

CHAPTER 4 AFFECTED ENVIRONMENT, ENVIRONMENTAL CONSEQUENCES, AND AVOIDANCE, MINIMIZATION AND/OR MITIGATION MEASURES

4.1 Land Use

Summary of Draft EIS/EIR

Section 4.1 of the Draft EIS/EIR analyzed the alternatives for consistency with existing and planned land uses, consistency with adopted plans and policies, and the potential to create a new physical division within a community. In considering such effects, the Draft EIS/EIR examined existing land use patterns and all relevant plans and policies adopted by the City and County of San Francisco as well as regional agencies. Section 4.1 is summarized here.

Section 4.1.4 of the Draft EIS/EIR found that none of the alternatives (including the Hybrid Alternative/SRA) would result in any adverse or significant effects with regard to land use. The Draft EIS/EIR found that the alternatives were supportive of existing and planned land uses as well as of adopted policies and would act to reduce divisions between communities by improving both transit operations and pedestrian mobility along the corridor. No avoidance, minimization, or mitigation measures were found necessary for any of the alternatives in Section 4.1.5.

Changes to the Hybrid Alternative/SRA

The changes to the Hybrid Alternative/SRA were examined for the potential to result in new or worsened effects to land use. These changes would not substantially alter bus operations, traffic patterns, or bus ridership beyond what effects were identified in the Draft EIS/EIR (see **Sections 3.3** and **3.4** of this Final EIR). Previous findings regarding consistency with existing and planned land uses, as well as adopted policies, would therefore remain unchanged.

Two of the Hybrid Alternative/SRA changes (the additional pedestrian improvements and the retention of the Webster Street bridge, both introduced in response to public comment on the Draft EIS/EIR) would have beneficial (i.e., lessening) effects with regard to existing physical divisions in the community.

Therefore, the changes to the Hybrid Alternative/SRA would not change the findings regarding consistency with adopted land use plans and existing/planned land uses as described/disclosed in the Draft EIS/EIR. On this basis, no new or worsened land use effects would occur as a result of the changes to the Hybrid Alternative/SRA. Therefore, no new avoidance, minimization, or mitigation measures would be needed.

Changes to the Draft EIS/EIR

No changes to the text of Draft EIS/EIR Section 4.1, Land Use, are needed with regard to the changes to the Hybrid Alternative/SRA or in response to a comment on the Draft EIS/EIR.

4.2 Community Impacts

Summary of Draft EIS/EIR

Section 4.2 of the Draft EIS/EIR analyzed the potential for the alternatives to cause changes to community character or to disrupt, displace, or limit access to businesses, residences, community facilities, and other land uses. In considering such effects, the Draft EIS/EIR described social and community characteristics of the study area, including population, income and ethnicity, household size and composition, community/neighborhood characteristics, and public services and facilities, deriving data from the U.S. Census Bureau and Association of Bay Area Governments (ABAG). The Draft EIS/EIR examined whether any of the transportation-related effects of the alternatives (bus stop changes, changes to traffic and parking patterns, pedestrian and bicycle enhancements) would have the potential to impact the community.

Section 4.2.4 of the Draft EIS/EIR found that construction of the build alternatives would not result in the displacement of any business, residence, or community facility, as all work would take place in public rights-of-way. Improved community connectivity across the Geary corridor would increase accessibility to jobs and businesses. Improved mobility for pedestrians and cyclists along the Geary corridor would likely result in increased business activity and greater access for hospitals and medical centers, offices, government centers, and educational institutions in the area. The Draft EIS/EIR further found that none of the short-term traffic and mobility, visual, air quality, or noise/vibration effects resulting from construction would be adverse. To reduce temporary construction impacts to local businesses and residents, the Draft EIS/EIR identified avoidance, minimization, and mitigation measures related to air quality, noise and vibration, and traffic management in Section 4.2.5.

Section 4.2 of the Draft EIS/EIR found that no adverse effects would result to community character from project operation and that no avoidance, minimization, or mitigation measures would be required. In fact, because the project would result in decreased levels of air pollutant emissions, improved transit amenities, and improved transit travel times, the Draft EIS/EIR found that the project would enhance community connectivity such that benefits to businesses and economic activity would be expected within the study area.

