4.14 Environmental Justice

This section describes the potential for the build alternatives to result in disproportionately high or adverse human health or environmental effects to minority or low-income populations (environmental justice, or "EJ", communities).

4.14.1 | Regulatory Setting

4.14.1.1 | EXECUTIVE ORDER 12898

In response to concerns over environmental effects to minority and low-income populations, the Executive Office of the President of the United States established a formal federal policy on environmental justice in February 1994 with Executive Order (EO) 12898 (*Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*). EO 12898 calls on federal agencies to identify and address any disproportionately high and adverse human health or environmental effects of federal programs, policies, and activities on minority populations and low-income populations. The general principles of EO 12898 are as follows:

- Avoid, minimize, or mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects, on minority and low income populations.
- Ensure the full and fair participation of all potentially affected communities in the transportation decision-making process.
- Prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority and low-income populations.

4.14.1.2 | DEPARTMENT OF TRANSPORTATION ORDER 5610.2

In April 1997, the U.S. Department of Transportation (DOT) issued an Order on Environmental Justice (DOT Order 5610.2), establishing procedures for its operating administrations, including the Federal Transit Administration (FTA), to comply with EO 12898 and to promote environmental justice principles as part of its mission. On May 10, 2012, DOT issued Order 5610.2(a), *Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, which clarifies certain aspects of the original DOT Order 5610.2, including the definitions of "minority" populations in compliance with the Office of Management and Budget's Revisions to the Standards for the Classification of Federal Data on Race and Ethnicity of October 30, 1997. The revisions clarify the distinction between a Title VI analysis and an environmental justice analysis conducted as part of a National Environmental Policy Act (NEPA) review, and affirm the importance of considering environmental justice principles as part of early planning activities in order to avoid disproportionately high and adverse effects. The DOT Order 5610.2(a) maintains the original Order's general framework and procedures and DOT's commitment to promoting the principles of environmental justice in all DOT programs, policies, and activities.

DEFINITION

ENVIRONMENTAL JUSTICE (U.S. Environmental Protection Agency definition): The fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies

4.14.1.3 | FEDERAL TRANSIT ADMINISTRATION CIRCULAR 4703.1

In August 2012, FTA issued Environmental Justice Policy Guidance for FTA Recipients[1] to update and further refine the approach to the analysis of environmental justice in its NEPA documents. In particular, the Circular encourages non-traditional data gathering techniques to identify distinct minority and/or low-income communities (as well as tribal interest) in a given study area.

4.14.2 | Affected Environment

DEFINITION

For the purpose of the environmental justice analysis, the study area is consists of the Geary corridor plus approximately a one-half mile radius around it

The study area is defined as an approximate one-half mile radius of the Geary corridor, which includes the full travel length of the existing 38 Rapid and 38 Local buses from Geary Boulevard and 48th Avenue to the Transbay Transit Center on First and Mission streets.

Race and income are socioeconomic characteristics critical to the consideration of a project's effects on minority and/or low-income populations. For purposes of implementing EO 12898 and DOT Order 5610.2(a), the Council on Environmental Quality (CEQ) guidance provides the following definitions for minority and low-income populations[2]:

- **Minority**: Any individual who is a member of any of the following Census-defined races or ethnicities: Black, Asian, American Indian and Alaskan Native, Native Hawaiian or Other Pacific Islander, and Hispanic.
- **Low-income:** Any person whose household income is at, or below, the U.S. Census Bureau's annual statistical poverty thresholds, which are based upon the Department of Health and Human Services (HHS) poverty guidelines.

4.14.2.1 | MINORITY AND LOW INCOME POPULATIONS

This subsection identifies and describes study area environmental justice (EJ) populations. Similar to San Francisco as a whole, the study area has a population that is both ethnically and socioeconomically diverse.

4.14.2.1.1 MINORITY POPULATIONS

DEFINITIONS

MINORITY: People of the following Census-defined races/ethnicities: Black, Asian, American Indian, and Alaskan Native, Native Hawaiian, or other Pacific Islander, and Hispanic

LOW-INCOME: Households whose income is at or below the US department of Health and Human Services (HHS) Poverty Guidelines

The CEQ guidance states that minority populations should be identified where the minority population of the affected area either:

- exceeds 50 percent of the area's population, or
- is meaningfully greater than the minority percentage in the general population or geographic unit of analysis.

2010 U.S. Census data and 2012 American Community Survey (ACS) were used to identify the minority populations. Approximately 53 percent of all study area residents are members of minority populations (i.e., non-white), as compared to an approximately 58 percent minority population citywide. Although the overall study area population has a slightly lower percentage of minority residents than San Francisco as a whole, the study area includes many Census block groups that meet the definition of EJ populations for minority populations. Table 4.14-1 and Figure

[1] FTA Circular 4703.1, August 15, 2012.
[2] CEQ, Environmental Justice Guidance under the National Environmental Policy Act, December 10, 1997

4.14-1 respectively list and depict 2010 U.S. Census block groups and the minority population within each. In Table 4.14-1, shading indicates a minority population at or above 50 percent of the total population in the Census block group.

As illustrated in the figure, 2010 Census block groups with high percentages of minority populations can be found along virtually the entire Geary corridor. Of the 160 Census block groups within the study area for the EJ analysis, more than half of the Census block groups have minority populations greater than 50 percent of the total population of the Census block. The areas with Census block groups with the highest percentages of minority populations and are considered EJ communities include the Western Addition, Downtown/Civic Center, Chinatown, and South of Market neighborhoods. The Japantown, Fillmore, and Tenderloin neighborhoods are also largely comprised of minority and low-income populations. Japantown and the Fillmore are parts of the larger Western Addition community and the Tenderloin is part of the larger Downtown/Civic Center community. Japantown consists of both residences and a commercial area. A portion of this commercial area is not represented as an EJ area by the Census block group data because it has a low residential population and is part of the same block group (tract 11000, block 2) as a high-rise senior residential building, The Sequoias San Francisco, resulting in a minority population percentage lower than 50 percent. However, field reconnaissance confirms that the block group contains Japantown Peace Plaza, a public space serving as a center of the Japantown community and hosting many neighborhood cultural events, as well as the Japan Center Malls, which contain numerous small businesses that are an integral part of the Japantown community. Therefore, for the purposes of this analysis, the entirety of the Japantown area is considered a minority community.

4.14.2.1.2 LOW-INCOME POPULATIONS

DOT Order 5610.2(a) defines a low-income person as a person whose median household income is at or below the Department of Health and Human Services (HHS) poverty guidelines. A low income population is defined in the order as "any readily identifiable group of low-income persons who live in geographic proximity.

The 2012 HHS poverty guidelines for the annual income of a single-person household is $11,170, plus $3,960 for each additional household occupant. Based on 2012 American Community Survey (ACS) household size and income data, both San Francisco (as a whole) and the study area (also as a whole) have median household incomes of $73,802 and $66,448, respectively.

Because the HHS poverty guidelines are national averages that do not account for geographical differences in the cost of living, a different threshold may be used, and is encouraged by FTA Circular 4703.1, as long as the threshold is not selectively implemented and is inclusive of all persons at or below the HHS poverty guidelines. As a way to account for the higher cost of living in San Francisco, this analysis identifies households in the study area with 2012 household incomes levels up to 150 percent of the HHS poverty level. This locally developed threshold is consistent with the FTA Circular 4703.1 and Public Law 112-141 which defines "low-income individual" to mean "an individual whose family income is at or below 150 percent of the poverty line. This threshold is more inclusive than the HHS poverty guidelines.

Based on 2012 ACS household size and income data, the annual income for a household at 150 percent of the 2012 HHS poverty guidelines ranges from $16,755 for a single-person household to $34,575 for a four-person household.

In the City and County of San Francisco, the overall percentage of households with incomes below the amounts shown 150 percent of the HHS poverty guidelines in the year 2012 is 21 percent. Figure 4.14-3 and Table 4.14-1 show Census block groups that have a greater percentage of households of such households than the citywide total of 21 percent. In Table 4.14-1, shaded cells indicate that the percentage of such people in the Census block group exceeds the City/Countywide level of 21 percent. These block groups are analyzed in this document as containing low-income populations. As shown in Figure 4.14-3, these Census block groups are somewhat more concentrated in the eastern portion of the corridor.

The Draft EIS/EIR identified low-income populations by comparing the median income of each block group to the HHS poverty guideline. The method for identifying low-income populations has been updated to the method described above to further ensure that no such populations are overlooked. This methodological refinement resulted in additional block groups being identified as having low-income populations, but all but one of them are located in areas not directly adjoining Geary (in other words they are within the study area but do not include any portion of Geary Boulevard/Street). This methodology refinement furthered the identification of low-income communities, but did not change the conclusions of the EJ analysis from the Draft EIS/EIR as shown in Section 4.14.4.

