# Section 5.2 Environmental Justice

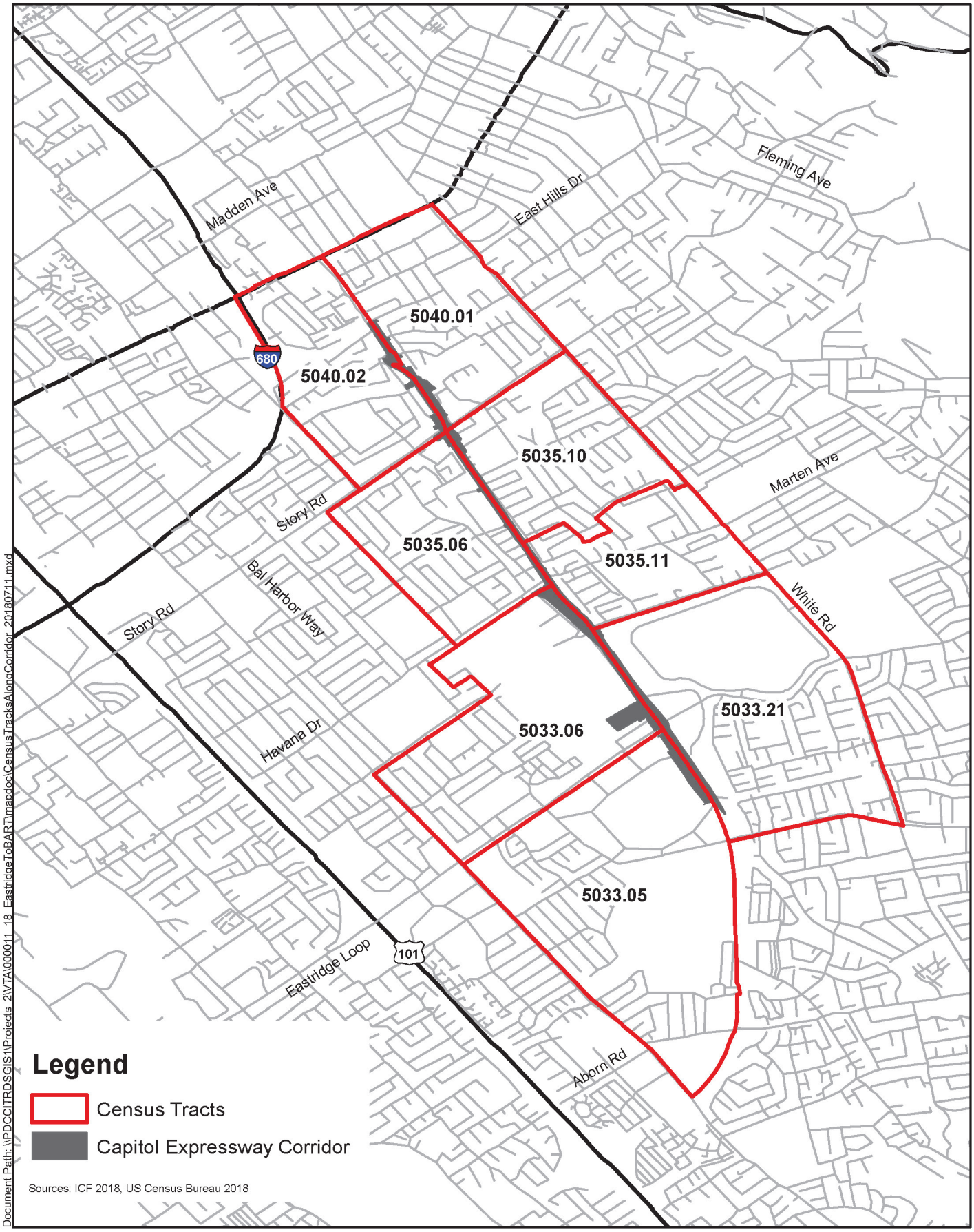
This section describes the potential of the proposed changes to the approved project to result in disproportionately high and adverse health or environmental effects on minority and low-income populations.