Changes to the Hybrid Alternative/SRA

The changes to the Hybrid Alternative/SRA were examined for the potential to result in new or worsened community effects. The removal of the BRT stops that was proposed for the Spruce-Cook area and the retention of local/express stops in this area would result in mixed effects. Local and express buses would continue to serve this stop. However, BRT buses would stop at Arguello to the west and Presidio/Masonic to the east. This would result in a greater walking distance to or from a BRT stop (approximately five blocks) for people starting or ending journeys in this area. However, this increase in walking distance would be offset in part by improved BRT travel time resulting from one less BRT stop. In addition, changes to the Hybrid Alternative/SRA include one additional bus bulb in this area to better facilitate pedestrian movement and crossings. Accordingly, the removal of the BRT stops at Spruce/Cook as part of changes to the Hybrid Alternative/SRA would not result in any new or worsened community effects.

Retention of the Webster Street bridge would reduce localized construction impacts to the community, as the bridge would no longer be demolished. Retention of the bridge would also improve pedestrian conditions by providing not only the Webster Street bridge, but also two new street-level crossings.

The additional pedestrian enhancements throughout the corridor proposed under the modified Hybrid Alternative/SRA would increase beneficial effects to pedestrians in the area, which would enhance access and connectivity within the corridor.

Overall, therefore, no new or worsened community effects would occur as a result of the changes to the Hybrid Alternative/SRA. Therefore, no new avoidance, minimization, or mitigation measures would be needed.

Changes to the Draft EIS/EIR

No changes to the text of Draft EIS/EIR Section 4.2, Community Impacts, are needed with regard to the changes to the Hybrid Alternative/SRA or in response to a comment on the Draft EIS/EIR.

4.3 Growth

Summary of Draft EIS/EIR

Section 4.3 of the Draft EIS/EIR analyzed the potential for the alternatives to induce or otherwise affect population growth in and around the Geary corridor in excess of planned growth (as expressed through adopted plans and zoning). For this analysis, the Draft EIS/EIR examined demographic and development trends in the study area and evaluated the project's consistency with existing and planned land uses, planned growth, and San Francisco's adopted plans and policies related to planned land uses and transportation investments.

Section 4.3.4 of the Draft EIS/EIR found that the build alternatives would support existing and planned growth and development within the study area and would not result in growth-related effects. As such, no avoidance, minimization, or mitigation measures related to growth were found necessary for any of the alternatives in Section 4.3.5.

Changes to the Hybrid Alternative/SRA

The changes to the Hybrid Alternative/SRA following publication of the Draft EIS/EIR were examined for the potential to result in new or worsened effects to growth. The removal of the BRT stops in the Spruce-Cook area, the retention of the Webster Street bridge, and the additional pedestrian improvements would not substantially affect temporary employment opportunities or sidewalk closures, detours, or other temporary construction measures. These modifications to the Hybrid Alternative/SRA would remain consistent with planned development and planned land uses and would not change existing development patterns, population, housing, or employment densities. On this basis, no new or worsened growth effects would occur as a result of the changes to the Hybrid Alternative/SRA. Therefore, no new avoidance, minimization, or mitigation measures would be needed.

Changes to the Draft EIS/EIR

No changes to the text of Draft EIS/EIR Section 4.3, Growth, are needed with regard to the changes to the Hybrid Alternative/SRA or in response to a comment on the Draft EIS/EIR.

4.4 Visual Resources

Summary of Draft EIS/EIR

Section 4.4 of the Draft EIS/EIR analyzed the potential for the alternatives to affect visual resources and visual quality along the Geary corridor. This analysis was based on a review of preliminary project design documents and relevant citywide policy documents, such as the City of San Francisco *Better Streets Plan* (BSP) and the City of San Francisco *General Plan*.

Analysis in the Draft EIS/EIR was based on the Federal Highway Administration (FHWA) Visual Impact Assessment (VIA) methodology. The analysis divided the Geary corridor into three landscape units based on broadly common existing visual character. Consistent with the FHWA methodology, the alternatives were evaluated for potential effects to visual character, visual quality, and viewer response.

Each of the build alternatives considered in the Draft EIS/EIR included several aesthetic-related improvements, such as improving passenger waiting areas and adding street trees, landscaping, pedestrian-scaled lighting, distinctive paving, among other features. Each of the build alternatives was also found to result in a visual narrowing of paved roadway area. In sum, the Draft EIS/EIR found that the above features would enhance intactness and overall visual quality, particularly for pedestrians and bus passengers.

