 between Great America Parkway and Lawrence Expressway, in the northbound direction on US 101 between Lawrence Expressway and North Fair Oaks Avenue, and in the northbound direction on US 101 between Old Bayshore Highway and North First Street. The Project also proposes to add new retaining walls in several areas. The Project length is 36.55 miles on US 101 and 1.1 miles on SR 85, for a total of 37.65 miles.

Like the existing HOV lanes, the express lanes would be adjacent to the center median and would be separated from the adjacent general purpose lanes by lane striping. The striping would be changed from the existing dashed line for the HOV lane to a double-line striped buffer zone. The striped buffer zone would have designated openings to provide access into and out of the express lanes; however continuous access may be expanded to maintain much of the existing continuous access striping scheme, where appropriate, during the design phase of the Project. Express lane operations would be tightly integrated with monitoring of traffic speed and density, enforcement, incident management, and other subsystems to maintain free-flow conditions. Static overhead signs would be installed to notify drivers as they approach an express lane access zone. An overhead messaging sign located just before each access zone would display the current toll rates. The messaging sign would display the price to the destination served by the next exit from the express lanes facility as well as other downstream exits. The toll rates on the messaging signs would be updated every 3 to 6 minutes to reflect changing speed and traffic density measured at intervals along the express lanes. Overhead antennas in the express lanes would "read" the toll tag and track the number of zones so that the correct toll is charged to the customer's FasTrak® prepaid account. SOVs would need to have FasTrak toll tags to use the express lanes. HOVs do not require a FasTrak toll tag to use the express lanes.

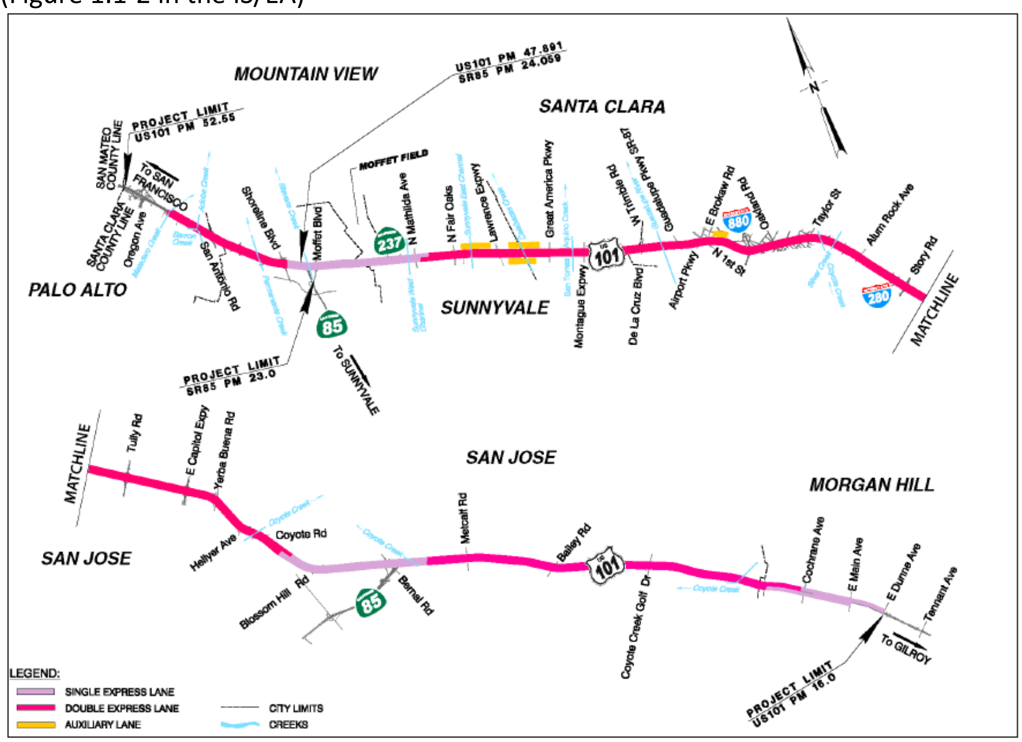
The No Build Alternative assumes that no modifications are made to US 101 in Santa Clara County, including the continuous access HOV lane, other than routine maintenance and rehabilitation of the facility and currently planned and programmed projects within the area.

1.2 Environmental Review

As the lead agency, Caltrans has prepared the IS/EA, which addresses the proposed Project's potential to have adverse impacts on the environment. The IS/EA, State Clearing House number SCH# 2015012012, was posted on August 27, 2015. The IS/EA and technical appendices are available at: http://www.dot.ca.gov/dist4/envdocs.htm.