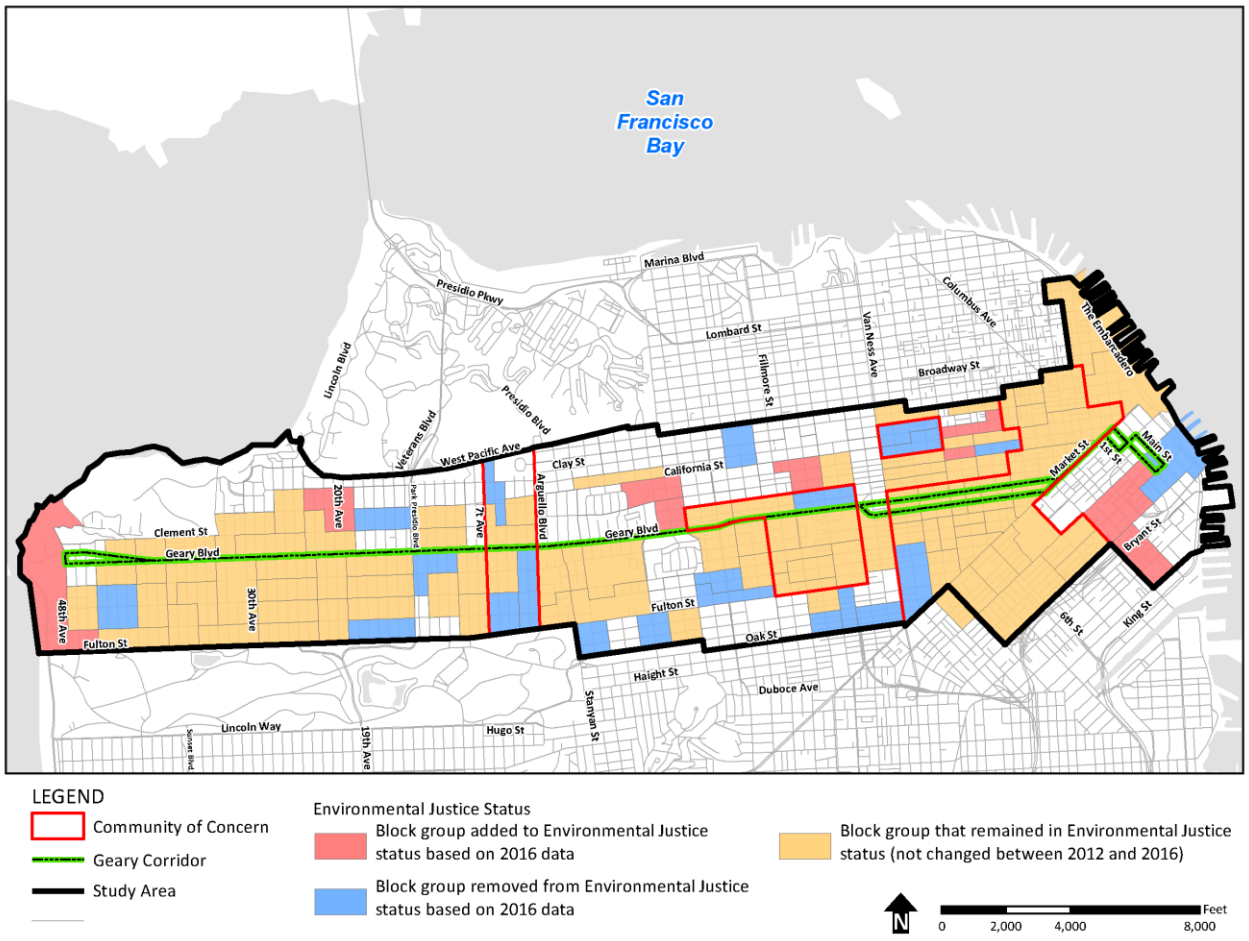
4.14.2.1.3 DATA VALIDATION

2012 ACS data was the most recent household income and ethnicity data available at the time of Draft EIS/EIR preparation. Since then, 2016 ACS has become available. To determine whether the locations of EJ populations have substantially changed between 2012 and 2016, the analysis of comparing household incomes in the study area Census block groups to the HHS poverty guidelines, as well as locating block groups with minority populations of 50 percent or more, was repeated using the 2016 data. Some of the block groups in the study area that were identified as having low-income or minority populations using year 2012 data would no longer be identified as such by the year 2016 data. Likewise, some block groups not previously identified as having EJ populations using 2012 data would be identified as having EJ populations using 2016 data. Overall, the clusters of low-income and minority block groups appear in the same areas using both 2012 and 2016 data, and the locational patterns are similar.

Changes in EJ block groups between 2012 and 2016 data are shown in Figure 4.14-2. Using 2012 data, a total of 113 block groups are identified as EJ, and using 2016 data, a total of 101 block groups are identified as EJ. Using the 2016 data, 9 new block groups were identified as EJ communities and 21 block groups are no longer identified as EJ communities. Using 2016 data, immediately adjacent to the Geary Corridor, three areas of EJ communities are no longer identified as EJ and one additional community is now identified as EJ. These changes along the corridor are often adjacent or are within a larger area still identified as EJ (Figure 4.14-1). It should also be noted that some of the block groups that have changed from EJ to non-EJ in Figure 4.14-1 contain a low population density. For example, the block group at the far western edge of the study area contains mostly parkland.

The overall frequency and distribution of EJ communities along the corridor remains similar from 2012 to 2016. On the whole, less of the study area and fewer of the corridor-adjoining block groups are identified as containing EJ populations by the 2016 data. Therefore, a smaller proportion of the effects described in Section 4.14.4 below would occur in EJ communities, but the corridor remains predominately EJ. Therefore, the conclusions from the Draft EIS/EIR remain the same in the Final EIS.

Figure 4.14-1 Comparison of 2012 and 2016 EJ Block Groups



Environmental Justice status for one Census block group (tract 176.01, block group 1) is determined only from ACS 2008-2012. ACS 2012-2016 does not contain sufficient information to determine Environmental Justice status.

Table 4.14-1 Census Block Group Analysis

CENSUS TRACT	BLOCK GROUP	TOTAL POPULATION[A]	PERCENT MINORITY	PERCENT OF POPULATION AT OR BELOW 150% HHS POVERTY GUIDELINES (2012)
105	1	944	49	22.01
105	2	1741	33	7.10
110	3	2030	54	13.73
111	1	2166	54	21.29
111	2	2084	52	23.78
111	3	914	50	47.40
112	1	1430	59	27.26
112	2	1152	32	14.86
112	3	704	36	20.71
113	2	1533	79	49.74
117	1	807	71	25.96
117	2	976	61	58.56
118	1	1500	93	54.92
119.01	1	898	38	2.32
119.01	2	1510	47	26.47
119.02	1	1947	47	34.91
119.02	2	651	41	26.01
120	1	1983	48	35.68
120	2	1850	59	35.61
120	1	2725	47	26.29
120	2	1108	56	25.46
122.01	1	2699	63	37.98
122.01	2	1868	65	40.54
122.02	1	2986	65	45.30
123.01	1	1521	68	73.91
123.01	2	1213	69	48.65
123.02	1	1763	53	22.49
123.02	2	1310	63	58.43
124.01	1	1945	70	49.39
124.01	2	3130	79	61.48
124.02	1	1060	57	42.89
124.02	2	981	40	23.50
124.02	3	1933	65	64.12
125.01	1	3788	67	65.49
125.01	2	1547	62	71.46
125.02	1	1960	78	70.27
125.02	2	1861	82	68.57
131.01	2	2186	29	4.35

CENSUS TRACT	BLOCK GROUP	TOTAL POPULATION[A]	PERCENT MINORITY	PERCENT OF POPULATION AT OR BELOW 150% HHS POVERTY GUIDELINES (2012)
131.02	1	1355	24	5.89
133	1	683	13	8.95
133	2	1018	19	9.86
133	3	1089	25	39.56
133	4	766	17	1.69
133	5	676	18	6.28
134	1	777	22	22.57
134	2	1425	24	13.85
134	3	1397	16	6.51
135	1	1247	24	9.39
135	2	1309	28	9.95
151	1	1619	33	13.43
151	2	874	50	5.63
152	1	1738	42	27.02
152	2	1389	39	9.15
152	3	807	38	6.08
153	1	938	29	21.16
153	2	1102	36	4.51
154	1	735	31	1.70
154	2	1144	36	7.72
154	3	1382	47	18.71
154	4	831	34	3.35
154	5	1529	28	2.57
155	1	1611	54	19.02
155	2	1333	54	22.64
155	3	678	63	22.28
156	1	723	55	6.08
156	2	1193	39	23.06
156	3	812	44	30.57
157	1	1380	46	13.01
157	2	1900	37	15.15
157	3	1571	50	9.39
157	4	2981	52	13.01
158.01	1	406	78	23.20
158.01	2	1684	57	25.46
158.01	3	1504	63	39.69
158.02	1	1357	35	21.57
158.02	2	1608	36	29.77
159	1	2081	63	32.30

CENSUS TRACT	BLOCK GROUP	TOTAL POPULATION[A]	PERCENT MINORITY	PERCENT OF POPULATION AT OR BELOW 150% HHS POVERTY GUIDELINES (2012)
159	2	2269	64	42.37
160	1	2465	50	21.49
161	1	858	95	19.02
161	2	1564	61	50.14
161	3	1150	79	45.93
161	4	1794	71	63.40
162	1	668	38	15.73
162	2	985	43	32.23
162	3	888	38	32.52
163	1	1062	73	61.37
163	2	1122	48	30.78
163	3	2109	39	16.45
164	1	2063	37	20.12
164	2	1715	38	18.81
165	1	1572	38	35.86
165	2	1101	32	21.51
165	3	1329	35	8.18
165	4	1081	27	21.77
176.01[A]	1	39	54	100.00
176.01	2	2801	67	53.94
176.01	3	2743	66	34.61
176.01	5	1365	72	48.11
178.01	1	1457	84	82.53
178.01	2	2042	67	45.05
178.02	1	3215	53	40.85
401	1	855	30	20.97
401	2	1061	51	24.82
401	3	1358	58	36.87
401	4	814	44	26.14
402	1	1602	48	13.40
402	4	1412	42	19.31
426.01	1	1559	59	44.33
426.01	2	2128	49	11.47
426.02	1	954	49	7.06
426.02	2	1086	42	8.67
426.02	3	1203	48	38.39
427	1	1728	54	13.06
427	2	1816	59	13.46
427	3	1782	55	22.96

CENSUS TRACT	BLOCK GROUP	TOTAL POPULATION[A]	PERCENT MINORITY	PERCENT OF POPULATION AT OR BELOW 150% HHS POVERTY GUIDELINES (2012)
428	1	1095	33	9.66
428	2	700	24	4.27
428	3	581	24	5.24
451	1	2171	57	34.25
451	2	1382	58	17.33
451	3	1443	66	19.85
452	1	1670	60	21.23
452	2	1533	57	29.00
452	3	944	47	10.29
452	4	1127	59	13.10
452	5	1200	59	25.92
476	1	1360	60	31.57
476	2	1317	63	2.79
476	3	1031	65	23.65
476	4	1429	54	15.13
477.01	1	1504	59	22.14
477.01	2	1520	65	21.10
477.01	3	1310	66	15.49
477.02	1	1153	68	6.16
477.02	2	1276	63	9.43
477.02	3	1395	55	19.62
478.01	1	1122	61	20.42
478.01	2	1198	66	13.44
478.01	3	1685	66	18.78
478.02	1	1052	53	11.17
478.02	2	1137	62	21.64
478.02	3	1467	69	18.50
479.01	1	1060	66	12.46
479.01	2	1537	45	16.37
479.01	3	1462	62	17.43
479.01	4	1316	66	21.09
479.01	5	1025	53	11.91
479.02	1	959	45	3.33
479.02	2	1374	57	16.07
479.02	3	1203	64	30.28
611	1	993	86	51.11
611	2	2194	99	62.81
615	1	1902	42	6.92
615	2	1415	46	8.59

CENSUS TRACT	BLOCK GROUP	TOTAL POPULATION[A]	PERCENT MINORITY	PERCENT OF POPULATION AT OR BELOW 150% HHS POVERTY GUIDELINES (2012)
615	3	1911	52	12.58
615	4	1829	46	4.14
615	5	809	48	17.91
615	6	3636	42	14.71
9802	1	320	33	16.13
Study Area		233,795	53	26
San Francisco		805,235	58	21

A U.S. Census data, 2010.

Shaded cells indicate the Census Block Group meets the definition of an environmental justice population as outlined in Section 4.14.3.

Source: 2010 US Census and US HHS 2012 data

4.14.2.1.4 COMMUNITIES OF CONCERN

As shown in Figures 4.14-2 and 4.14-3, EJ communities within the study area also generally coincide with areas that the Metropolitan Transportation Commission (MTC) has defined as "Communities of Concern." These occur in the Western Addition, Downtown/Civic Center, Chinatown, and South of Market neighborhoods. MTC defines Communities of Concerns as communities exceeding four or more of the thresholds listed below, or that have concentrations of both low-income and minority populations. The following are the MTC threshold factors:

- 70 percent are minority residents
- 30 percent have incomes of 200 percent or less than the U.S. Census poverty level
- 20 percent of residents have limited English-speaking proficiency
- 10 percent do not own a car (i.e., transit dependent)
- 10 percent are seniors aged 75 and over
- 25 percent are persons with a disability
- 20 percent are single-parent families
- 15 percent are cost-burdened renters[3]

As shown in Figures 4.14-2 and 4.14-3, the Communities of Concern generally overlap the areas identified as having low-income and/or minority populations using the Census data methodology described above. Consistent with FTA's guidance on EJ,[4] the Communities of Concern information is included to provide additional context. The Communities of Concern reflect other factors such as transit dependence (low automobile ownership), which are outside identification of low-income and minority population. Therefore, the Communities of Concern information was provided as additional description of the corridor, but was not used in delineation of EJ communities.