Section 4.4.4 of the Draft EIS/EIR found that construction activities associated with all build alternatives would cause temporary declines in visual quality. Visual evidence of construction, tree removal, and light and glare would all contribute to this temporary decline. The Draft EIS/EIR noted that adverse visual effects resulting from tree replacement would persist until replacement plantings begin to mature, over 3 to 5 years (though full maturity would take 5 to 10 years or more). Pedestrian enhancements and amenities at BRT stops would generally enhance visual quality. Overall, the Draft EIS/EIR found that the long-term visual effects of the Hybrid Alternative would be neutral to somewhat beneficial.

The Draft EIS/EIR identified one measure in Section 4.4.5 to minimize visual disruption from construction. As no adverse visual effects were identified for project operation, no further avoidance, minimization, or mitigation measures were found to be warranted. Regardless, the Draft EIS/EIR included three improvement measures to further enhance visual quality of the build alternatives.

Changes to the Hybrid Alternative/SRA

The changes to the Hybrid Alternative/SRA were examined for the potential to result in new or worsened visual effects. Two of these changes (removal of BRT stops at Spruce/Cook and retention of the Webster Street pedestrian bridge) would reduce the amount of construction in these areas and accordingly reduce the scale of construction period visual effects.

Similar to the pedestrian enhancements analyzed in the Draft EIS/EIR, the additional pedestrian crossing facilities added to the Hybrid Alternative/SRA would further enhance streetscape visual quality. Based on the foregoing, no new or worsened visual effects would occur as a result of the changes to the Hybrid Alternative/SRA. Therefore, no new avoidance, minimization, or mitigation measures would be needed.

Changes to the Draft EIS/EIR

The following changes to Draft EIS/EIR Section 4.4, Visual Resources, are needed to provide minor corrections to the text as well as to reflect the changes to the Hybrid Alternative/SRA introduced in this Final EIR.

Page 4.4-19, text edits

Table 4.4-1 Potential Operational Visual Effects

VISUAL ASSESSMENT UNITS	VISUAL EFFECTS UNDER EACH ALTERNATIVE				
	NO BUILD	ALTERNATIVE 2	ALTERNATIVE 3	ALTERNATIVE 3-CONSOLIDATED	HYBRID ALTERNATIVE
Landscape Unit 1 (Refer to Figure 4.4-3)					
Palm Avenue to Wood Street (8 blocks)	Neutral or somewhat beneficial	Somewhat beneficial at <u>upgraded new</u> stops	<u>Somewhat beneficial at new BRT station</u> Negligible	Same as Alternative 2 & 3	Same as Alternative 2
Landscape Unit 2 (Refer to Figure 4.4-4)					
Scott Street to Laguna Street (Western Addition/Fillmore/ Japan Center) (5 blocks)	Neutral or somewhat beneficial	Somewhat beneficial at <u>upgraded new</u> stops	Beneficial effect experienced by all viewer groups	Same as Alternative 3	Same as Alternative 2

Note: All effects are assumed to be long-term for all viewer groups unless otherwise noted.
Source: Circlepoint, 20164

Page 4.4-30, staff-initiated modifications and text edits

Alternative 2, Palm Avenue to Wood Street

There would be no BRT stops in this segment, and ~~three~~two local stops. Changes associated with Alternative 2 would thus be limited to lane striping. Visual effects would thus be negligible to beneficial (at upgraded new stops) for all affected viewer groups.

Alternative 3, Palm Avenue to Wood Street

There would be no BRT stops in this segment, and two local stops. Changes associated with Alternative 3 would thus be limited to lane striping. Visual effects would thus be negligible to beneficial for all affected viewer groups.

Alternative 3-Consolidated, Palm Avenue to Wood Street

There would be one combined rapid and BRT stop in this segment. Thus, with implementation of a new BRT station and associated amenities, visual effects under Alternative 3-Consolidated would be beneficial for all viewer groups.

Hybrid Alternative, Palm Avenue to Wood Street

Same as Alternative 3, thus visual effects would be negligible to beneficial for all affected viewer groups.

~~Alternatives 3, 3-Consolidated and the Hybrid Alternative, Palm Avenue to Wood Street~~

~~For this area, these three alternatives propose the same improvements as Alternative 2. Visual changes and visual effects would therefore be the same for those described above for Alternative 2.~~

Page 4.4-39, staff-initiated modifications

Hybrid Alternative, Scott Street to Laguna Street

Similar to Alternative 2 regarding proposed BRT stops; local-only stops would be in different locations than those of Alternative 2. In addition, the Hybrid Alternative would relocate reconfigured on-street parallel parking spaces on both sides of Geary Boulevard between Webster and Laguna.

Unlike the other build alternatives, the Hybrid Alternative would not remove the Webster Street bridge (refer to Figure 4.4-12a).