Figure 1: Project Location and Regional Setting
(Figure 1.1-1 in the IS/EA)

Figure 2: Project Area
(Figure 1.1-2 in the IS/EA)



Section 2: Greenhouse Gas (GHG) Emissions Effects

This section summarizes the results of the analysis of greenhouse gas emissions (GHG) as reported in the "US 101 Express Lanes Project IS/EA with FONSI" (July 2015) and the "US 101 Express Lanes Project Air Quality Impact Assessment" (January 2014). The Air Quality Impact Assessment examines the effects of the proposed 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 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 3 of the Air Quality Impact Assessment. The analysis of the operational phase involves an evaluation of GHG emissions, represented as CO_2 equivalents (CO_2e)[1] for the existing year (2009), opening year No Build (2015), opening year Build (2015), horizon year No Build (2035), and horizon year Build (2035). GHG emissions were modeled using the latest EMFAC model (EMFAC2011) for vehicles in Santa Clara County. The Air Quality Impact Assessment is intended to support the study requirements for the Project to comply with the NEPA and CEQA, and has been prepared pursuant to the University of California, Davis, Transportation Project-Level Carbon Monoxide Protocol (Garza, Graney, and Sperling 1997) and Caltrans guidelines.

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 model uses equipment data and emission factors from OFFROAD2011 and EMFAC2011.

2.2 Analysis Results

The documents state the Bay Area Air Quality Management District (BAAQMD) CEQA guidelines 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.

The Project's effect on GHG emissions during operations and construction is reported in Section 2.5 of the IS/EA and Sections 3.4 and 3.6 of the Air Quality Impact Assessment.

2.2.1 Summary

The documents state that the traffic analysis estimates that the average speeds would increase for the Build scenario compared to No Build. The improvement in vehicle efficiencies due to the increase speeds with the Build Alternative would result in a decrease in GHG emissions compared to the No Build

[1] Because different GHGs have different individual global warming potential (GWP) values, CO_2e is used to represent the equivalent amount of CO2 that would have the same total GWP as the given mixture of GHGs.

Alternative. Both the Build and No Build Alternatives in opening year and horizon year would have higher GHG than existing conditions. While it is Caltrans determination that in the absence of further regulatory or scientific information related to GHG emissions and CEQA significance, Caltrans states 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 states it is firmly committed to implementing measures to help reduce GHG emissions and details the measures in Section 2.5.1.2 of the IS/EA and Section 3.6.2 of the Air Quality Impact Assessment.

2.2.2 Context

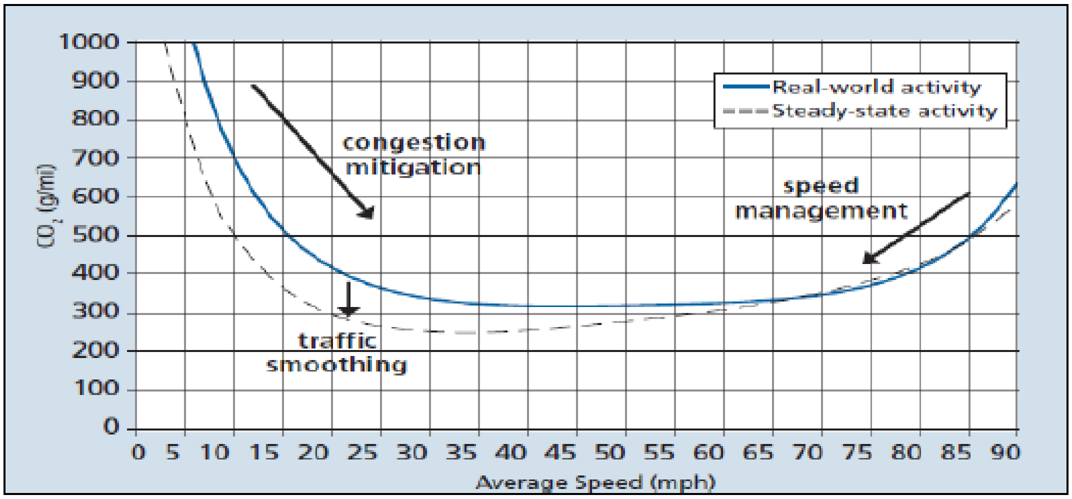
The documents state that global climate change is a cumulative impact. An individual project does not generate enough GHG emissions to significantly influence global climate change. This means that a project may contribute to a potential impact through its incremental change in emissions when combined with the contributions of all other sources of GHG[2]. 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.