[3] Plan Bay Area: Technical Summary of Preferred Scenario Equity Analysis Methodology, 2012. Pg. 2. Available at: http://www.onebayarea.org/pdf/Appendices_5-4-12/Appendix_F_Equity_Analysis_Methodolgy_Preferred_Scenario.pdf.
[4] FTA Circular 4703.1, August 15, 2012.

4.14.3 | Methodology

U.S. Census 2010 data (Census data) were used to identify the location of minority and low-income populations. Census data were supplemented with 2012 ACS data for income information. For uniform comparison of minority and low-income populations within the study area, all Census data was collected at the Census block group level, which is the finest grain of comparative data available. In addition to the data analysis, field reconnaissance was conducted in the study area to verify and supplement the analytical findings.[5]

For the purposes of this analysis, EJ populations are considered to be the people living in Census block groups which have at least one of the following demographic characteristics:

- Minority population is 50 percent or greater (see Section 4.14.2.1.1 above)
- The percentage of people with incomes that are 150 percent or less of 2012 HHS Poverty Guidelines or exceeds the percentage of such people in the City and County of San Francisco as a whole (21 percent as of 2012) (see Section 4.14.2.1.2 above)

As reflected in shaded cells of Table 4.14-1, of the 160 Census block groups in the study area, 60 have both minority and low income EJ populations. A separate 29 Census block groups have EJ populations based solely on minority population; another 24 are EJ populations based on low-income. Based on the foregoing, the Western Addition, Downtown/Civic Center, Chinatown, and South of Market are EJ communities. These communities include distinct EJ populations, such as the Tenderloin in the Downtown/Civic Center area and Japantown and the Fillmore in the Western Addition.

Consistent with DOT Order 5610.2(a), the analysis examines whether an alternative will result in a disproportionately high and adverse effect on human health or the environment on EJ populations. A disproportionately high and adverse effect is defined in DOT Order 5610.2(a) as an adverse effect that:

i. is predominantly borne by a minority population and/or a low-income population, or
ii. will be suffered by the minority population and/or low-income population and is appreciably more severe or greater in magnitude than the adverse effect that will be suffered by the non-minority population and/or non-low-income population.

To determine whether the build alternatives could result in any such disproportionate effects within the study area, each of the build alternatives' adverse effects on minority and/or low-income populations were compared to the adverse effects on non-minority and non-low-income populations in the study area. The analysis also compares the alternative's benefits experienced by minority and/or low-income populations as compared to non-minority and non-low-income populations.

[5] Regional population and income data provided by the Association of Bay Area Governments (ABAG) was also used to further verify *Census Tract data*; ABAG does not provide data at the *Census Block Group* level.

As noted above, well over half of the Census block groups in the study area include one or two types of EJ populations. Therefore, most of the Geary corridor is considered to include EJ populations and thus that any impacts of the build alternatives would thus be disproportionately borne by EJ populations. Accordingly, the following analysis focuses with particularity on whether such effects would be disproportionately high and adverse.

Figure 4.14-2 Minority Populations in the Study Area

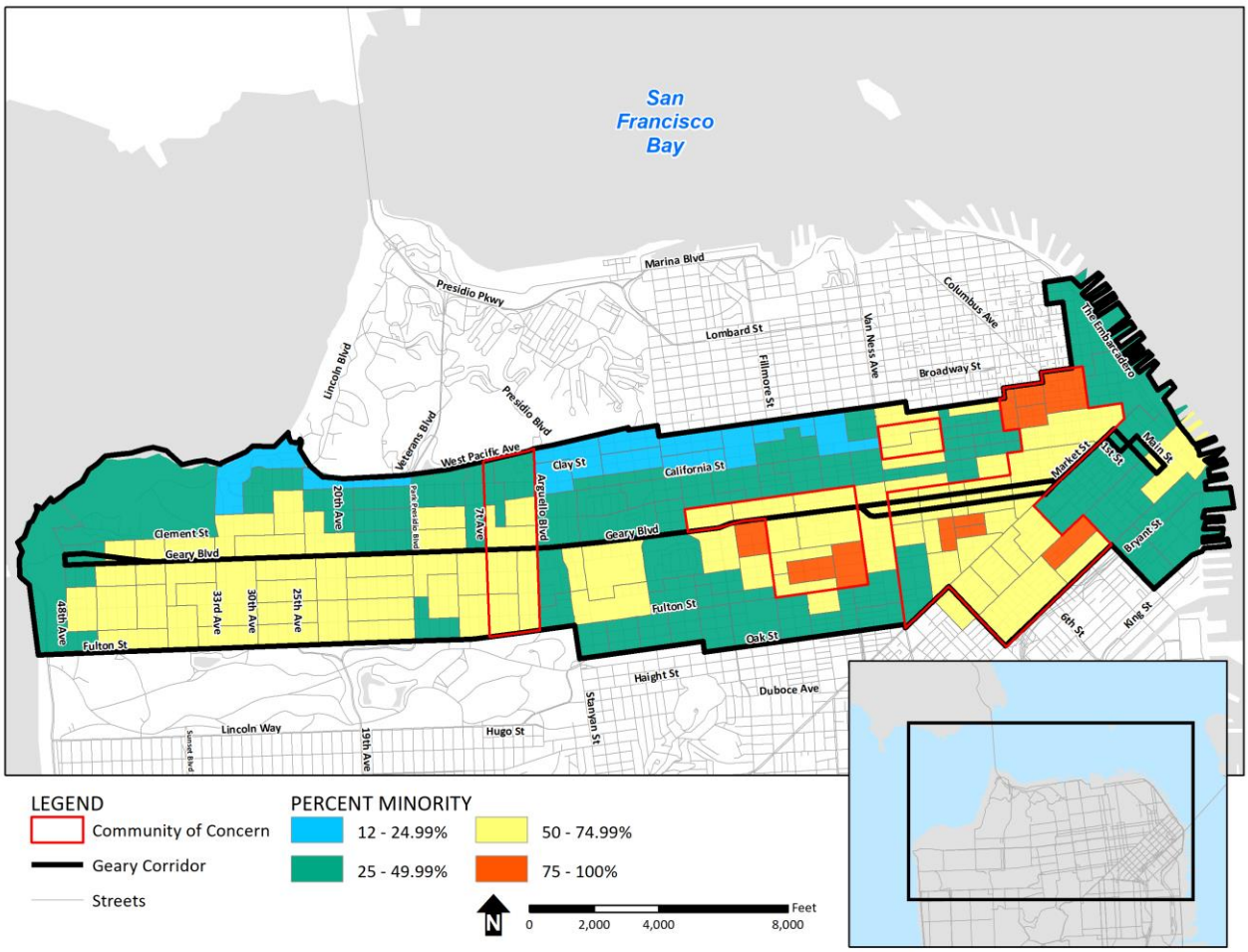
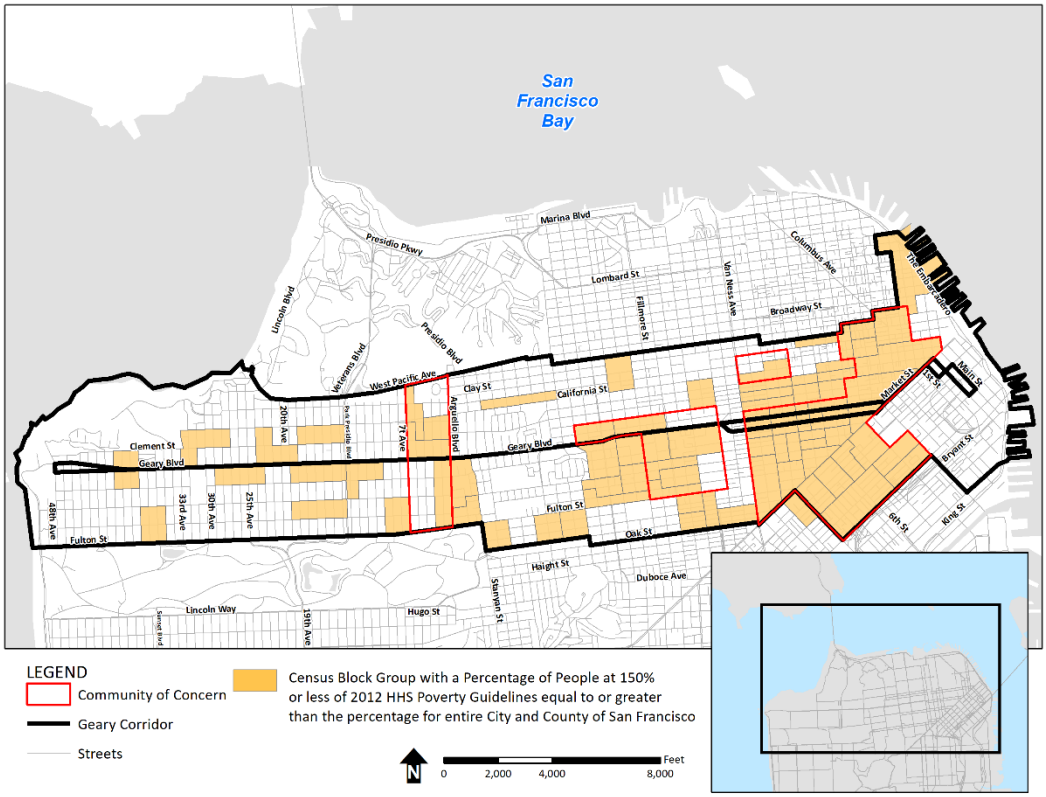


Figure 4.14-3 Low-Income Populations in the Study Area



Consistent with FTA's Circular, the San Francisco County Transportation Authority (SFCTA) and San Francisco Municipal Transportation Agency (SFMTA) also sought to engage members of the community, with emphasis on EJ communities. Over half of the Census block groups in the Geary corridor include EJ populations; so virtually all of the outreach performed was inclusive of EJ populations. During the project development and planning phases, SFCTA and SFMTA convened briefings and announcements with key stakeholder groups to better understand concerns at a more granular level. In communities with high numbers of non-English speakers, information was provided in multiple languages (including Chinese, Japanese, Korean, Russian, Spanish, Filipino, and Vietnamese). The project team convened meetings and/or briefings with over 65 local community, neighborhood, business, advocacy, and interest groups over the course of project development process and used that input to shape the alternatives carried forward into this document.

In addition, project open houses in and near the Japantown, Fillmore, and Tenderloin neighborhoods, which are a part of the larger Western Addition and Downtown/Civic Center EJ communities and are largely comprised of EJ populations (both minority and low income).[6] The Japantown, Fillmore, and Tenderloin neighborhoods are therefore included in the EJ communities analyzed in Section 4.14.4. The project's Citizens Advisory Committee (CAC), which provided a

[6] See Chapter 8, Public Participation, for full details on public meetings. A scoping meeting was held in the Tenderloin neighborhood in December 2008. In June 2012, a community meeting on alternatives was held in Japantown. In December 2013/January 2014, further open house meetings were held in the Tenderloin and Japantown.

sustained forum for public input, included designated seats for representatives of specific neighborhoods along the corridor, including the Japantown/Fillmore and Tenderloin/Downtown communities. The project team conducted a door-to-door survey of over 500 corridor merchants, including those in EJ communities, to gather their feedback. Two visualization kiosks, one of which was installed in the Japantown community, included a short survey for passers-by to share opinions on the project. The local agencies have maintained multi-lingual and multifaceted engagement through all stages of alternatives development, evaluation, and after certification of the Final EIR.