Figure 4.4-12a Key Viewpoint 5 - BRT Stop, Hybrid Alternative (Fillmore Street)

A. Existing view looking east



B. Simulated view looking east showing mature vegetation and the Webster Street pedestrian bridge



SFCTA, 2016

4.5 Cultural Resources

Summary of Draft EIS/EIR

Section 4.5 of the Draft EIS/EIR analyzed the potential for the alternatives to result in adverse impacts to archaeological resources and historic architecture. The analysis in the Draft EIS/EIR was based on technical reports prepared for the Geary BRT Project, including an Archaeological Sensitivity Assessment and a Historic Resources Inventory and Evaluation Report. The Draft EIS/EIR examined the potential for the alternatives to affect any archaeological or historic architecture resources that could exist within the area that the alternatives would affect, all of which were in public right-of-way areas.

In terms of potential archaeological effects, the Draft EIS/EIR noted that there were no known archaeological resources existing within the project area but that excavation/construction associated with implementation of any of the build alternatives had the potential to encounter previously unrecorded archaeological resources. The Draft EIS/EIR included several avoidance and minimization measures intended to minimize potential effects on any such unrecorded resources.

Regarding potential effects to historic architecture, the Draft EIS/EIR considered that the entirety of construction and operational activities of the alternatives would occur within public right-of-way areas. The Draft EIS/EIR noted the presence of more than 50 eligible historic architectural resources in the Geary corridor, all but three of which were located outside the public right-of-way area in which construction and operation of alternatives would take place.

For two of the eligible resources within the public right-of-way, the Golden Triangle Light Standards and the light standards associated with the Japan Center, the Draft EIS/EIR included avoidance and minimization measures intended to govern advanced project design work so that any potential movement or relocation of these lighting features would be either avoided entirely or conducted in a manner that would not result in any adverse effect on the historic character of these resources.

Similarly, regarding the third eligible historic architectural resource within the public right-of-way, various elements of the Auxiliary Water Supply System (AWSS), including cisterns, hydrants, and underground conveyances, the Draft EIS/EIR included avoidance and minimization measures such that no adverse effect to the AWSS would result from implementation of the alternatives.

Changes to the Hybrid Alternative/SRA

The changes to the Hybrid Alternative/SRA were examined for the potential to introduce new or worsened effects to archaeological resources and/or historic architectural resources. Architectural historians who conducted analysis for the Draft EIS/EIR specifically examined the three project changes for any potential change in effects.¹

¹ JRP Historical Consulting, August 2016.

Regarding the Hybrid Alternative/SRA changes in the Spruce-Cook area, there are no historic architectural resources in this area. Moreover, the change to retain local and express stops here (and not construct new BRT stops, as had been assumed in the Draft EIS/EIR), would result in less construction activity in this area and thus less potential to encounter unrecorded archaeological resources. Accordingly, the change in the Spruce-Cook area after the Draft EIS/EIR would not introduce any new or different effects regarding historic architectural resources or archaeological resources.

The retention of the Webster Street pedestrian bridge would reduce the extent of demolition and ground disturbance needed as part of the Hybrid Alternative/SRA, and as such, would reduce the potential for the Hybrid Alternative/SRA to encounter unrecorded/unknown archaeological resources.

The Draft EIS/EIR evaluated the Webster Street bridge as a potential eligible historic architectural resource and concluded that the bridge was not eligible. Nor was the bridge considered a contributing element to the (eligible) Japan Center. The Hybrid Alternative/SRA had proposed removal of this bridge. Changes to the Hybrid Alternative/SRA to retain this bridge would thus not introduce any new or different effects regarding historic architectural resources.

The Hybrid Alternative/SRA change to include additional pedestrian improvements in the public right-of-way would have similar potential to affect cultural resources in the public right-of-way as was described/disclosed in the Draft EIS/EIR. The Hybrid Alternative/SRA as described in the Draft EIS/EIR included the implementation of 65 pedestrian crossing bulbs throughout the Geary corridor; the Draft EIS/EIR considered the potential for these to affect the historic lighting standards and the AWSS. The Draft EIS/EIR concluded that adverse effects would be fully addressed through the adherence to avoidance/minimization measures set forth in the Draft EIS/EIR. The modified Hybrid Alternative/SRA would include 26 additional pedestrian crossing bulbs at numerous locations through the Geary corridor. This change within the public right-of-way would not cause any direct or indirect adverse effect to historic properties at or near these project components. As noted in the Draft EIS/EIR, curb bulb outs are considered not to pose an effect upon historic properties because such construction would not cause a change in the character or setting of historic properties. As such this proposed project revision would not result in any adverse effect to any historic property.