The documents state that the Project is included in the regional emissions analysis conducted by MTC for the 2013 Transportation Improvement Plan (TIP). The design concept and scope of the proposed Project is consistent with the project description in the 2013 TIP, and the assumptions in MTC's regional emissions analysis.

The documents state that Caltrans has created and is implementing a Climate Action Program that was published in December 2006[3]. One of the main strategies in Caltrans' Climate Action Program to reduce GHG emissions is to make California's transportation system more efficient. The highest levels of carbon dioxide (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 3). 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 3: Possible Effect of Traffic Operation Strategies in Reducing On-Road CO_2 Emissions (Figure 4 in the Air Quality Impact Assessment)[4]

[2] 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).
[3] Caltrans Climate Action Program is located at the following address: http://www.dot.ca.gov/hq/tpp/offices/ogm/key_reports_files/State_Wide_Strategy/Caltrans_Climate_Action_Program.pdf
[4] 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



2.2.3 Operational Phase

Table 1 shows existing year, opening year and horizon year GHG emissions expressed in metric tons per year of CO_2e for the Build Alternative and No Build Alternative. A detailed table of the EMFAC 2011 GHG Analysis results is located in Appendix C of the Air Quality Impact Assessment.

Table 1: Annual GHG Emissions
(Table 3-5 in the Air Quality Impact Assessment)

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.

The documents state that 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 the opening year and horizon year would have higher GHG emissions than existing conditions (2009). The speeds used in the emissions model and shown in Table 1 represent the worst-case peak hour speeds. The VMT and emissions for the Build Alternative in 2015 and 2035 include the predicted increased traffic for both the conversion of the HOV lane to an express lane use, and the addition of a second express lane for most of the corridor. The documents state that the numbers in Table 1 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[5], rate of acceleration, and the aerodynamics and efficiency of the vehicles. The documents state that the GHG emissions are only useful for a comparison between the No Build and Build scenarios and should 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.

The documents state that the proposed Project is not anticipated to result in any increase in operational GHG emissions.

2.2.4 Construction Phase

The documents state that construction GHG emissions for transportation projects include emissions produced as a result of material processing, emissions produced by onsite construction equipment, and emissions arising from traffic delays due to construction. The documents also state that currently, BAAQMD has not adopted GHG significance thresholds that apply to construction projects. The construction period GHG emissions from Project implementation with and without mitigation are shown in Tables 2 and 3.

Table 2: Unmitigated Construction-Related Emissions Estimates for the Build Alternative (Table 3-3 in 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)	22	**253**	114	283	12	59	10	28,762
BAAQMD CEQA Threshold (lbs/day)	**54**	**54**	**NA**	**BMP**	**82**	**BMP**	**54**	**NA**

NA: Not available

Table 3: Mitigated Construction-Related Emissions Estimates for the Build Alternative (Table 3-4 in 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)	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

The IS/EA states that unmitigated construction activities were estimated to generate a total of 6,314 tonnes of CO_2 over the duration of construction. These emissions would be produced at different levels throughout the construction phase. The slight increases in GHG emissions during construction would be

[5]EMFAC2011 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.