## Environmental Setting

The following data was updated subsequent to the certification of the 2014 Subsequent IS/MND. The study area for the purposes of the environmental justice analysis includes the census tracts located adjacent to the Capitol Expressway corridor within the project limits (5033.05, 5033.06, 5033.21, 5035.06, 5035.10, 5035.11, 5040.01, and 5040.02), also shown in Figure 5.2-1 (US Census Bureau 2018). Information from the 2000 U.S. Census was used in the 2005 Final EIR to describe poverty, income, and demographic characteristics of the study area for the approved project and the City. For this section, 2016 American Community Survey data are used to describe existing (2017) poverty, income, and demographic characteristics of the study area for the proposed changes to the approved project and the City.

According to the 2005 Final EIR, the average income per capita of the City was $26,697, while the study area for the approved project averaged $19,912. Table 5.2-1 shows the existing (2017) poverty and income status and Table 5.2-2 shows the existing minority characteristics of the study area for the proposed changes to the approved project and of the City. The 2018 poverty guideline for a household of four is $25,100 annual income (U.S. Department of Health and Human Services 2018). As shown in Table 5.2-1, the study area has an existing median household income of $72,646, which is higher than the U.S. Census-defined poverty level for a household of four. However, the median household income in the City, $90,303, is higher than in the study area. In addition, the percentage of individuals living below the poverty threshold is higher in the study area (14%) than in the City as a whole (11%). There are four census tracts that meet the low income criteria for environmental justice.

According to the 2005 Final EIR, minorities represented approximately 63% of the total population of the City and approximately 82% of the study area for the approved project. As shown in Table 5.2-2, 2017 demographic data indicate that the existing proportion of the population composed of minority populations in the study area (Hispanic or Latino, Black or African American, Native American, Asian, or Native Hawaiian/ Pacific Islander) is substantially larger than for the City as a whole (94% and 70%, respectively) (Table 5.2-2). Because the percentage of minority populations in all the census tracts in the study area is greater than 50%, and is substantially greater than in the City, all the census tracts in the study area for the proposed changes to the approved project meets the minority criteria for environmental justice.

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0 0.425 0.85 Miles

**Figure 5.2-1**
**Census Tracts Along the Capitol Expressway Corridor**

Transit dependency is characterized by the population under 18 and over 65 years of age (who are unlikely to drive their own vehicles and therefore more likely to be transit dependent), the number of workers using public transportation, and the number of persons below the poverty line. According to the 2005 Final EIR, the percentages of people under 18 and over 65 are similar in the study area for the approved project (29% and 7%, respectively) and the City (26% and 8%, respectively), although the study area had a slightly higher percentage of persons under 18 and a slightly lower percentage of persons over 65. Workers who use public transportation are also considered a transit-dependent group. The study area for the approved project and the City had the same percentage of workers that use public transportation (4%). Automobile ownership rates in the study area for the approved project were below the county average, according to the 2005 Final EIR.

Table 3.14-2 in Section 3.14, *Socioeconomics*, of the Second Subsequent IS shows the transit dependency characteristics of the City and the study area. The study area has similar percentages of the population that is under 18 (25%) or over 65 (10%) when compared to the City (23% and 11%, respectively). The percentage of the population that uses public transportation to get to work is the same in the study area as in the City (4%). The individual census tracts have varying percentages of workers that use public transportation, varying from 2 to 7%. The percentage of workers with no access to a vehicle is higher in the study area (2%) than in the City as a whole (1%).

## Table 5.2-1 Existing (2017) Poverty and Income Status for the City of San Jose and the Study Area

| Location/Census Tract | Total Population for Whom Poverty Status Determined | Percent Below Poverty Level | Median Household Income |
|---|---|---|---|
| City of San Jose | 998,828 | 11% | $90,303 |
| **Study Area** | **44,347** | **14%** | **$72,646** |
| 5033.05 | 6,347 | 10% | $73,819 |
| 5033.06 | 4,253 | 11% | $63,636 |
| 5033.21 | 4,936 | 8% | $105,000 |
| 5035.06 | 6,124 | 19% | $60,733 |
| 5035.10 | 6,070 | 23% | $56,051 |
| 5035.11 | 3,810 | 9% | $97,862 |
| 5040.01 | 6,279 | 13% | $66,875 |
| 5040.02 | 6,528 | 16% | $57,188 |

Note: Shading indicates census tracts that meet the low income criteria.