Changes to the Draft EIS/EIR

The following text changes to Draft EIS/EIR Section 4.5, Cultural Resources, are needed to reflect the changes to the Hybrid Alternative/SRA introduced in this Final EIR.

Page 4.5-26, staff-initiated modifications

No adverse effects from pedestrian bridge removal: Each build alternative proposes removal of the existing pedestrian bridges at Webster Street and Steiner Street. Alternatives 2, 3, and 3-Consolidated also propose the removal of the Webster Street pedestrian bridge. Elements of the AWSS (pipelines and cisterns) are located near the pedestrian bridges in both locations. However, the cisterns are not located directly beneath the pedestrian bridges and conform to the grade of the existing roadway, and the pipelines are located underground, as previously described in Section 4.5.2.3.2. Therefore, no adverse effects to the AWSS would be expected from demolition of either pedestrian bridge.

4.6 Utilities

Summary of Draft EIS/EIR

Section 4.6 of the Draft EIS/EIR analyzed the potential for the alternatives to affect utilities and service systems, including utility facility relocations and modifications, stormwater management system capacity, potable and emergency service water supply capacities, solid waste collection capacity, and electricity demand and capacity. In considering such effects, the Draft EIS/EIR examined the San Francisco *Better Streets Plan*, utility maps of the Geary corridor, and related information compiled by the San Francisco Department of Public Works (SFDPW). The Draft EIS/EIR evaluated potential effects to utilities in terms of changes in demand requirements, available capacity, or potential physical conflicts/incompatibility.

Many utility facilities are located both above and below ground within the Geary corridor. Section 4.6.4 of the Draft EIS/EIR found that the build alternatives would require relocation or modification of some utilities to due to direct conflict or to maintain access for utility providers to maintain, repair, and upgrade the facilities. For example, construction of bus bulbs and pedestrian crossings would necessitate minor utility modifications, including relocation of stormwater drainage infrastructure, fire hydrants, valves, manholes, surface-mounted utility boxes, or other appurtenances. The Hybrid Alternative would require major reconstruction or relocation of two sewer lines (between 14th Avenue and 4th Avenue and between Funston Avenue and 12th Avenue). The Draft EIS/EIR anticipated that the construction and operation of any of the build alternatives would be coordinated with utility providers to avoid adverse impacts to utility facilities.

The Geary corridor is almost entirely covered by impervious surfaces. The Draft EIS/EIR found that the Hybrid Alternative would reduce the total area of impervious surfaces by approximately 0.5 acres and construction in existing landscaped medians could allow incorporation of rain gardens, biotreatment swales, pervious paving, and infiltration planters to control stormwater runoff. Moreover, the Draft EIS/EIR found that implementation of the stormwater retention and treatment features set forth in the *Better Streets Plan* would be possible under all build alternatives. Given the foregoing, the Draft EIS/EIR found that no substantial increase in stormwater quantity would result from the project.

The Draft EIS/EIR found that no substantial increases in potable water demand would result under any build alternative, as landscaping associated with the project would be subject to the City's Water Efficient Irrigation Ordinance. The Draft EIS/EIR found that, while the project would increase transit ridership and thereby slightly increase the amount of solid waste produced by passengers, the project would not substantially increase solid waste generation or have adverse impacts to landfill capacity. The alternatives would not substantially change demand or capacity for other utilities in the Geary corridor. The Draft EIS/EIR also identified a number of minimization measures in Section 4.6.5 to minimize adverse impacts to utilities.

Changes to the Hybrid Alternative/SRA

The changes to the Hybrid Alternative/SRA were examined for the potential to introduce new or worsened effects to utilities and service systems. The changes would not require any additional utility relocations, would not change the amount of impervious surfaces, would not change any plans for landscaping or irrigation, and would not substantially affect BRT ridership (and thereby

solid waste generation). As such, none of the proposed modifications—the removal of BRT stops in the Spruce-Cook area, the retention of the Webster Street bridge, and the additional pedestrian improvements—would generate new or worsened effects to utilities.

Therefore, no new avoidance, minimization, or mitigation measures would be needed.

Changes to the Draft EIS/EIR

The following text changes to Section 4.6, Utilities, of the Draft EIS/EIR are needed to reflect the changes to the Hybrid Alternative/SRA introduced in this Final EIR. In particular, the text changes on page 4.6-17 of the Draft EIS/EIR reflect the retention of the Webster Street pedestrian bridge as part of the Hybrid Alternative/SRA.