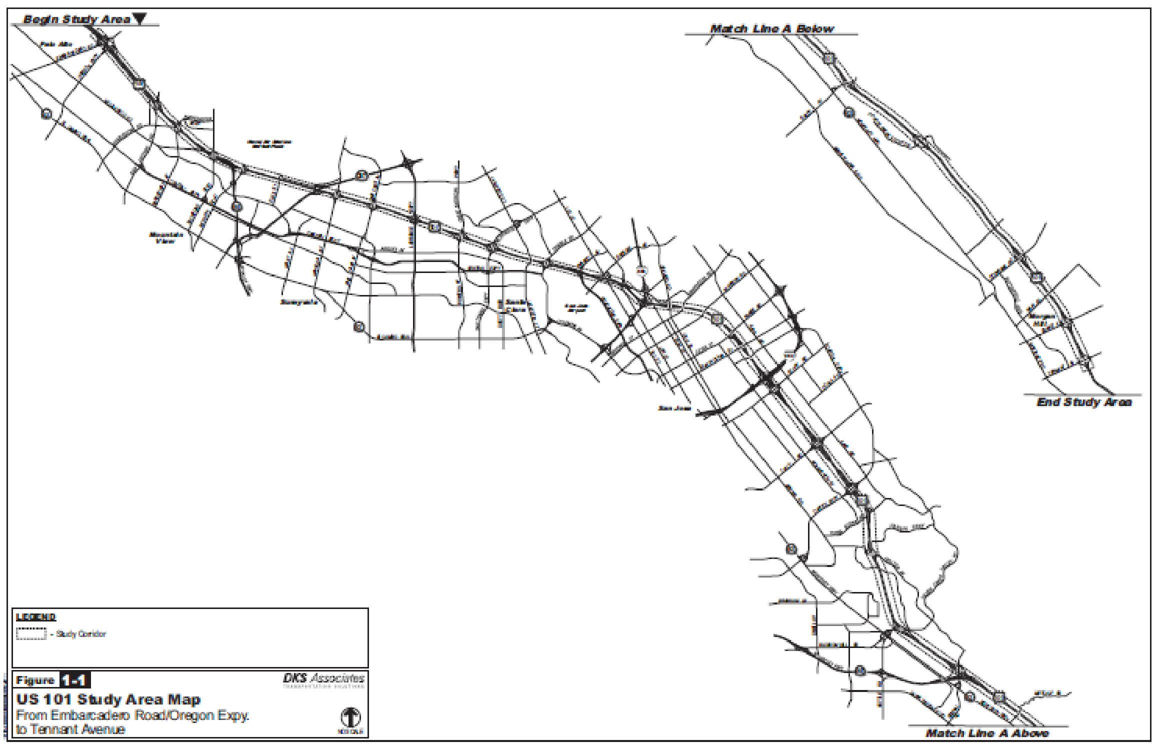
offset by the improvement in operational emissions. With innovations such as longer pavement lives, improved traffic management plans, and changes in roadway construction materials, the GHG emissions produced during construction can be reduced to some degree by longer intervals between maintenance and rehabilitation events. Section 2.2.6.4 of the IS/EA and Section 4 of the Air Quality Impact Assessment lists the measures to reduce construction emissions.

Section 3: Vehicle Miles Traveled (VMT) Effects

This section summarizes vehicle miles traveled (VMT) estimates as reported in the "US 101 Express Lanes Project IS/EA with FONSI" (July 2015) and the "Final Traffic Operations Analysis Report: US 101 Express Lanes" (June 2014). The traffic operations analysis report (TOAR) documents the existing and future conditions related to transportation without and with the express lanes on the US-101 corridor, between Morgan Hill and Palo Alto. The majority of detailed information relating to VMT is located in the TOAR. For the instances where the information presented in this summary was included in both the IS/EA and the TOAR, these two reports will be referred to in this section as "the documents". The overall Project limits are 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 (Figure 4).

The TOAR includes VMT as one of the System-wide Measures of Effectiveness (MOE), and is not the single focus of the report.

Figure 4: US 101 Study Area Map
(Figure 1-1 in the TOAR)



3.1 Methodology

The traffic analysis methodology is described in Chapter 2 and Appendices B and C of the TOAR. The traffic forecasts presented in the documents are based on VTA's countywide travel demand model and a detailed operational analysis using a VISSIM micro-simulation model. VISSIM is a microscopic simulation model capable of analyzing the vehicle to vehicle interaction along the freeway mainline, HOV facilities, and ramps. Existing conditions VISSIM models were developed for both AM (6-10 AM) and PM (3-7 PM) peak periods[6] and calibrated to replicate observed conditions. The traffic analysis was conducted for existing conditions (2009), opening year (2015) and design horizon year (2035). A No Build and Build Alternative was considered for each future year. The VISSIM models were validated using Caltrans (2002) and FHWA (2003) traffic micro-simulation modeling software guidelines.

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 better detail in Santa Clara County and was designed to more accurately model transit ridership and corridor-level freeway and arterial traffic volumes. The VTA model used current projections from the Association of Bay Area Governments (ABAG) 2009 forecasts for 2015 and 2035 and the proposed transportation improvements through VTA's Long Range Plan VTP 2035. The VTA model is a traditional four-step model that includes trip generation, trip distribution, mode choice, and transit and highway assignment. The VTA model was updated and recalibrated in 2005. All assumptions for the model are detailed in Appendix A of the TOAR. VMT, one of the MOEs, was computed with VISSIM models for comparing No Build and Build Alternative traffic operations for 2015 and 2035. VMT is a measure of the total vehicle miles of travel along the study freeway network.

3.2 Analysis Results

The documents state that it is important to recognize that the Project's operational improvements are achieved while serving significantly higher VMT, as well as higher vehicular and person throughput. These increases in VMT and throughput are, in part, a result of the increased demand volumes on US 101 under the Build Alternative (i.e., more drivers want to use US 101) which can lessen demand and improve conditions on other facilities. VMT forecasts referenced in this section are shown in Appendix A of this summary.