Efforts were undertaken to consider comments the community and EJ population in the refinement of the alternatives and measures to avoid and minimize impact. The Hybrid Alternative as described in the Draft EIS/EIR called for the bridge to be demolished and the existing local bus stop to be removed and not replaced. As noted in comments on the Draft EIS/EIR (see Appendix L, Master Response 1b), comments from residents of the Fillmore/Japantown neighborhoods (both of which are largely comprised of EJ populations) communities, and families associated with a school in Japantown and senior residential facilities near Laguna Street expressed concern about these proposed actions. Suggestions were received to retain the Webster Street pedestrian overcrossing and to add a BRT stop at Laguna Street. In this Final EIS, the Hybrid Alternative/LPA was modified to retain the Webster Street bridge and to add BRT stops at Laguna Street to directly respond to these concerns.

Refer to Chapter 8.0 for more information regarding project related outreach efforts and public participation and Chapter 10 for the alternatives development process.

4.14.4 | Environmental Consequences

This section discusses whether any project impacts would be disproportionately high and adverse to EJ populations, taking into consideration 1) the implementation of avoidance, minimization, and/or mitigation measures and 2) any offsetting benefits of the project that would be realized by EJ populations.

As noted above, the majority of the study area contains EJ populations. As such, most of the environmental effects of the project alternatives would be predominantly borne by EJ communities. However, as discussed in the following subsections, these environmental effects occur across the study area and similar effects occur in environmental EJ and non-EJ communities. Mitigation measures would also be implemented, with similar type and quality throughout the study area, in both EJ and non-EJ communities. Therefore, following the implementation of mitigation and the consideration of off-setting benefits, the build alternatives would not result in disproportionately high or adverse effects in EJ communities.

4.14.4.1 ENVIRONMENTAL TOPIC AREAS WITH NO ADVERSE EFFECTS

For several environmental topic areas, the build alternatives would result in beneficial effects. Such beneficial effects include improved access to transit service, improved travel times, increased transit capacity, reliability and connectivity between residential areas, community facilities, employment centers, and local businesses, particularly for higher densities of minority and low-income populations in the eastern portion of the Geary corridor.

Other benefits include an enhanced visual environment and landscape, improved air quality, decreased pedestrian crossing distances, pedestrian-scale lighting, median-width changes, improved bus shelters and bulbouts, and other urban design features.

In summary, as presented in Chapters 3 and 4 of this document, the build alternatives would have no adverse effects in the following environmental topic areas.

- Transit Operations
- Pedestrian and Bicycle Transportation
- Parking
- Land Use
- Growth
- Cultural Resources
- Utilities
- Geology and Soils
- Energy
- Biological Resources

Since the project alternatives would not have any adverse effects in the above-listed topic areas, there would be no disproportionate adverse effects to EJ populations.

The analysis in Chapter 3 demonstrates that there would be no adverse effects related to transit operations, pedestrian and bicycle facilities, or parking. However, because Geary BRT is a transportation project, the project alternatives would result in extensive changes to the transportation network in the study area, including in EJ communities. Although the build alternatives would have no adverse effects in the three transportation related topics noted above, subsection 4.14.4.11 discusses EJ considerations related to these topics given the scale of the transportation network changes that would result from the proposed alternatives.

4.14.4.2 ENVIRONMENTAL TOPIC AREAS WITH NO ADVERSE EFFECTS WITH IMPLEMENTATION OF AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

For the following topic areas, the build alternatives were shown to have adverse effects prior to the implementation of avoidance, minimization, and/or mitigation measures. Further details regarding these conclusions are provided in their respective sections of Chapters 3 and 4. With one exception noted below, these adverse effects are related only to construction.

- Community Impacts
- Visual Resources
- Hazards and Hazardous Materials
- Hydrology and Water Quality (construction and operation)

- Air Quality and Greenhouse Gas Emissions
- Noise and Vibration
- Loading Spaces

With the implementation of avoidance, minimization, and/or mitigation measures, no adverse effect would remain within these environmental topic areas. These topic areas are further discussed in subsequent subsections (starting at 4.14.4.5) to discuss details regarding EJ populations.

4.14.4.3 ENVIRONMENTAL TOPIC AREA WITH ADVERSE EFFECTS FOLLOWING IMPLEMENTATION OF AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

As shown in preceding sections of Chapters 3 and 4 of this document, automobile transportation is the only environmental topic area where an adverse effect would remain following implementation of feasible avoidance, minimization, and mitigation measures.

This topic is further discussed in subsection 4.14.4.11 below for evaluation of whether the effect would be disproportionately high and adverse on EJ populations.| Hybrid Alternative/Locally Preferred Alternative Modifications: Potential Additive Effects since Publication of the Draft EIS/EIR

As discussed in Section 2.2.7.6, the Hybrid Alternative/Locally Preferred Alternative (LPA) now includes the following six minor modifications added since the publication of the Draft EIS/EIR:

- Retention of the Webster Street pedestrian bridge;
- Removal of proposed bus rapid transit (BRT) stops between Spruce and Cook streets (existing stops would remain and provide local and express services);
- Addition of more pedestrian crossing and safety improvements;
- Addition of BRT stops at Laguna Street;
- Retention of existing local and express stops at Collins Street; and
- Relocation of the westbound center- to side-running bus lane transition to the block between 27th and 28th avenues.

This section presents analysis of whether the refined Hybrid Alternative/Locally Preferred Alternative would result in any new or more severe EJ impacts during construction or operation. As documented below, the Hybrid Alternative/LPA as modified would not result in any new or more severe EJ impacts relative to what was disclosed in the Draft EIS/EIR.

The modifications to the Hybrid Alternative/LPA would be located within or near EJ communities.

Retention of the Webster Street Pedestrian Bridge

Construction and Operation: Environmental justice populations are located on the north and south sides of Geary near this modification. Retaining the bridge at this location would provide the benefit of enhanced pedestrian access across Geary. As described in several preceding sections of this Final EIS, the retention of the

Webster Street bridge would not result in any new or more severe impacts with regard to community impacts, visual resources, hazards and hazardous materials, hydrology and water quality, air quality and GHG emissions, noise and vibration, or transportation and transit. Therefore, this modification would not have the ability to result in any new or more severe effects to EJ communities relative to what was described in the Draft EIS/EIR during construction or operation.

Removal of Proposed BRT Stops between Spruce and Cook Streets

Construction and Operation: Environmental justice populations are located on the south side of Geary Boulevard near this modification. As described in several preceding sections of this Final EIS, the retention of the existing bus stops between Spruce and Cook streets would not result in any new or more severe impacts with regard to community impacts, visual resources, hazards and hazardous materials, hydrology and water quality, air quality and GHG emissions, noise and vibration, or transportation and transit. Although this community would not be served by BRT buses at the Spruce-Cook stop, overall transit access would not be substantially diminished because local and express services would still be provided. Moreover, this change would preserve curbside parking and loading on this block. Therefore, this modification would not result in any new or more severe effects generally or to EJ communities specifically relative to what was described in the Draft EIS/EIR during construction or operation.

Addition of More Pedestrian Crossing and Safety Improvements

Construction and Operation: As described in several preceding sections of this Final EIS, the additional pedestrian enhancements would not result in any new or more severe impacts with regard to community impacts, visual resources, hazards and hazardous materials, hydrology and water quality, air quality and GHG emissions, noise and vibration, or transportation and transit. Additional pedestrian improvements would require the removal of approximately 25 additional parking spaces both within and not within EJ populations (see Section 4.14.4.11 below). While the additional pedestrian enhancements would be constructed in various locations along the 6.5-mile Geary corridor, including in areas within or adjacent to EJ populations, the effects of pedestrian crossing bulb construction and operation would be similar in both EJ and non-EJ populations, so this modification would not result in any new or more severe effects to parking corridor-wide or in the Japantown/Fillmore area, either generally or specifically to EJ communities relative to what was described in the Draft EIS/EIR during construction or operation.

Addition of BRT Stops at Laguna Street

Construction and Operation: Environmental justice communities are located on the north and south sides of Geary near this modification. Adding BRT stops at this location would provide the benefit of enhanced transit access to and from this area.

This modification would require the removal of approximately 14 parking spaces in the immediate area (see Section 4.14.4.11 below). As described in several preceding sections of this Final EIS, the addition of BRT stops at Laguna Street would not result in any new or more severe impacts with regard to community impacts, visual resources, hazards and hazardous materials, hydrology and water quality, air quality and GHG emissions, noise and vibration, or transportation and transit. Therefore, this modification would not result in any new or more severe effects generally or

specifically to EJ communities relative to what was described in the Draft EIS/EIR during construction or operation.

Retention of Existing Local and Express Stops at Collins Street

Construction and Operation: Environmental justice populations are located on the south side of Geary near this modification. Retaining local and express stops at this location would provide the benefit of enhanced transit access. This modification would preclude the addition of approximately eight parking spaces that could have been added if the bus stops were removed. As described in several preceding sections of this Final EIS, the retention of the existing bus stops at Collins Street would not result in any new or more severe impacts with regard to community impacts, visual resources, hazards and hazardous materials, hydrology and water quality, air quality and GHG emissions, noise and vibration, or transportation and transit. Therefore, this modification would not result in any new or more severe effects generally or specifically to EJ populations relative to what was described in the Draft EIS/EIR during construction or operation.

Relocation of the Westbound Center- to Side-Running Bus Lane Transition

Construction and Operation: Environmental justice communities (minority populations) are located on the north and south sides of Geary near this modification. As described in several preceding sections of this Final EIS, the relocation of the westbound bus-only lane transition would not result in any new or more severe impacts with regard to community impacts, visual resources, hazards and hazardous materials, hydrology and water quality, air quality and GHG emissions, noise and vibration, or transportation and transit. Therefore, this modification would not result in any new or more severe effects generally or specifically to EJ communities relative to what was described in the Draft EIS/EIR during construction or operation.

4.14.4.4 | COMMUNITY IMPACTS

As analyzed in Section 4.2 of this Final EIS, the build alternatives would not result in adverse community impacts with operation of the build alternatives. In addition, Alternative 3 (Center-Lane BRT with Dual Medians and Passing Lanes) and Alternative 3-Consolidated (Center-Lane BRT with Dual Medians and Consolidated Bus Service) would have beneficial effects on community cohesiveness for EJ communities through the proposed filling of the Fillmore Street underpass, which currently acts as a barrier in the Fillmore/Japantown areas, as described in Section 4.2.4.4. Therefore, the build alternatives would not result in a disproportionate adverse effect to EJ populations with operation of the build alternatives.

However, the build alternatives would have an adverse construction period effect related to temporary traffic increases and parking in construction areas, which could disrupt access to public facilities, parks, businesses, and residences within the Geary corridor (shown in Table 4.2-7 through Table 4.2-9). Temporary adverse effects during construction, including partial sidewalk closures and detours, would likely affect patrons and employees of businesses along the Geary corridor, and would occur in a similar nature and magnitude in both EJ communities and non-EJ communities.

With implementation of mitigation, adverse effects would be avoided and minimized. The same type, level and quality of mitigation would be implemented in EJ and non-EJ communities. For example, construction of bus stops in EJ communities would temporarily affect access to nearby destinations, in similar nature and magnitude to construction of bus stops in non-EJ communities.