Page 4.6-17, staff-initiated modifications

Other Demands on Electricity

Addition of Shelters with Next-Bus screens lighted advertising and push to talk features would increase demand for electricity.

Addition of Elevators at the Masonic BRT stations in Alternative 3 and 3-Consolidated would introduce additional demand for electricity.

Removal of the Fillmore pump station and Fillmore underpass lighting in Alternative 3 and 3-Consolidated would reduce demand for electricity.

Removal of the Webster Street ~~Ppedestrian bridge Overcrossing~~ Undercrossing under Alternatives 2, 3, and 3-Consolidated, which has lighting, will reduce demand for electricity.

4.7 Geology/Soils/Seismic/Topography

Summary of Draft EIS/EIR

Section 4.7 of the Draft EIS/EIR considered the potential for the alternatives to have adverse effects related to geologic- and soils-related issues. As the Geary corridor is located within a seismically active region, the corridor would be subjected to strong ground shaking and several types of seismic-related soil failures (such as liquefaction and differential compaction).

The Draft EIS/EIR found that, during construction, all build alternatives would be susceptible to potential slope instability effects, area-wide ground shaking, and site-specific liquefaction. New structures associated with operation would be limited to streetscape features such as bus shelters that would bear relatively light loads and would, therefore, have a low risk of susceptibility to geologic hazards. While any new structures would be required to meet state and local seismic standards, the Draft EIS/EIR included a number of geotechnical minimization measures.

Changes to the Hybrid Alternative/SRA

The changes to the Hybrid Alternative/SRA were examined for the potential to introduce new or worsened effects related to geology and soils. Site-specific conditions are the primary driver of impacts with regard to geology and soils. Each of the modifications to the Hybrid Alternative

would occur under the same geologic conditions as described in the Draft EIS/EIR and do not include any changes that would result in substantially increased geologic hazards. Moreover, the Webster Street pedestrian bridge was seismically retrofitted in 1996. Retention of the bridge would continue current conditions and as such, would therefore not result in any increased seismic risk relative to existing conditions. As such, no new or worsened geologic and soils effects would occur as a result of the changes to the Hybrid Alternative/SRA. Therefore, no new avoidance, minimization, or mitigation measures would be needed.

Changes to the Draft EIS/EIR

No text changes are needed to Draft EIS/EIR Section 4.7, Geology/Soils/Seismic/Topography, as a result of staff-initiated modifications or in response to a comment received on the Draft EIS/EIR.

4.8 Hazards and Hazardous Materials

Summary of Draft EIS/EIR

Section 4.8 of the Draft EIS/EIR analyzed the level of risk associated with the alternatives in terms of hazardous materials, hazardous waste, and/or contamination within and near the Geary corridor. These types of risks would typically arise during ground-disturbing activities related to construction.

Section 4.8.4 of the Draft EIS/EIR found that construction of the alternatives could potentially result in exposure risk from hazardous materials, aerially deposited lead in the soil, naturally occurring asbestos, lead, and other environmental concerns, especially in areas where the existing medians would be removed. In addition to compliance with existing applicable regulations, the Draft EIS/EIR identified a number of minimization measures in Section 4.8.5, which would be incorporated into the project to reduce risks related to hazards and hazardous materials during construction.

Changes to the Hybrid Alternative/SRA

The changes to the Hybrid Alternative/SRA were examined for the potential to introduce new or worsened effects related to hazards and hazardous materials. Because modifications to the Hybrid Alternative no longer propose to construct a BRT station on the Spruce-Cook block and no longer propose to demolish the Webster Street bridge, both construction activities and the risk of exposure to hazards would be reduced in these areas.

Construction of additional pedestrian improvements throughout the corridor would result in additional ground disturbance. However, all such activities would be subject to the same regulations and minimization measures as described in the Draft EIS/EIR and therefore would not be expected to result in increased hazards. As such, no new or worsened effects related to hazards and hazardous materials would occur as a result of the changes to the Hybrid Alternative/SRA. Therefore, no new avoidance, minimization, or mitigation measures would be needed.

Changes to the Draft EIS/EIR

No text changes are needed to Draft EIS/EIR Section 4.8, Hazards and Hazardous Materials, as a result of staff-initiated modifications or in response to a comment received on the Draft EIS/EIR.