Source: U.S. Census Bureau 2017b, 2017c.

## Table 5.2-2 Existing (2017) Minority Status for the City of San Jose and the Study Area

| Location/ Census Tract | Total Population | Percent White | Percent Black or African American | Percent American Indian and Alaska Native | Percent Asian | Percent Native Hawaiian and Other Pacific Islander | Percent Some Other Race | Percent Two or More Races | Percent Hispanic or Latino | Percent Minority |
|---|---|---|---|---|---|---|---|---|---|---|
| City of San Jose | 1,009,363 | 27% | 3% | <1% | 34% | <1% | <1% | 3% | 33% | 70% |
| **Study Area** | **44,505** | **5%** | **2%** | **<1%** | **35%** | **<1%** | **<1%** | **1%** | **56%** | **94%** |
| 5033.05 | 6,378 | 3% | 2% | 0% | 46% | <1% | 0% | 1% | 47% | 96% |
| 5033.06 | 4,276 | 4% | 3% | <1% | 32% | 0% | 0% | 0% | 61% | 96% |
| 5033.21 | 4,942 | 4% | 3% | 0% | 76% | 0% | <1% | 2% | 15% | 94% |
| 5035.06 | 6,190 | 3% | 1% | <1% | 31% | 0% | 0% | 3% | 61% | 94% |
| 5035.10 | 6,079 | 7% | 3% | 0% | 16% | <1% | <1% | 2% | 71% | 90% |
| 5035.11 | 3,810 | 9% | 3% | <1% | 42% | <1% | 0% | 0% | 42% | 91% |
| 5040.01 | 6,302 | 5% | 2% | 0% | 19% | 0% | <1% | 1% | 75% | 95% |
| 5040.02 | 6,528 | 4% | 2% | <1% | 25% | <1% | <1% | 1% | 65% | 94% |

Note: Minority populations include Hispanic or Latino, Black or African American, Native American, Asian, or Native Hawaiian/Pacific Islander. In addition, shading indicates census tracts that meet the minority criteria.

Source: U.S. Census Bureau 2017a.

# Environmental Impacts and Mitigation

This impact discussion primarily focuses on the proposed changes to the approved project that could result in new or more significant disproportionate and adverse environmental justice impacts compared to the impacts previously identified and analyzed for the approved project.

As discussed in Section 5.1, *Transportation*; Section 5.3, *Noise and Vibration*; and Section 5.4, *Air Quality and Climate Change;* in the SEIR-2, the proposed changes to the approved project would result in the following new significant and unavoidable impacts that could have a disproportionate and adverse impact on environmental justice populations.

### Transportation (Operation and Construction)

- **Capitol Expressway and Story Road intersection.** The proposed changes to the approved project would result in a significant impact under existing (2017), year 2023, and year 2043 conditions, caused by the removal of the high-occupancy vehicle (HOV) lanes and the addition of HOV lane traffic into the remaining mixed flow lanes. No feasible mitigation was identified for these impacts.
- **Capitol Expressway and Ocala Avenue intersection.** The proposed changes to the approved project would result in a significant impact at this intersection under existing (2017), year 2023, and year 2043 conditions, caused by the removal of the HOV lanes, the removal of a northbound left-turn lane on Capitol Expressway, and the addition of HOV lane traffic into the remaining mixed flow lanes. No feasible mitigation was identified for these impacts.
- **Transportation impacts during construction.** The proposed changes to the approved project would require lane reductions on Capitol Expressway during construction, which may cause study intersections to temporarily operate at LOS F, impacting passenger vehicles, buses, and trucks. The proposed changes to the approved project may also result in the temporary closures of bikeways, bus stops, and sidewalks in the corridor during construction. The duration, times, and locations of temporary closures during construction cannot be predicted with certainty.