Section 4.2.5.1 reflects inclusion of a minimization measure that would eliminate the adverse effect during construction. The measure requires preparation of a transportation management plan (TMP) that includes traffic rerouting, a detour plan, and public information procedures. The TMP will be developed with participation from local agencies, other major project proponents in the area, local communities, business associations, and affected drivers. The TMP would cover the entire project corridor wherever needed to minimize construction effects, and TMPs of similar type and quality would be applied in both EJ communities and non-EJ communities. As there would be no adverse effect after application of this measure, there would be no disproportionate adverse effect to EJ populations.

While the communities along the corridor would bear the impacts of construction, the EJ communities adjacent to the corridor would realize benefits under any of the build alternatives through improved access to transit service, improved air quality, and improved travel times, particularly for higher densities of minority and low-income populations in the eastern portion of the Geary corridor, as discussed in Section 2.3.1 and Section 4.10. Businesses along the corridor will experience most of the project's construction impacts. However, those businesses would be expected to benefit from operation of the project through a potential increase in customers as a result of improved connectivity between residential areas, community facilities, employment centers, and local businesses. With the consideration of offsetting benefits and the implementation of mitigation, the build alternatives would not result in a disproportionate adverse effect.

4.14.4.5 | VISUAL RESOURCES

Operational effects to visual resources would not be adverse, and therefore would not result in a disproportionate adverse effect. As summarized on Table 4.4-1 in Section 4.4.4, implementation of the build alternatives is expected to enhance the visual quality along the corridor and provide a benefit to both EJ and non-EJ communities. The primary visual changes would result from the coloring of BRT lanes and the introduction of new BRT stops on bulb-out sidewalk extensions. At these stops, new shelters, decorative lighting, custom paving associated with the bulbouts and dedicated bus lanes, and tree planting would be placed on widened passenger areas (bus bulbs) created by extending the sidewalk into the existing parking lanes. Under Alternatives 3 (Center-Lane BRT with Dual Medians and Passing Lanes) and 3-Consolidated (Center-Lane BRT with Dual Medians and Consolidated Bus Service) as well as in a smaller portion of the corridor under the Hybrid Alternative/LPA, existing center medians would be replaced with dedicated center-running BRT lanes. These would be separated from auto traffic by continuous raised, landscaped medians and BRT platforms. The existing center medians and associated landscaping lost to the center BRT lanes would be replaced by extensive landscape planting in the adjoining new center-running medians, with a substantial net increase in the amount of landscaping in the Geary corridor. These beneficial effects would be experienced in both EJ and non-EJ communities since both exist along the portions of the corridor that would have center-running BRT lanes in each

of these alternatives. In addition, visual improvements such as tree replacement would be applied throughout the corridor, as described in detail in Section 4.4.4.3.2.

Section 4.4 of this Final EIS concluded that the build alternatives would have an adverse construction period effect. This effect would be corridor-wide, since it relates to the use of construction equipment, stockpiling of materials, and other visual signs of construction, including portable message signs and night lighting, all of which would be located within public right-of-way areas where new project elements would be constructed (the entire length of the Geary corridor between Market Street to 34th Avenue). While evidence of construction activity may be noticeable to area residents, transit riders, and other viewer groups, such visual disruptions would be short term and are a common feature of the urban environment. As discussed in Section 2.3.3, construction of the build alternatives would require varying levels of tree removal, during which a temporary decline in visual quality would occur. These effects would be similar in nature and magnitude in both EJ and non-EJ communities. For example, in both EJ and non-EJ communities, construction equipment would be visible and existing trees may be removed. In the long-term, EJ communities would benefit from the visual enhancement provided by the project's new facilities and landscaping.

The most intensive construction associated with the build alternatives involves the construction of new center-running bus lanes, which requires removal of existing planted medians. Alternatives 3 and 3-Consolidated included particularly intensive center-lane construction through the Fillmore/Japantown areas (which include EJ populations), where the grade of Geary would be raised out of its current expressway configuration. Notably, the Hybrid Alternative/LPA does not include center-lane construction in this area.

To ensure that construction throughout the corridor and in the Fillmore/Japantown area does not result in an adverse effect, project construction will be phased to reduce the period of disruption at any particular location to the shortest practical length of time. This will be particularly relevant to the Fillmore overpass area. Additionally, construction staging and storage areas will be screened by visually opaque screening wherever they will be exposed to public view for extended periods of time. The same type, level, and quality of mitigation for common construction-period effects would be applied in both EJ and non-EJ communities. For example, wherever construction occurs, construction areas would be screened from public view. In the Fillmore/Japantown area, where more intense construction is required and EJ communities are present, the mitigation described above would be applied and would ensure that no adverse effect would occur.

Section 4.4.5.1 reflects inclusion of the measure described above, which would eliminate the adverse effect. As there would be no adverse effects after mitigation, there would be no disproportionate adverse effect to any EJ population. The implementation of mitigation measures would be similar both EJ and non-EJ communities. With the consideration of the offsetting benefit of the long-term visual enhancement of the corridor and the implementation of mitigation measures, the build alternatives would not result in no disproportionate adverse effect to EJ populations.

4.14.4.6 | HAZARDS AND HAZARDOUS MATERIALS

Operational effects would not be adverse, and therefore would not result in a disproportionate adverse effect.

Section 4.8 of this Final EIS concluded that the build alternatives would have an adverse construction period effect. Construction activities would potentially result in exposure risk from hazardous materials, aerially deposited lead in the soil, naturally-occurring asbestos, lead, and other environmental concerns, listed in Table 4.8-1, especially in areas where the Hybrid Alternative would remove existing medians. These effects would be similar in nature and magnitude in both EJ and non-EJ communities. For example, excavation would be required in both EJ and non-EJ communities, and would carry a similar risk of exposure to aerially deposited lead in both EJ and non-EJ communities. However, the Hybrid Alternative would avoid some potential risks to hazardous materials exposure associated with the Fillmore Street underpass, as the Fillmore Street underpass would remain in place. This would avoid a potential effect in an area with EJ populations.

Under Alternative 3 and 3-Consolidated the Geary corridor would be raised at Fillmore Street to create an at-grade roadway. This area includes EJ populations in the Fillmore/Japantown neighborhoods. This work would involve filling the existing underpass, thereby creating a new roadbed, removing part of the retaining walls, relocating existing utilities, and decommissioning the existing pump station. As a result, the proposed Fillmore underpass would involve importing of dirt and fill materials. This effect would only occur in this area, and would be within an EJ community. However, mitigation described below would be implemented in this location to ensure adverse effects do not occur.

Filling the Fillmore underpass would require compliance with Section 2.4.53(d) of the City Public Works Code to ensure that fill materials are clean. This requirement would ensure that effects related to the Fillmore Street construction activities are not adverse. This measure would be applied uniquely in the Fillmore Street area, which primarily includes EJ communities. In this case, EJ communities would benefit from additional mitigation that would not occur in non-EJ communities. Additionally, filling of the Fillmore underpass would result in beneficial effects to EJ communities, described in Section 4.14.4.5 above and in detail in Section 4.2.4.4.

Section 4.8.5.1 reflects inclusion of minimization measures that would eliminate adverse construction period effects along the corridor. Prior to excavation and construction, adherence to hazardous material guidelines for collection; disposal, handling, release, and treatment of hazardous material; site remediation; and worker safety and training would be required. A Preliminary Site Investigation would be performed to verify the presence of hazardous materials in soil, groundwater, and construction materials on the Geary corridor. Areas throughout the corridor where soils would be disturbed during construction will be sampled and tested for hazardous materials. Any hazardous materials encountered would be disposed of in accordance with applicable, federal, state, and local regulations. The same type, level and quality of mitigation would be applied in both EJ and non-EJ communities. For example, excavation would be required in both EJ and non-EJ communities, and soil samples would be tested from both EJ and non-EJ communities to identify any potentially hazardous materials. With the implementation of mitigation, the build

alternatives would have no adverse effects; therefore, there would be no disproportionate adverse effect to EJ populations.

4.14.4.7 | HYDROLOGY AND WATER QUALITY

Section 4.9 of this Final EIS concluded that the build alternatives would have adverse construction and operational effects. Construction of any of the build alternatives could result in effects related to soil erosion, stormwater runoff, and effects to the existing sewer system. These effects would be temporary and occur corridor-wide in both EJ and non-EJ communities. The effect would occur in a similar nature and magnitude in both EJ and non-EJ communities. For example, wherever excavation occurs, temporary effects to stormwater runoff could occur. Similar types and amounts of excavation is proposed in both EJ and non-EJ communities.

In addition, Alternatives 3 and 3-Consolidated would involve filling the underpass at Fillmore Street and decommissioning an existing underground pump station. This work would occur in an area with EJ populations. These components of Alternatives 3 and 3-Consolidated would allow groundwater elevation in the area to rise to a level that could potentially reach underground portions of six nearby structures, resulting in an adverse effect. This effect would primarily occur in EJ communities. However, specific mitigation would be implemented wherever needed, and in EJ communities in particular, to avoid this adverse effect. Additionally, filling of the Fillmore underpass would result in beneficial effects to EJ communities, described in Section 4.14.4.5 above and in detail in Section 4.2.4.4.

Should Alternatives 3 or 3-Consolidated be selected, one of two measures would be implemented to address this adverse effect. The effect may be avoided by maintaining the existing pump station or a similar pump to keep groundwater in the vicinity of the Fillmore Street area at current (unchanged) elevations. Alternatively, a detailed groundwater study will be performed to determine the effects of groundwater rise on potentially affected structures and utilities. Remedial measures may be identified, and would be implemented to minimize structural affects to surrounding buildings. This measure would specifically serve the area surrounding the pump station, which includes an EJ community, and would ensure that that effects described above are not adverse.

Operation of any of the build alternatives would have an adverse effect on stormwater runoff throughout the corridor. This effect would be similar throughout the corridor in both EJ and non-EJ communities; where new impervious surfaces are added, increased stormwater could occur. New impervious surfaces would be added of a similar type and magnitude in both EJ and non-EJ communities. A minimization measure has been developed to avoid this adverse effect and requires landscaped areas be designed to minimize and reduce total stormwater runoff. The type, level, and quality of this mitigation would be the same in both EJ communities and non-EJ communities. For example, landscaped areas would be installed in both EJ and non-EJ communities. The precise design of landscaped areas would depend on physical conditions along the corridor, which vary. However, the most appropriate landscaping to fulfil the intent of this mitigation measure would be used in both EJ and non-EJ communities. This measure would avoid adverse operational effects.

Section 4.9.5 reflects inclusion of the minimization measures described above that would eliminate these construction and operational period adverse effects across the entire corridor. As there would be no adverse effects after mitigation, and considering the offsetting benefits, there would be no disproportionate adverse effect to any EJ population.

4.14.4.8 | AIR QUALITY AND GREENHOUSE GAS EMISSIONS

As summarized on Table 4.10-2 in Section 4.10, none of the project alternatives would result in substantial, long-term increases in criteria air pollutants, would not expose receptors to substantial pollutant concentrations, and would not result in substantial, long-term increases in GHG emissions. As discussed in Section 4.10, the build alternatives would result in beneficial long-term reductions in the emissions of criteria pollutants and greenhouse gases. The build alternatives would be consistent with the most recent air quality plan that shows how the region will improve ambient air quality and achieve state and federal ambient air quality standards. All project alternatives, including the No Build Alternative, also include the replacement of current diesel buses with lower emissions diesel hybrid electric models. Operational effects of the build alternatives would not be adverse, and therefore they would not result in a disproportionately high and adverse effect to EJ communities.