4.9 Hydrology and Water Quality

Summary of Draft EIS/EIR

Section 4.9 of the Draft EIS/EIR evaluated the potential for the alternatives to adversely affect hydrologic and water resources in terms of changes to the impervious surface areas, stormwater runoff modification and requirements, quantities of soil disturbance and excavation, and changes to groundwater elevations and any groundwater demand. The analysis considered the hydrologic environment existing in the Geary corridor and its surrounding hydrologic area.

The Geary corridor is almost entirely covered with impervious surfaces, with the exception of existing landscaped center medians and tree and landscape plantings along sidewalks. The Draft EIS/EIR found that the Hybrid Alternative would reduce the existing impervious surface area by approximately 0.5 acres (17,000 square feet) and would disturb approximately 9 acres of soil.

Section 4.9.4 of the Draft EIS/EIR found that the greatest potential for adverse effects to water quality would be during construction, when soils are exposed and may be entrained in runoff, resulting in sediment in the combined sewer system as well as erosion within the study area. The Hybrid Alternative would require two sewer line relocations; however, groundwater depth is deeper than sewer infrastructure so substantial or adverse impacts to groundwater would not be expected.

Implementation of stormwater retention and treatment features required under City ordinances and the *Better Streets Plan* would be possible under all build alternatives and would result in slight, but beneficial effects to storm drainage in the Geary corridor, as there would be a net decrease in impervious surface area and no substantial localized increases that might increase flow to a specific area of the City combined sewer system. Because mature trees along the Geary corridor provide water quality benefits, mature tree removal may result in a period of reduced water quality until replacement tree plantings grow to maturity. However, this adverse effect would not be substantial due to overall landscaping improvements with the Hybrid Alternative, and would subside over time as replacement trees mature. The Draft EIS/EIR included several avoidance, mitigation, and minimization measures related to water quality and stormwater impacts in Section 4.9.5.

Changes to the Hybrid Alternative/SRA

The changes to the Hybrid Alternative/SRA were examined for the potential to introduce new or worsened effects to hydrology and water quality. Because the proposed retention of the local bus stops in the Spruce-Cook area and the retention of the Webster Street bridge would reduce the level of construction in these areas, the potential for adverse effects to water quality would be reduced. The installation of additional pedestrian improvements would require additional locations throughout the corridor for excavation (approximately 1.5 feet in depth), but adherence

to standard construction practice and best management practices would limit the potential for substantial additional quantities of construction-period runoff. The expected maximum depth of excavation (1.5 feet) would not be expected to affect any below-ground water resources, as such resources are typically found at much greater depths. As such, no new or worsened effects to hydrology and water quality would occur as a result of the changes to the Hybrid Alternative/SRA. Therefore, no new avoidance, minimization, or mitigation measures would be needed.

Changes to the Draft EIS/EIR

No text changes are necessary to the Draft EIS/EIR Section 4.9, Hydrology and Water Quality, as a result of staff-initiated modifications or in response to a comment received on the Draft EIS/EIR.

4.10 Air Quality and Greenhouse Gas Emissions

Summary of Draft EIS/EIR

Section 4.10 of the Draft EIS/EIR considered the potential for the alternatives to result in increased emissions of air pollutants during both construction and operation (including greenhouse gases [GHGs]) and to conform to pertinent requirements of the Clean Air Act.

Section 4.10.4 of the Draft EIS/EIR found that construction of any of the build alternatives would generate short-term criteria pollutant emissions. However, these construction period emissions would not exceed the Bay Area Air Quality Management District (BAAQMD) thresholds for health risk significance, and the Hybrid Alternative was among the alternatives that would result in the lowest risks.

Moreover, replacement of standard motor coaches with diesel-hybrid electric buses would result in a decrease in several pollutants over the long-term. Relative to the No Build Alternative, the build alternatives would generally decrease regional VMT and thus would be projected to result in an associated decrease in emissions of criteria pollutants, GHGs, and TACs, leading to overall improved air quality. The Draft EIS/EIR noted that the project would be consistent with the San Francisco Bay Area Air Basin 2010 Clean Air Plan's transportation control measures aimed at reducing vehicle trips, improving bus service, and promoting land use patterns facilitate walking, bicycling, and transit use.

Relative to the No Build Alternative, the Hybrid Alternative/SRA would result in approximately 20,000 fewer daily weekday VMT (0.2 percent) by 2020 and approximately 40,000 fewer daily weekday VMT (0.4 percent) by 2035. Regional transportation energy consumption would also be reduced. GHG emissions would decrease by 5,841 metric tons per year by 2035 under the Hybrid Alternative, representing the greatest reduction in GHGs compared to the No Build Alternative. Therefore, the Hybrid Alternative/SRA was found to result in a beneficial effect related to operational criteria pollutant and GHG emissions in both the near and far term.