3.2.2 2015 Peak Period VMT Forecasts

The documents summarize the VMT findings with other MOEs. They state that for 2015 AM peak northbound study period, VMT with the Build Alternative is 12 percent greater (+118,971 VMT) than the No Build. The increase in VMT is a reflection of two factors: 1) with the reduced congestion, vehicles can more easily travel through the network and reach their destination; and 2) under the Build Alternative, demand volumes on US 101 increase which can lessen demand and improve conditions on other facilities. In the southbound direction, the documents state that there is essentially no difference with respect to the network performance measures between the No Build and Build Alternatives during the 2015 AM peak period. The documents state that the slight increase in VMT is the result of slightly higher demands for the Build Alternative.

The documents state that during the 2015 PM peak period in the northbound direction, the Build Alternative produces an increase of nearly 6,500 VMT (+1%). In the 2015 PM peak southbound direction, the Build Alternative produces an increase of 133,723 VMT (+9%). The increase in VMT is, in part, a

[6] The documents state that although the HOV lane restrictions are currently enforced between 5-9 AM the 6-10 AM analysis period was selected because it better captures when congestion occurs within the corridor.

result of the increase demand volumes on US 101 under the Build Alternative which can lessen demand and improve conditions on other facilities.

3.2.3 2035 Peak Period VMT Forecasts

The documents state that in the 2035 northbound AM peak period, the Build Alternative shows a 9 percent increase in VMT (+84,093 VMT). In the 2035 northbound AM peak hour, the Build Alternative increases VMT by 6 percent, as compared to the No Build. In the 2035 southbound AM peak period Build Alternative, VMT increases by 4 percent (+60,629 VMT).

The documents state that in the 2035 northbound PM peak period, the Build Alternative results in a 10 percent increase in VMT (+88,850 VMT). A similar pattern of benefits occurs in the northbound PM peak hour. In the 2035 southbound PM peak period, the Build Alternative results in a 17 percent increase in VMT (+257,549 VMT).

The documents state that the increase in VMT is, in part, a results of the increased demand volumes on US 101 under the Build Alternative (more vehicles want to use US 101) which can lessen demand and improve conditions on other facilities.

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

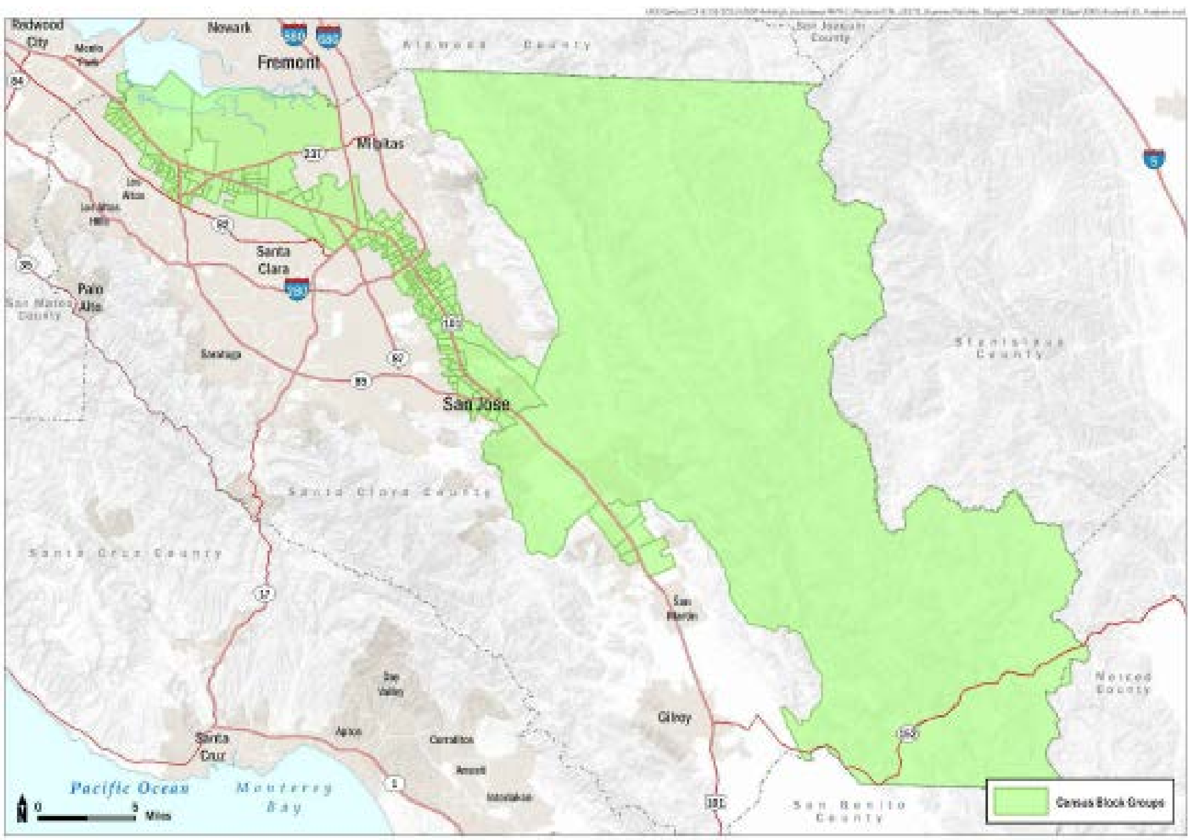
This section summarizes information on the use of the Project by low-income populations as reported in the "US 101 Express Lanes Project IS/EA with FONSI" (July 2015) and the "US 101 Express Lanes Project Community Impact Assessment" (December 2012). The purpose of the Community Impact Assessment (CIA) is to identify land use, growth and community impacts that may result from the implementation of the Project. 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 has been 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 environmental justice study area for the analysis is defined as all Census block groups whose borders lie within a 0.5-mile radius of the Project corridor (Figure 5).