The majority of construction activity would be similar for all of the project alternatives. Temporary and localized air quality impacts related to the construction of additional BRT stops and BRT stops at new transit islands such as at Laguna Street stops under the Hybrid Alternative/LPA, and additional pedestrian improvements, would be similar in nature and magnitude along the Geary corridor in both EJ and non-EJ communities. For example, construction would require excavation which can result in airborne dust. Similar types and amounts of excavation is proposed in both EJ and non-EJ communities.

However, construction activity associated with filling the Fillmore Street underpass (Alternatives 3 and 3-Consolidated) would generate the highest amounts of criteria air pollutant emissions as a result of additional truck and equipment activity. This portion of the study area includes EJ populations. While construction period effects would be most intense in this area, criteria pollutants would still be below applicable thresholds (discussed in Section 4.10.1), therefore the effect would not be adverse and no disproportionate adverse effect to EJ communities would occur.

Section 4.10.4.5 of this Final EIS concluded that the build alternatives would have an adverse construction period effect related to potential release or exposure to asbestos if pedestrian bridges containing asbestos building materials are demolished. Demolition of the pedestrian bridges at Steiner Street (all build alternatives) and Webster Street (retained as part of the Hybrid Alternative/LPA) could result in the release of/exposure to asbestos. In addition, Alternatives 3 and 3-Consolidated would decommission an existing below-grade pump station, including removal of a portion of its structure which could contain asbestos. This area includes EJ populations. However, with implementation of measures described below, the effect would not be adverse, and EJ communities would realize the benefits from these construction activities as described in Section 4.14.4.5 above.

With adherence to City ordinances and regulations regarding construction, including the demolition of pedestrian bridges, no adverse effect would occur. Adherence to the relevant ordinances would be applied in both EJ communities and non-EJ

communities. This avoidance measure would ensure that an equal type, level, and quality of avoidance is applied in both EJ and non-EJ communities. For example, construction activities requiring compliance with the Construction Dust Control Ordinance would occur in both EJ and non-EJ communities, and compliance with the ordinance would be carried out in both EJ and non-EJ communities. Section 4.10.5.1 reflects inclusion of the measure described about that would avoid adverse air quality effects. With the implementation of mitigation measure and considering the offsetting benefits of the air quality improvement as discussed in Section 4.10, there would be no disproportionate adverse effect on EJ populations.

4.14.4.9 | NOISE AND VIBRATION

Section 4.11 of this Final EIS concluded that the build alternatives would have an adverse construction period effect, but operational effects would not be adverse. Therefore, the build alternatives would not result in a disproportionate adverse effect related to operational noise and vibration.

Construction noise effects would be corridor-wide and occur in a similar nature and magnitude in both EJ and non-EJ communities. For example, physical improvements associated with the build alternatives (the Geary corridor between Market Street and 34th Avenue) would result in temporary increases in ambient noise levels and vibration levels on an intermittent basis. Similar types and magnitudes of construction activity would occur in both EJ and non-EJ communities, such as excavation, paving, and lane striping. Since the effect is corridor-wide, it would not occur with greater intensity in EJ communities than in non-EJ communities, and would not be disproportionately adverse.

The most intensive construction associated with the build alternatives involves filling the Fillmore Street underpass to bring the roadway to street level (Alternatives 3 and 3-Consolidated). This would involve the filling and/or removal of the existing pump station, demolition of the existing grade separation structure, and rebuilding of the roadway. The expected noise levels from construction equipment could exceed 80 dBA at 100 feet. The area within the 100-foot radius consists of EJ communities. Therefore, this effect would primarily occur in areas with EJ populations. The minimization measures described below would ensure this effect is not adverse, and the filling of the underpass would result in benefits to the immediate area as described in Section 4.14.4.5, resulting in beneficial effects to EJ communities.

Section 4.11.5.1 reflects inclusion of minimization measures that would eliminate adverse effects during construction. These measures include preparation of a Vibration Reduction and Minimization Plan, best management practices for noise control such as equipment mufflers, avoiding residential areas for construction haul routes wherever feasible, independent noise monitoring in sensitive areas, and the use of additional noise canceling technologies in locations where sensitive receptors could experience construction-related noise exceedances. This measure would be applied in both EJ communities and non-EJ communities. For example, wherever construction equipment is used, mufflers would be employed to reduce noise. Construction equipment with mufflers would be used in both EJ and non-EJ communities. This measure would ensure that operational effects are not adverse.

EJ communities adjacent to the corridor would realize benefits under any of the build alternatives through improved access to transit service, improved air quality, and improved travel times, particularly for higher densities of minority and low-income populations in the eastern portion of the Geary corridor, as discussed in Section 2.3.1 and Section 4.10. With the consideration of offsetting benefits and the implementation of mitigation, the build alternatives would not result in a disproportionate adverse effect.

4.14.4.10 | TRANSPORTATION AND TRANSIT

Transit Operations

As noted in Section 4.14.4.1 above, there would be no adverse effect related to Transit Operations, but this discussion is provided for greater context in terms of EJ populations. When comparing 2012 and 2016 data for EJ populations in the study area, some communities that were identified as EJ are no longer EJ, and some new communities are identified as EJ adjacent to or within larger EJ communities. The analysis below remains valid in its discussion of relative effects to EJ communities and comparison of those effects to non-EJ community effects. Similarly, the discussion of mitigation measures accurately represents the type, level, and quality of mitigation in EJ and non-EJ communities.

All of the build alternatives would result in improved transit reliability, travel time savings, and passenger waiting/boarding experiences relative to the No Build Alternative. The build alternative improvements would benefit all within the study area, including EJ populations. For example, as described in Section 3.3.4.5, throughout the corridor all build alternatives would reduce BRT bus travel times by about 15 to 35 percent in 2035 compared with Rapid bus travel time in the No Build Alternative. The Hybrid Alternative/LPA would be slightly faster than Alternative 2, although slightly slower than Alternatives 3 and 3-Consolidated. Therefore, the build alternative improvements would be beneficial for residents in the vicinity of the Geary corridor.

Temporary disruptions to transit service during construction would affect all portions of the Geary corridor where new physical improvements are proposed (Market Street to 34tth Avenue). Accordingly, all transit users would experience these temporary disruptions. Disruptions would be of a similar nature and magnitude in both EJ and non-EJ communities. Construction notices in multiple languages, consistent with SFMTA practices, would be provided throughout the Geary corridor.

Automobile Traffic

All of the build alternatives are expected to result in adverse effects to automobile traffic circulation, as described in Section 3.4 (Automobile Traffic). When comparing 2012 and 2016 data for EJ populations in the study area, some communities that were identified as EJ are no longer EJ, and some new communities are identified as EJ adjacent to or within larger EJ communities. The analysis below remains valid in its discussion of relative effects to EJ communities and comparison of those effects to non-EJ community effects. Similarly, the discussion of mitigation measures accurately represents the type, level, and quality of mitigation in EJ and non-EJ communities.

As shown in Figure 4.14-4 and 4.14-5 and as summarized in Table 4.14-2, the different build alternatives would have differing numbers of intersections with unacceptable level of service in 2035 (LOS E or LOS F; see Section 3.4.4 for further details). These intersections would occur in a mix of locations relative to EJ populations.

As shown in Table 4.14-2, the No Build Alternative would result in the highest number of affected intersections either fully (8) or partially (11) within EJ populations, as defined from the 2012 Census data. Of the 21 total intersections that would operate at an unacceptable level of service in 2035, just 2 would be located outside EJ populations. As shown in Figure 4.14-2 and 4.14-3, the majority of the project corridor includes EJ communities, therefore, the majority of project intersections are within EJ communities.

In comparing 2012 and 2016 data for EJ populations, the overall frequency of intersection impacts entirely within, partially within, or entirely outside of EJ communities is consistent. Due to shifts in block groups becoming EJ or no longer being considered an EJ community, there would be slightly fewer affected intersections entirely within EJ communities, and slightly more affected intersections in non-EJ communities (see Table 4.14-3).

Relative to the No Build Alternative, in which 19 affected intersections would be entirely or partially within EJ populations, the build alternatives would result in a range of 5 to 9 such affected intersections in 2035. These intersections are listed in Section 3.4.2. For the Hybrid Alternative/LPA, five intersections would operate at an unacceptable level of service in partially EJ and non-EJ communities and three intersections would operate at an unacceptable level of service in entirely EJ communities. The traffic effects would be similar at the impacted intersections. Moreover, all of the build alternatives would substantially improve operations at the affected intersections relative to the No Build Alternative. Therefore, the traffic impact would not be disproportionately high and adverse.

DEFINITION

LEVEL OF SERVICE (LOS): A qualitative assessment of a road's operating conditions. This term refers to a standard measurement used by transportation officials which reflects the relative ease of traffic flow on a scale of A to F, with free-flow being rated LOS-A and congested conditions rated as LOS-F

Mitigation measures would include corridor-wide and site-specific intervention to reduce the effect where feasible. At some intersections, site-specific mitigation is not feasible due to physical constraints and/or tradeoffs in which improving automobile operations would negatively affect pedestrian safety or other modes. Where site-specific mitigation is feasible, mitigation measures to reduce the effect to the extent feasible would be implemented in both EJ and non-EJ communities. For reasons articulated at Section 3.4.5, no feasible measures are available to fully avoid adverse effects at these intersections. Mitigation measures such as removing on-street parking or otherwise increasing vehicular capacity were considered and deemed infeasible or contrary to the project goal of improving pedestrian conditions. Other projects in San Francisco have followed a similar approach. For example, the Van Ness Avenue Bus Rapid Transit project EIS/EIR considered the possibility of increasing vehicular capacity by removing on-street parking to mitigate adverse effects on traffic but similarly determined that doing so was infeasible or contrary to its project purpose. Instead, as with the Geary BRT build alternatives, the Van Ness Avenue BRT project includes broader mitigation measures not associated with any specific delay, such as implementation of a TMP during construction.

Table 4.14-2 Adverse Traffic Effects in 2035 Resulting from each Build Alternative, 2012 Census Data

	NO BUILD ALTERNATIVE	ALTERNATIVE 2	ALTERNATIVE 3	ALTERNATIVE 3-CONSOLIDATED	HYBRID ALTERNATIVE/ LPA
Total Number of Intersections Studied	78 (same for all Alternatives)				
Number of LOS-Affected Intersections	21	5	9	9	8
Number of LOS-Affected Intersections in **non-EJ** Communities[1]	2	0	0	0	0
Number of LOS-Affected Intersections Partially Within **EJ** Communities[2]	11	2	5	5	5
Number of LOS-Affected Intersections in entirely **EJ** Communities[3]	8	3	4	4	3

Note: LOS-affected intersections are those with LOS E-F. Includes both signalized and unsignalized intersections.

1 Intersections that are located 100% outside of EJ communities.

2 Intersections that include 1 or more corners that are located within EJ communities.

3 Intersections that are located 100% within EJ communities.

Table has been updated since Draft EIS/EIR.

Source: Fehr & Peers, 2013 and Circlepoint, 2017.