### Noise and Vibration (Operation and Construction)

- **Nighttime exceedance (10:00 pm to 7:00 am) of the FTA vibration levels from light rail operations at homes within 100 feet of the proposed aerial guideway.** Most of the vibration impacts are anticipated to occur between 6:00 am and 7:00 am when VTA would be operating at peak service levels. The proposed aerial guideway (direct fixation fasteners) and ballasted track on embankment sections would cause an exceedance of the nighttime impact criteria at 73 sensitive receiver locations during light rail operations. VTA identified tire derived aggregate (TDA), 5-Hertz floating slab track (FST) or a bridge bearing

vibration isolation system, and speed reductions from 55 mph to 35 mph as potential mitigation measures. VTA is recommending to include TDA on embankment sections to mitigate one impact. However, VTA is not recommending to include FST, bridge bearing vibration isolation, or implement nighttime speed restrictions to eliminate the other 72 impacts.

VTA is not recommending to include FST or a bridge bearing isolation system as mitigation for several reasons. Future vibration levels, which include a +3 VdB safety factor, are at or slightly above the nighttime vibration impact criteria at many impacted locations, and may not actually exceed the threshold in operation. Many impacted locations are up to 100 feet from the aerial guideway, which is much farther than the typical distance at which nighttime vibration impacts are experienced. In addition, it is VTA's understanding that FST has not been installed on any aerial guideways in the United States and a bridge bearing isolation system has only been recently installed on one aerial structure in the United States. VTA is only aware of one example of FST installed on an aerial guideway on Hong Kong's KCRC West Rail and of one example of a bridge bearing vibration isolation system installed on an aerial structure at Miami Central Station, on the All Aboard Florida-Brightline network. Thus, there is limited information on the effectiveness of FST and bridge bearing isolation systems on aerial structures.

VTA is also not proposing to include speed reduction as mitigation because it would negatively affect travel time and operations between 10:00 pm and 7:00 am.

By not including FST; a bridge bearing vibration isolation system; or implementing speed reductions as mitigation, and because TDA is the only feasible mitigation option to reduce vibration levels from operation, this impact would be "Significant and Unavoidable."

- **Daytime exceedance of the Federal Transit Administration (FTA) noise levels from pile driving activity at unobstructed homes and businesses that are within 300 feet of pile driving activity.** The noise impacts would have a duration of 8 to 15 days per sensitive receiver. Pile driving would exceed the construction noise impact criteria of 80 Leq at residences and 85 Leq at commercial properties at 156 sensitive receiver locations. Even with inclusion of mitigation measures, this impact would be "Significant and Unavoidable" at two sensitive receiver locations.

- **Homes within 100 feet of impact piling activity may exceed FTA construction vibration criteria.** There are 64 predicted unmitigated construction vibration impacts, and 0 impacts with the use of non-impact piling methods. However, VTA is not recommending the use of non-impact piling methods at any locations for a couple of reasons. Most locations are only slightly above the FTA Damage Criteria, and therefore may not experience any actual impacts due to the +3 VdB safety factor included to estimate construction vibration levels. At the locations with the highest construction vibration levels, structural damage is not anticipated

to occur. As a result, VTA is not recommending non-impact piling methods at any locations. Thus, this impact would be "Significant and Unavoidable."