Figure 5: Environmental Justice Study Area; Green areas are the Census Block Groups
(Figure 2.1.1-1 in the IS/EA)



The documents state that low-income was defined based on the US Department of Health and Human Services poverty guidelines. For 2014, this was $23,850 for a family of four. The documents state that Environmental Justice (EJ) communities are traditionally defined as a Census block group population that meets at least one of the following criteria: 1) a low-income population that is 25 percent or more of the total population of the community, or a minority population that is 50 percent or more of the total population of the community; 2) or a low-income and/or minority population that is more than 10 percentage points higher than the surrounding region.

4.1.2 Data Sources

The documents state that the 2010 Census data for minority populations and 2006-2010 American Community Survey estimates of block group data for low-income populations were used for the analysis. VTA has studied and conducted public outreach relating to the fairness of charging tolls. VTA began seeking public input on express lanes for US 101 and SR 85 in Santa Clara County in 2004. A primary focus of the public outreach was on fairness and equity issues of charging tolls for express lane use. The outreach efforts are summarized in Section 3.1 of the IS/EA and 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. However, the documents state that 22 of 186 block groups in the study area have more than 25 percent low-income population.

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 as 9.4 percent. Thus, a Census block group that is more than 19.4 percent low-income (10 percent above the average of the surrounding area) would be considered an EJ community. Thirty-two of 186 total block groups are above 19.4 percent and are considered low-income EJ communities. Within the study area, low-income individuals represent 11.6 percent of the study area population (Table 4).

Table 4: Minority and Low-Income Percentages in the Region and Environmental Justice Study Area (Table 5-1 in the CIA)

Minority and Low-Income Percentages in the Region and EJ Study Area

Location	Total Population 2010[a]	% Minority[a]	% Low-Income[b]
State			
California	3,7253,956	59.9%	15.8%
Region			
San Francisco Bay Area	7,150,739	57.6%	11.1%
Santa Clara County	1,784,642	64.8%	10.5%
San Mateo County	718,451	57.7%	6.8%
Communities			
Palo Alto	64,403	39.4%	5.2%
Mountain View	74,066	54.0%	6.7%
Sunnyvale	140,081	65.5%	6.6%
Santa Clara	116,468	63.9%	8.3%
San Jose	945,942	71.3%	11.5%
Morgan Hill	37,822	49.6%	12.8%
EJ Study Area	**327,834**	**77.3%**	**11.6%**

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

The documents state that the data indicates that there are EJ communities in the study area with a substantial population of minority and/or low-income residents. Use of the express lanes requires the ability to obtain a FasTrak transponder. FasTrak is available through several outlets, and prepaid accounts can be established with credit card, cash or check. With the number of options available, persons of all income levels and races would have generally similar access to a FasTrak account. The document states 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. However, 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. Low-income groups that are unable to afford FasTrak can still access the express lanes in carpools and by using public transportation.

The documents states 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 is not disproportionate because express lane use is voluntary. Drivers may either choose to pay a toll when being late is costly or inconvenient or continue to use the general purpose lanes. Drivers 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. Unlike sales taxes for transportation measures, express lane tolls do not affect non-users and non-drivers.