Table 4.14-3 Adverse Traffic Effects in 2035 Resulting from each Build Alternative, 2016 Census Data

	NO BUILD ALTERNATIVE	ALTERNATIVE 2	ALTERNATIVE 3	ALTERNATIVE 3-CONSOLIDATED	HYBRID ALTERNATIVE/ LPA
Total Number of Intersections Studied	78 (same for all Alternatives)				
Number of LOS-Affected Intersections	21	5	9	9	8
Number of LOS-Affected Intersections in **non-EJ** Communities[1]	2	0	1	0	0
Number of LOS-Affected Intersections Partially Within **EJ** Communities[2]	9	3	4	5	6
Number of LOS-Affected Intersections in entirely EJ Communities[3]	10	2	4	4	2

Note: LOS-affected intersections are those with LOS E-F. Includes both signalized and unsignalized intersections.

1 Intersections that are located 100% outside of EJ communities.

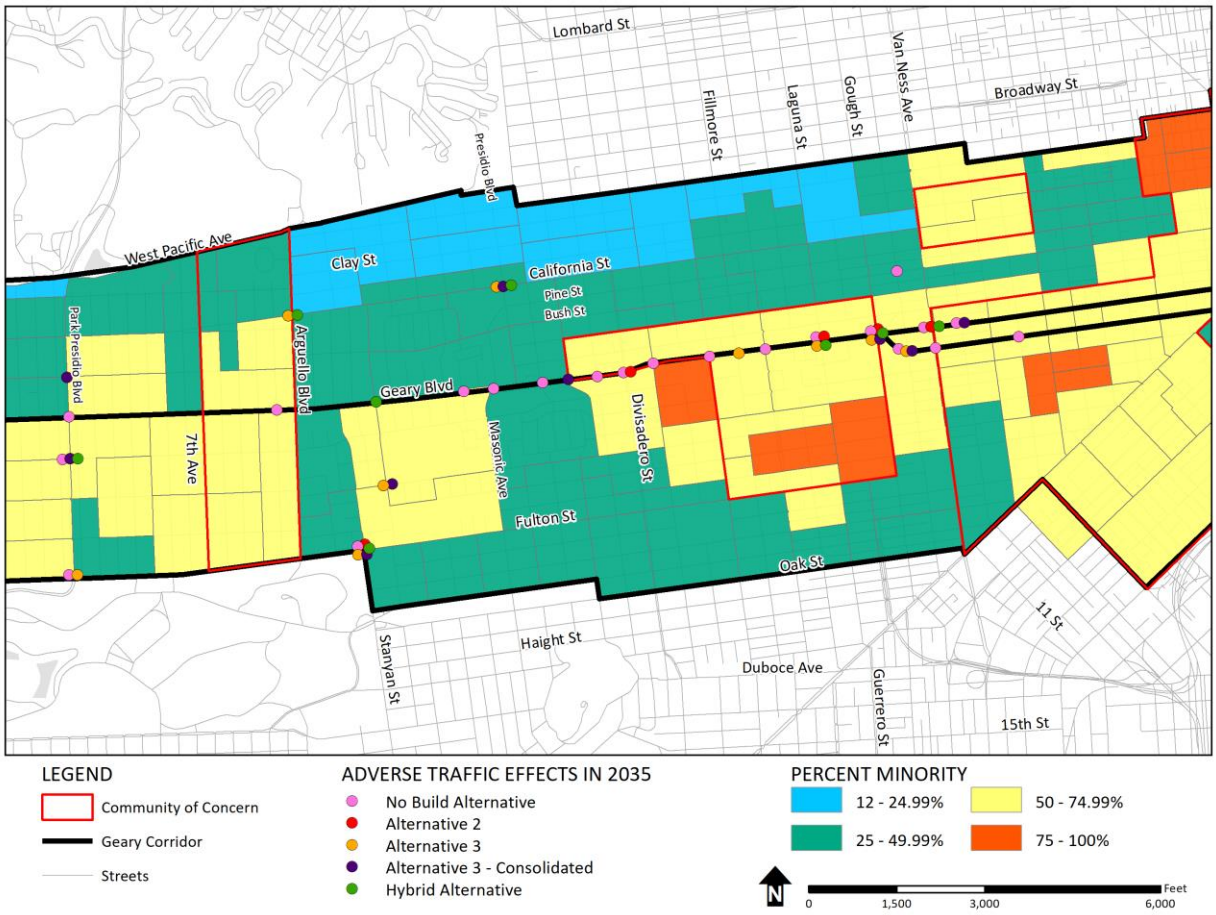
2 Intersections that include 1 or more corners that are located within EJ communities.

3 Intersections that are located 100% within EJ communities.

Table has been updated since Draft EIS/EIR.

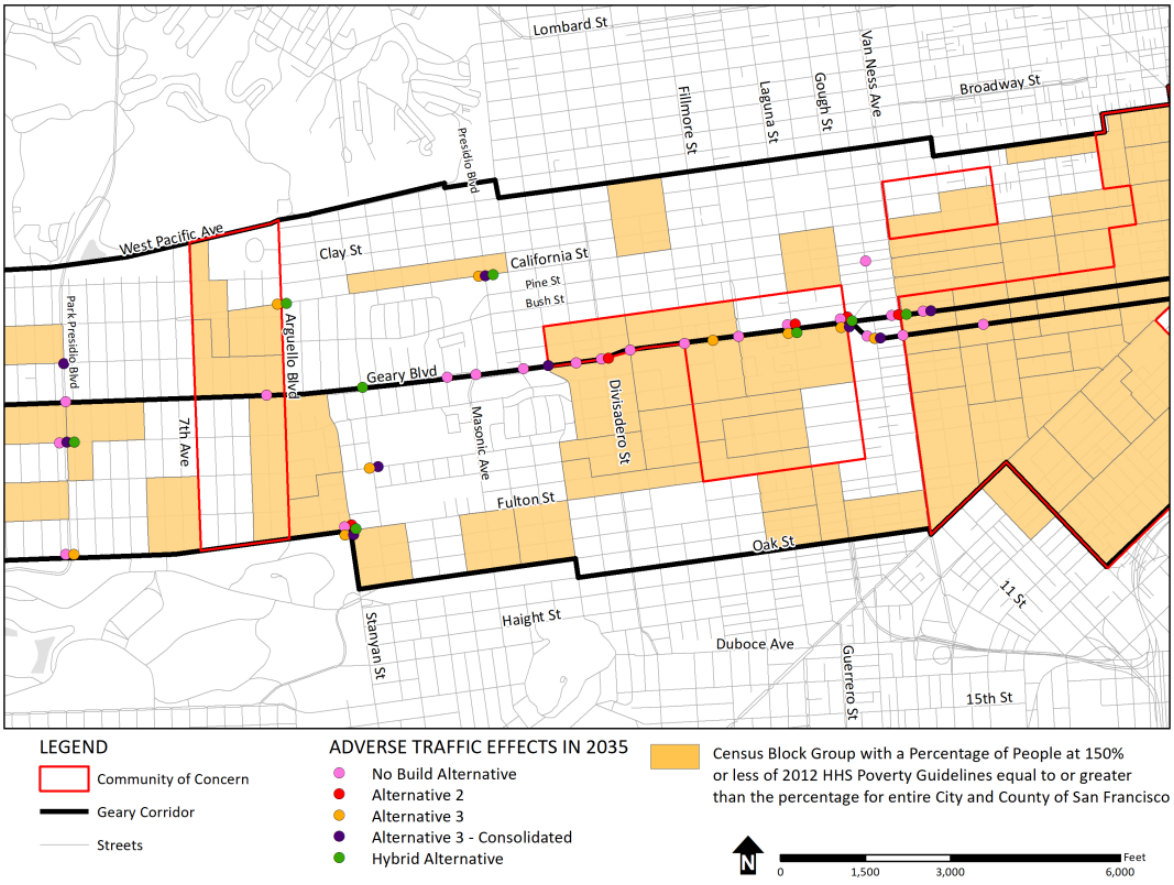
Source: Fehr & Peers, 2013 and Circlepoint, 2018.

Figure 4.14-4 Census Block Groups with Minority Environmental Justice Populations and Adverse Traffic Effects in 2035



Note: Figure revised from Draft EIS/EIR.

Figure 4.14-5 Census Block Groups with Low Income Populations and Adverse Traffic Effects in 2035



Note: Figure revised from Draft EIS/EIR.

Pedestrian and Bicycle Transportation

As noted in Section 4.14.4.1 above, there would be no adverse effect related to pedestrian and bicycle transportation, but this discussion is provided for greater context in terms of EJ populations.

Implementation of the proposed build alternatives would change the design characteristics of the Geary corridor, including: decreased pedestrian crossing distances, addition of pedestrian-scale lighting, median-width changes, improved bus shelters and bulb-outs, and other urban design features that would create a safer and more pleasant pedestrian experience. These features would be similar in type and quality in both EJ and non-EJ communities. Pedestrian delay may increase under Alternatives 3 and 3-Consolidated due to new and improved protected left turn signal phasing for automobiles. However, the new signal phasing would improve pedestrian safety at such intersections. Moreover, improved signal phasing is proposed throughout the corridor. Protected left turn signal phasing is proposed in the center-running BRT sections of the corridor under Alternatives 3 (Center-Lane BRT with Dual Medians and Passing Lanes) and 3-Consolidated (Center-Lane BRT

with Dual Medians and Consolidated Bus Service) as well as in the Hybrid Alternative/LPA. These sections of the corridor includeboth EJ and non-EJ communities in each of these alternatives.

The build alternatives propose consolidation of bus stops as an element of improving overall transit system speed and performance. Chapter 3.5 of this Final EIS evaluated the build alternatives for the potential to result in increased walking distances. SFCTA estimated both existing and projected future walking distances to bus stops for each alternative for various segments of the Geary corridor (Market Street to Van Ness Avenue, Van Ness Avenue to Broderick Street, Broderick Street to Palm Avenue, Palm Avenue to Park Presidio Boulevard, Park Presidio Boulevard to 25th Avenue, and 25th Avenue to 34th Avenue). The build alternatives would both increase and decrease estimated average walking distances to bus stops at various locations along the Geary corridor. According to SFCTA's estimates, the maximum projected increase in walking distance would be about 360 feet and would occur between Fillmore and Divisadero streets and between Van Ness Avenue and Laguna Street. These segments of the Geary corridor, like most other portions of the Geary corridor, include Census block groups with EJ populations.

The maximum increases in walking distance would not be substantial and thus no adverse effect would occur, and thus no disproportionate effect on any EJ population would occur. Moreover, the minor increases in walking distance would be offset by several beneficial factors. These factors include but are not limited to faster and more frequent bus service, improved bus stops/waiting areas, and reduced travel times. These beneficial effects would occur in both EJ and non-EJ communities as described above and in Section 3.5.4.

The project would result in improved bicycle safety and accessibility along part of the Geary corridor. The construction of a bicycle connection from Masonic Avenue to Presidio Avenue would connect the currently planned Masonic Avenue bicycle facilities to existing facilities on Presidio Avenue and Post Street. This connection would close a key gap in the City's bicycle network and improve bicycle connectivity. This is considered a beneficial effect.

Project construction would result in temporary detours and access changes for pedestrians and cyclists throughout the corridor where new physical improvements are proposed (Market Street to 34th Avenue). This includes both EJ and non-EJ communities. However, these detours and changes are expected to be minimal and were thus found in Section 3.5 not to result in any adverse effect. Accordingly, there would be no disproportionate effect on EJ populations.

Parking

The project would result in the temporary (construction-period) and permanent (operation-period) loss of public on-street parking. Section 3.6 provided a detailed parking analysis throughout the Geary corridor, noting changes in on-street parking associated with each build alternative and considering whether parking losses generally and parking for people with disabilities could result in any adverse effect. The analysis concluded that the changes in parking would not result in any adverse effect for any of the build alternatives during construction of operation.