### Air Quality and Climate Change (Construction)

- **Cumulative air quality impacts during construction.** Cumulative PM2.5 concentrations would be elevated at the receptors located near the corners of Ocala Avenue and Capitol Expressway and Cunningham Avenue and Capitol Expressway due to substantial sources of pollutant concentrations that currently exist in the area where the approved project plus the proposed changes to the approved project would occur. Even without the contribution of emissions from construction, existing PM2.5 concentrations near these sensitive receptors are at or exceed the BAAQMD's threshold because Capitol Expressway and its cross streets are heavily traveled roadways, with residences located in close proximity to the roadway edge. The approved project plus the proposed changes to the approved project would cause further exceedances of existing pollutant concentrations, worsening the cumulative exposure of sensitive receptors to toxic air contaminant concentrations. Although the contribution of the approved project plus the proposed changes to the approved project to existing concentrations would not be substantial (approximately 6% at the locations where concentrations are at or exceed 0.8 µg/$m^3$), there would nevertheless be a worsening of an already cumulatively significant impact. The following mitigation measures identified in the 2005 Final EIR would still apply to the proposed changes to the approved project: AQ (CON)-1 (BAAQMD's BMPs to reduce particulate matter emissions from construction activities) and AQ (CON)-2 (BAAQMD's BMPs to reduce GHG emissions from construction equipment). Even with inclusion of these mitigation measures, this impact would be "Significant and Unavoidable."

### Environmental Justice

The significant and unavoidable impacts identified in this section would occur only within the Capitol Expressway corridor, where the study area population has a higher percentage of minorities than the City as a whole, and where four census tracts have a higher percentage of people below the poverty level than the City as a whole. Thus, the proposed changes to the approved project could result in a disproportionate and adverse impact on environmental justice populations, further discussed below.

The significant and unavoidable transportation impacts would occur only within the study area. However, users of the corridor within the study area would include both populations that reside within the study area (environmental justice populations), and populations that reside outside the study area (non-environmental justice populations) who are passing through the area, visiting the area, or using the corridor as a regional transportation route. Because the significant and unavoidable transportation impacts would affect both environmental justice populations and non-environmental justice populations, these transportation impacts would not cause a disproportionate and adverse impact on environmental justice communities.

The significant and unavoidable noise and vibration impacts would also only occur within the study area, but would predominately affect environmental justice populations. This is because the impacts would only occur at residences within the study area, which are primarily environmental justice populations. Therefore, noise and vibration impacts would cause a disproportionate and adverse impact on environmental justice communities.

Similarly, the significant and unavoidable cumulative air quality impacts during construction would also only occur within the study area, and would predominately affect environmental justice populations. This is because the impacts would only occur at the receptors located near the corners of Ocala Avenue and Capitol Expressway and Cunningham Avenue and Capitol Expressway, which are primarily environmental justice populations. Therefore, cumulative air quality impacts during construction would cause a disproportionate and adverse impact on environmental justice communities.

**Impact:** The proposed changes to the approved project would result in new or more severe significant and unavoidable impacts to environmental justice populations related to transportation, noise and vibration, and cumulative air quality impacts during construction. However, disproportionate and adverse environmental effects to environmental justice populations would only result from noise and vibration, and cumulative air quality impacts during construction.

The following impact from the 2007 Final SEIR would still apply to the proposed changes to the approved project: EJ-1 (Environmental Justice).

**Mitigation:** Transportation (Operation and Construction). There are no feasible mitigation measures to reduce the transportation impacts associated with the proposed changes to the approved project. The project would need to restore the HOV lanes on Capitol Expressway in the northbound and southbound directions that would be removed by the project to provide space for the light rail tracks. However, there is currently insufficient right-of-way to replace the HOV lanes and additional right-of-way would require the removal of existing buildings and sidewalks along Capitol Expressway, which is infeasible. Therefore, the LOS impacts identified at the Capitol Expressway and Story Road intersection and at the Capitol Expressway and Ocala Avenue intersection would be "Significant and Unavoidable." Additionally, during construction, VTA will prepare traffic handling plans, employ traffic flaggers, and endeavor to minimize peak hour delays to all users**.** However, such measures cannot guarantee that construction activities would not cause temporary significant impacts to passenger vehicles, buses, trucks, bikes, and pedestrians. Therefore, this impact is considered "Significant and Unavoidable." However, for the reasons described

above, these transportation impacts would not cause a disproportionate and adverse impact on environmental justice populations.