The documents state that the proposed Project would have other potential benefits to drivers of all income levels and races. By converting the HOV lanes to express lanes and adding a second express lane to part of the corridor, traffic in the general purpose lanes would improve, directly benefiting drivers in the non-express lanes. As required by the authorizing legislation (Assembly Bills 2032 [2004] and 574 [2007]), tolls collected from the express lanes would be used for other transportation and transit improvements in the Project corridor, providing direct benefits to both drivers and transit customers whose trips include US 101. Indirect benefits could include additional economic opportunities for low-income drivers, who could use the express lanes to ensure a reliable commute. The documents note that the VTA focus group participants also identified improved quality of life from less congestion as a Project benefit.

The documents state that the express lanes allow drivers of all income groups an additional travel option that they did not have previously. Therefore, the Project would not cause disproportionately high and adverse effects to minority or low-income populations per Executive Order 12898[7] regarding environmental justice.

[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.

Appendix A: Measures of Effectiveness from the TOAR

Table 6-1: 2015 AM Peak Network Performance Measure Comparison – Northbound US 101

PERFORMANCE MEASURE	NO BUILD	BUILD	BUILD – NO BUILD	
			DIFFERENCE	% DIFFERENCE
PEAK PERIOD				
Total Distance Traveled (VMT) (mi)	995,813	1,114,783	118,971	12%
Total Travel Time (VHT) (hr)	36,738	26,891	-9,846	-27%
Total Delay (VHD) (hr)	20,742	9,327	-11,415	-55%
Average Delay per Vehicle (sec)	567	238	-329	-58%
Average Speed (mph)	27	42	14	53%
PEAK HOUR				
Total Distance Traveled (VMT) (mi)	279,118	314,096	34,978	13%
Total Travel Time (VHT) (hr)	10,180	7,875	-2,305	-23%
Total Delay (VHD) (hr)	5,718	2,955	-2,763	-48%
Average Delay per Vehicle (sec)	474	242	-232	-49%
Average Speed (mph)	27	40	12	45%

Source: DKS, 2014

Table 6-2: 2015 AM Peak Network Performance Measure Comparison – Southbound US 101

PERFORMANCE MEASURE	NO BUILD	BUILD	BUILD – NO BUILD	
			DIFFERENCE	% DIFFERENCE
PEAK PERIOD				
Total Distance Traveled (VMT) (mi)	1,148,068	1,194,452	46,384	4%
Total Travel Time (VHT) (hr)	21,490	22,184	693	3%
Total Delay (VHD) (hr)	2,394	2,372	-23	-1%
Average Delay per Vehicle (sec)	73	72	-1	-2%
Average Speed (mph)	53	54	1	1%
PEAK HOUR				
Total Distance Traveled (VMT) (mi)	349,490	363,740	14,250	4%
Total Travel Time (VHT) (hr)	6,500	6,835	335	5%
Total Delay (VHD) (hr)	686	793	107	16%
Average Delay per Vehicle (sec)	67	77	10	15%
Average Speed (mph)	54	53	-1	-1%

Source: DKS, 2014

Table 6-6: 2015 PM Peak Network Performance Measure Comparison – Northbound US 101

PERFORMANCE MEASURE	NO BUILD	BUILD	BUILD – NO BUILD	
			DIFFERENCE	% DIFFERENCE
PEAK PERIOD				
Total Distance Traveled (VMT) (mi)	784,861	791,382	6,521	1%
Total Travel Time (VHT) (hr)	13,921	13,801	-121	-1%
Total Delay (VHD) (hr)	1,057	937	-121	-11%
Average Delay per Vehicle (sec)	29	26	-4	-13%
Average Speed (mph)	56	57	1	2%
PEAK HOUR				
Total Distance Traveled (VMT) (mi)	203,241	206,939	3,697	2%
Total Travel Time (VHT) (hr)	3,679	3,669	-10	0%
Total Delay (VHD) (hr)	342	298	-44	-13%
Average Delay per Vehicle (sec)	33	28	-5	-15%
Average Speed (mph)	55	56	1	2%

Source: DKS, 2014

Table 6-7: 2015 PM Peak Network Performance Measure Comparison – Southbound US 101

PERFORMANCE MEASURE	NO BUILD	BUILD	BUILD – NO BUILD	
			DIFFERENCE	% DIFFERENCE
PEAK PERIOD				
Total Distance Traveled (VMT) (mi)	1,473,565	1,607,288	133,723	9%
Total Travel Time (VHT) (hr)	43,442	44,280	837	2%
Total Delay (VHD) (hr)	18,661	17,581	-1,080	-6%
Average Delay per Vehicle (sec)	397	365	-33	-8%
Average Speed (mph)	34	36	2	7%
PEAK HOUR				
Total Distance Traveled (VMT) (mi)	377,559	418,588	41,028	11%
Total Travel Time (VHT) (hr)	12,522	13,078	556	4%
Total Delay (VHD) (hr)	6,171	6,114	-57	-1%
Average Delay per Vehicle (sec)	411	394	-16	-4%
Average Speed (mph)	30	32	2	6%