When comparing 2012 and 2016 data for EJ populations in the study area, some communities that were identified as EJ are no longer EJ, and some new

communities are identified as EJ adjacent to or within larger EJ communities. The analysis below remains valid in its discussion of relative effects to EJ communities and comparison of those effects to non-EJ community effects. Similarly, the discussion of mitigation measures accurately represents the type, level, and quality of mitigation in EJ and non-EJ communities.

Notwithstanding the conclusion of no adverse effect, this section considers project related parking changes in the context of EJ populations.

SFCTA estimates that there are more than 9,800 existing publicly available parking spaces area-wide along the western portion of the Geary corridor (between 34th Avenue and Gough Street).[7] This includes on-street parking (metered and non-metered) and publicly accessible garages along or within approximately 700 feet (one to two blocks) of the Geary corridor. Of those spaces, approximately 1,680 are located directly on Geary itself. SFCTA tallied on-street parking spaces in both the eastern and western portions of the Geary corridor, but only counted parking spaces in the vicinity of the corridor in the western portion because none of the build alternatives would result in substantial parking loss east of Gough Street.

Construction: During construction, temporary conversion of parking lanes to mixed-flow travel lanes could be implemented, resulting in localized losses in on-street parking. Parking constraints would likely cause temporary inconveniences to local businesses and residents in all locations along the Geary corridor where new physical improvements are proposed (Market Street to 34th Avenue). This includes both EJ and non-EJ communities. Effects would be of a similar nature and magnitude in both EJ and non-EJ communities; for example, temporary mixed-flow lanes would need to be installed in both EJ and non-EJ communities. However, as described above in Section 4.14.4.5, businesses along the corridor are anticipated to benefit from the project.

As described in Section 4.15, the staggered multiple block construction approach would affect approximately five blocks at a time, minimizing impacts on corridor functions generally, such that no adverse construction period parking effect would occur. This strategy would be implemented in both EJ and non-EJ communities.

Operation: Of all the build alternatives, Alternative 2 would result in the removal of the greatest number of on-street parking spaces, followed by Alternative 3, then the Hybrid Alternative, then Alternative 3-Consolidated (see Table 3.6-3). However, as noted previously, these changes in parking were found not to be adverse given the availability of other on- and off-street parking spaces along and/or near the Geary corridor. In terms of these parking changes and EJ populations, well over half of the Census block groups comprising the Geary corridor study area include one or more EJ populations.

The discussions below provide further context on parking changes in two sub areas of the corridor with EJ populations, the Japantown/Fillmore area and Broderick Street to Palm Avenue. The local agencies did not receive any public comments from these communities regarding on-street parking loss, nor was there any adverse effect related to parking in any location along the Geary corridor. These discussions, therefore, are for informational and contextual purposes only.

[7] See Table 3.6-2.

Japantown/Fillmore: Section 3.6 included a particular focus on parking loss in the Japantown/Fillmore area (Gough Street to Steiner Street), as several transportation safety and access improvements would be located there (which would require additional removal of on-street parking) and the area is entirely composed of EJ communities. The Hybrid Alternative (as presented in the Draft EIS/EIR) would require removal of 94 parking spaces between Gough Street and Steiner Street. This was found not to be an adverse effect because the Japantown/Fillmore area has a much higher supply of existing on- and off-corridor parking spaces than other neighborhoods along the Geary corridor. The 94 parking spaces represent approximately three percent of the overall neighborhood supply of publicly available parking spaces in the Japantown/Fillmore area. This is comparable to other portions of the corridor, where parking loss would range from about 0 to 5 percent depending on location.

Current peak public parking occupancy rates in the Japantown/Fillmore study area Gough Street to Steiner Street) are approximately 80 percent of the estimated 2,929 total publicly available parking spaces (see Table 3.6-6), leaving approximately 20 percent of the spaces unused. Therefore, as discussed further in Section 4.2.4.4, the loss of three percent of publicly available parking spaces would not result in adverse effects on the Japantown/Fillmore community because no parking deficit would be created and no decrease of motorist access would occur. The project features requiring parking removal directly correlate to project benefits, such as enhanced transit access and pedestrian amenities, which would be also concentrated in the Japantown/Fillmore community. Additionally, the improved transit service would offset some parking demand, and would result in an overall enhancement of access to the community.

Modifications to the Hybrid Alternative/LPA: Taking into account modifications to the Hybrid Alternative/LPA since the publication of the Draft EIS/EIR would not result in an adverse effect related to parking corridor-wide or in the Japantown/Fillmore area.

The modifications would increase parking removal in the Japantown/Fillmore area (more specifically, the area between Gough Street to the east and Steiner Street to the west) by about 15 more spaces than without the modifications, increasing the total parking spaces removed in the area from 94 spaces to 109 spaces.

Parking removal in other areas (containing a mix of non- EJ communities and EJ communities) would also increase, ranging from 0 to 100 spaces in each community. These changes are associated with the addition of BRT stops at Laguna Street and some of the additional pedestrian improvements, which would concentrate project benefits in the Japantown/Fillmore area. These modifications would increase the percentage of area-wide parking supply lost (from 3 percent without the modifications to 4 percent with). The percentage of area-wide parking spaces removed in the Japantown/Fillmore community would still fall within the range of percentages removed in other portions of the corridor, including areas without EJ communities (0 to 5.5 percent, with the six modifications). The modifications would not substantially change the overall parking loss along the Geary corridor that would occur within EJ communities. This higher amount of parking removal would still be substantially less than the available unused spaces during peak times (approximately 20 percent of the total supply), so no parking deficit or diminishment of access would be created. Therefore, the combined parking loss due to the Hybrid

Alternative/LPA with the six modifications would not cause any adverse effects in the Japantown/Fillmore community, and no disproportionate adverse effect on EJ communities would occur.

In addition, the six minor modifications would increase parking loss in another corridor segment with EJ communities – between Broderick Street on the east and Palm Avenue on the west. Between Broderick Street and Palm Avenue, the modifications (associated with some of the additional pedestrian improvements) would reduce area-wide parking by about 10 spaces compared to what was identified in the Draft EIS/EIR. However, this would not appreciably change the percentage of parking loss in that segment relative to existing areawide parking spaces (a decrease of about 5 percent with or without the modifications).

Combining these geographies (Gough Street to Palm Avenue, 23 blocks, inclusive of four blocks between Steiner Street and Broderick Street), there are more than 5,600 on- and off-street parking spaces in the vicinity (area-wide parking). The total number of lost spaces with the modifications in these two areas would represent 4 percent to 5 percent of the total nearby public parking supply, comparable to the effects prior to the modifications. Similar to non-EJ communities, no parking shortfall is anticipated. Therefore, given the amount of parking availability in these areas, the changes associated with these modifications would not result in any

Loading

Section 3.6 concluded that the build alternatives would result in changes to both passenger and commercial loading spaces along the entirety of the Geary corridor. Tables 3.6-9 and 3.6-10 documented the expected changes in loading spaces by alternative and by various segments of the corridor in which new physical improvements are proposed (Market Street to 34th Avenue). These tables identified that many commercial and passenger loading spaces could be relocated either within the same block or in close proximity. While the number of loading spaces to that would be lost under any build alternative constituted no more than 2 percent of total commercial or passenger loading spaces, it was noted that most of the losses would occur between Market Street and Van Ness Avenue, where there are fewer opportunities to relocate any loading spaces that might be lost as a result of implementation of the build alternatives. The Market Street to Van Ness Avenue portion of the Geary corridor includes EJ populations.

In sum, Section 3.6 found an adverse effect related to the loss of loading spaces. Accordingly, Section 3.6.5 documented an avoidance measure to seek further opportunities during project design and construction to relocate and/or consolidate loading spaces, including coordination with adjoining business owners. This measure would be applied in the same way and quality in both EJ communities and non-EJ communities. Adherence to the avoidance measure would eliminate the adverse effect. To this end, there would be no disproportionate adverse effect.

4.14.4.11 | FINDINGS AND COMPARATIVE EFFECTS OF ALTERNATIVES

As demonstrated in the preceding subsections, the study area has a high concentration of EJ populations and impacts of the project may be considered predominately borne by the EJ community. However, environmental effects generally would occur in similar nature and magnitude in both EJ communities and non-EJ communities. The operation and construction effects would not occur with greater intensity in EJ communities, and therefore would not be disproportionately high and adverse effect to EJ communities. Operational effects would not be adverse, and therefore would not result in a disproportionate adverse effect. With implementation of mitigation, the build alternatives would avoid and minimize adverse effects. The mitigation implemented would be the same in EJ and non- EJ communities.

Only one environmental topic area would result in any adverse effects after application of avoidance, minimization, and/or mitigation measures (automobile traffic, intersection level of service). As shown in the preceding discussion, the No Build Alternative would result in the highest number of intersections that would in 2035 operate at LOS E or LOS F fully or partially within EJ populations. Each of the build alternatives would result in less than half the number of such affected intersections as the No Build Alternative. (See Table 4.14-2, Figure 4.14-4, and Figure 4.14-5). The adverse effects remaining after mitigation would occur in areas with and without EJ populations; the effects would be realized by all drivers (not just those from EJ populations).While these adverse effects cannot be fully avoided, minimized, or mitigated, they would not be disproportionately high or adverse on EJ populations and would also be offset by several beneficial effects of the project, which would accrue in similar nature and magnitude to both EJ and non-EJ communities. These beneficial effects include improved transit service, enhanced neighborhood access and mobility, and better transit reliability and connectivity between residential areas, community facilities, employment centers, and local businesses. For example, as described in Section 3.3.4.5, throughout the corridor all build alternatives would reduce BRT bus travel times by about 15 to 35 percent in 2035 compared with Rapid bus travel time in the No Build Alternative. The Hybrid Alternative/LPA would be slightly faster than Alternative 2, although slightly slower than Alternatives 3 and 3-Consolidated. These transit access and mobility enhancements in EJ communities would outweigh the mobility reduction associated with the traffic congestion effects that would occur. Other benefits include an enhanced visual environment and landscape, improved air quality, lower greenhouse gas emissions, decreased pedestrian crossing distances, pedestrian-scale lighting, median-width changes, improved bus shelters and bulbouts, and other urban design features.

Taking all of these factors into account, none of the build alternatives (including the Hybrid Alternative/LPA) would have disproportionately high and adverse effects on EJ populations.

4.14.5 | Avoidance, Minimization, and/or Mitigation Measures

There would be no disproportionate high and adverse effects on EJ communities within the study area. Construction effects throughout the Geary corridor, including those within EJ communities, would be adequately avoided, minimized, and/or mitigated through the measures identified/summarized in Section 4.15.7 through Section 4.15.16.[8] No other avoidance, minimization, or mitigation measures are required to address EJ effects for the build alternatives.

As described in other sections of this Final EIS, implementation of any of the build alternatives would include benefits to low-income and minority populations, as well as the community at large, including a safer, more reliable and improved transportation system, improved mobility across the Geary corridor, improved accessibility to jobs, and aesthetic improvements. These benefits are expected to be shared throughout the Geary corridor.

[8] All of the measures noted in Section 4.15.7 through Section 4.15.16 also appear in the individual topical sections of Chapter 4. Collectively, the measures would avoid, minimize, or mitigate for effects to both EJ communities and non- EJ communities.

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