Noise and Vibration (Operation and Construction). Regarding nighttime exceedance of operational FTA vibration levels at homes within 100 feet of the proposed aerial guideway, VTA identified tire derived aggregate (TDA), 5-Hertz floating slab track (FST) or bridge bearing vibration isolation system, and speed reduction as potential mitigation measures. By not including FST; a bridge bearing vibration isolation system; or implementing speed reductions as mitigation, and because TDA is the only feasible mitigation option to reduce vibration levels from operation, this impact would be "Significant and Unavoidable." Based on the analysis above, the proposed changes to the approved project would result in new significant impacts related to vibration levels from transit operation. With inclusion of TDA, vibration impacts are expected to occur at 72 sensitive receivers under the proposed changes to the approved project. This is an increase of 20 sensitive receivers compared to the 2005 Final EIR, which concluded 52 sensitive receivers would be potentially exposed to vibration impacts during operation. Therefore, this impact is considered "Significant and Unavoidable" and would result in a disproportionate and adverse impact on environmental justice populations.

Regarding daytime exceedance of FTA noise levels from pile driving activity, the following mitigation measures identified in the 2005 Final EIR and the 2007 Final SEIR would still apply to the proposed changes to the approved project: NV (CON)-1a (Notify Residents of Construction Activities), NV (CON)-1b (Construct Temporary Noise Barriers During Construction), NV (CON)-1c (Restrict Pile Driving)[1], NV (CON)-1d (Use Noise Suppression Devices), NV (CON)-1e (Locate Stationary Construction Equipment as Far as Possible from Sensitive Receptors), NV (CON)-1f (Reroute Construction-Related Truck Traffic), NV (CON)-1g (Develop Construction Noise Mitigation Plan), NV (CON)– 2, which has been modified (see Section 5.3 for a full description), and NV (CON)-1h (Use Impact Cushions). With inclusion of impact cushions, pile driving would exceed the construction noise impact criteria at 135 sensitive receiver locations. With inclusion of impact cushions and pre-drilling, pile driving would exceed the construction noise impact criteria at 80 sensitive receiver locations. With inclusion of impact cushions and noise shields around the pile equipment, pile driving would exceed the construction noise impact criteria at 2 sensitive receiver locations. VTA is recommending to mitigate this impact with noise cushions and temporary noise barriers. Even with inclusion of these mitigation measures, this impact

[1] In the 2005 Final EIR, this measure restricts pile driving to the hours of 8:00 am to 5:00 pm. To be consistent with the San Jose municipal code, these hours are revised to 7:00 am to 7:00 pm, Monday through Friday.

would be "Significant and Unavoidable" and would result in a disproportionate and adverse impact on environmental justice populations.

Regarding exceedance of FTA construction vibration criteria at homes within 100 feet of the proposed piling activity, VTA is not recommending the use of non-impact piling methods at any locations for a couple of reasons. Most locations are only slightly above the FTA Damage Criteria, and therefore may not experience any actual impacts due to the +3 VdB safety factor included to estimate construction vibration levels. At the locations with the highest construction vibration levels, structural damage is not anticipated to occur. As a result, VTA is not recommending non-impact piling methods at any locations. Thus, this impact would be "Significant and Unavoidable" and would result in a disproportionate and adverse impact on environmental justice populations.

Air Quality and Climate Change (Construction). With respect to cumulative air quality impacts during construction, the following mitigation measures identified in the 2005 Final EIR would still apply to the proposed changes to the approved project: AQ (CON)-1 (BAAQMD's BMPs to reduce particulate matter emissions from construction activities) and AQ (CON)-2 (BAAQMD's BMPs to reduce GHG emissions from construction equipment). Even with inclusion of these mitigation measures, this impact would be "Significant and Unavoidable", and would result in a disproportionate and adverse impact on environmental justice populations.

Based on the analysis above, the proposed changes to the approved project would result in new disproportionate and adverse impacts or a substantial increase in the severity of previously identified disproportionate and adverse impacts related to environmental justice.

**Significant and unavoidable impact, even with mitigation.**