Source: DKS, 2014

Table 7-1: 2035 AM Peak Network Performance Measure Comparison – Northbound US 101

PERFORMANCE MEASURE	NO BUILD	BUILD	BUILD – NO BUILD	
			DIFFERENCE	% DIFFERENCE
PEAK PERIOD				
Total Distance Traveled (VMT) (mi)	949,052	1,033,145	84,093	9%
Total Travel Time (VHT) (hr)	71,167	69,760	-1,407	-2%
Total Delay (VHD) (hr)	55,893	53,580	-2,314	-4%
Average Delay per Vehicle (sec)	1,397	1,314	-84	-6%
Average Speed (mph)	13	15	2	11%
PEAK HOUR				
Total Distance Traveled (VMT) (mi)	212,156	224,648	12,492	6%
Total Travel Time (VHT) (hr)	22,623	22,814	190	1%
Total Delay (VHD) (hr)	19,229	19,323	94	0%
Average Delay per Vehicle (sec)	1,241	1,282	40	3%
Average Speed (mph)	9	10	1	5%

Table 7-2: 2035 AM Peak Network Performance Measure Comparison – Southbound US 101

PERFORMANCE MEASURE	NO BUILD	BUILD	BUILD – NO BUILD	
			DIFFERENCE	% DIFFERENCE
PEAK PERIOD				
Total Distance Traveled (VMT) (mi)	1,374,606	1,435,235	60,629	4%
Total Travel Time (VHT) (hr)	37,846	35,118	-2,728	-7%
Total Delay (VHD) (hr)	14,786	11,285	-3,501	-24%
Average Delay per Vehicle (sec)	357	269	-88	-25%
Average Speed (mph)	36	41	5	13%
PEAK HOUR				
Total Distance Traveled (VMT) (mi)	411,289	422,808	11,519	3%
Total Travel Time (VHT) (hr)	9,044	8,806	-239	-3%
Total Delay (VHD) (hr)	2,140	1,775	-364	-17%
Average Delay per Vehicle (sec)	165	136	-29	-18%
Average Speed (mph)	45	48	3	6%

Source: DKS, 2014

Table 7-6: 2035 PM Peak Network Performance Measure Comparison – Northbound US 101

PERFORMANCE MEASURE	NO BUILD	BUILD	BUILD – NO BUILD	
			DIFFERENCE	% DIFFERENCE
PEAK PERIOD				
Total Distance Traveled (VMT) (mi)	917,408	1,005,987	88,580	10%
Total Travel Time (VHT) (hr)	19,330	17,774	-1,556	-8%
Total Delay (VHD) (hr)	3,211	2,681	-530	-16%
Average Delay per Vehicle (sec)	71	62	-9	-13%
Average Speed (mph)	52	52	0	1%
PEAK HOUR				
Total Distance Traveled (VMT) (mi)	243,928	263,980	20,052	8%
Total Travel Time (VHT) (hr)	5,421	5,023	-398	-7%
Total Delay (VHD) (hr)	1,190	1,012	-178	-15%
Average Delay per Vehicle (sec)	90	79	-10	-11%
Average Speed (mph)	49	49	0	0%

Source: DKS, 2014

Table 7-7: 2035 PM Peak Network Performance Measure Comparison – Southbound US 101

PERFORMANCE MEASURE	NO BUILD	BUILD	BUILD – NO BUILD	
			DIFFERENCE	% DIFFERENCE
PEAK PERIOD				
Total Distance Traveled (VMT) (mi)	1,472,285	1,729,834	257,549	17%
Total Travel Time (VHT) (hr)	81,346	77,929	-3,417	-4%
Total Delay (VHD) (hr)	56,599	49,398	-7,201	-13%
Average Delay per Vehicle (sec)	1,119	914	-205	-18%
Average Speed (mph)	18	22	4	23%
PEAK HOUR				
Total Distance Traveled (VMT) (mi)	342,708	421,945	79,237	23%
Total Travel Time (VHT) (hr)	25,361	23,946	-1,416	-6%
Total Delay (VHD) (hr)	19,595	16,996	-2,599	-13%
Average Delay per Vehicle (sec)	1,064	885	-179	-17%
Average Speed (mph)	14	18	4	31%

Source: DKS, 2014