With adherence to City ordinances and regulations regarding construction, the Draft EIS/EIR found that none of the build alternatives would result in adverse effects related to emissions of air pollutants and GHGs during construction. Given this, and the beneficial effects of project

operation on air quality, Draft EIS/EIR Section 4.10.5 found that no avoidance, minimization, or mitigation measures would be required.

Changes to the Hybrid Alternative/SRA

The changes to the Hybrid Alternative/SRA were examined for the potential to introduce new or worsened effects regarding air quality and GHG emissions. Temporary and localized air quality impacts related to construction activities would be reduced in the Spruce-Cook and Webster Street bridge areas, as construction and demolition levels in these areas would be substantially lessened. None of the changes to the Hybrid Alternative would have any substantial effect on bus operations (see **Section 3.3** of this Final EIR), so the changes would retain anticipated benefits to air quality. As such, no new or worsened effects to air quality and GHG emissions would occur as a result of the changes to the Hybrid Alternative/SRA. Therefore, no new avoidance, minimization, or mitigation measures would be needed.

Changes to the Draft EIS/EIR

The following text changes are needed to Draft EIS/EIR Section 4.10, Air Quality and Greenhouse Gases, to update information and correct a typographical error (i.e., not as a result of staff-initiated modifications or in response to a comment received on the Draft EIS/EIR).

Page 4.10-5, text edit

Council on Environmental Quality Guidelines

The Council on Environmental Quality (CEQ) has provided a ~~draft~~ final guidance memorandum in August 2016, on the ways in which federal agencies can improve their consideration of the effects GHG emissions in NEPA documents.⁶ The guidance provides a reference point of 25,000 metric TPY of carbon dioxide equivalent (or CO₂e). The guidance states that proposed actions with emissions below this level can be addressed through a qualitative analysis; proposed actions with higher emissions levels may warrant a quantitative assessment.

⁶ Council on Environmental Quality. December 18, 2014. *Revised Draft Guidance for Greenhouse Gas Emissions and Climate Change Impacts*. August 1, 2016. *Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews*.

Page 4.10-19, text edit

The build alternatives are not considered POAQC because they do not meet the definition of a POAQC as defined in EPA's Transportation Conformity Guidance. The build alternatives would not increase the percentage of diesel vehicles on the roadway, do not involve a bus or rail terminal that significantly increases diesel vehicles, and are not identified in the SIP as a possible PM_{2.5} or PM₁₀ violation site. The build alternatives have undergone Interagency Consultation (IAC). IAC participants concurred that the build alternatives are not POAQC (refer to Appendix ~~G~~F).

4.11 Noise and Vibration

Summary of Draft EIS/EIR

Section 4.11 of the Draft EIS/EIR evaluated the potential for construction and operation of the alternatives to result in substantial increases in noise and/or vibration. Use of heavy equipment during construction and demolition and changes in noise from bus activity would have the potential to affect noise and vibration along the Geary corridor.

Section 4.11.4 of the Draft EIS/EIR found that project construction would temporarily and intermittently increase ambient noise levels over the approximate 90- to 130-week construction schedule. Noise levels would fluctuate depending on the construction phase, equipment type and duration of use, distance between the noise source and receptor, and presence or absence of noise attenuation barriers. Perceived noise levels would fluctuate depending on the time of day, as sensitivity to nighttime noise would be higher. Temporary construction noise effects were found not to be adverse for the alternatives with adherence to the San Francisco Noise Ordinance, equipping impact tools with intake and exhaust mufflers, and obtaining a noise permit for nighttime work from SFPD. Construction activity for the alternatives would likely result in vibration effects for vibration-intensive construction activity located as close as 36 feet to certain historic structures; the Draft EIS/EIR included avoidance, minimization, and mitigation measures in Section 4.11.5 to address such effects from project construction. The Draft EIS/EIR found that the alternatives would not result in adverse operational noise effects and operational noise levels would not exceed the FTA significance criteria, and operational vibration would not be perceptible by sensitive receptors and, thus, would not result in an adverse effect. Consequently, the Draft EIS/EIR found that no operation-period avoidance, minimization, or mitigation measures were necessary.

Changes to the Hybrid Alternative/SRA

The changes to the Hybrid Alternative/SRA were examined for the potential to introduce new or worsened effects of noise and vibration. With planned retention of the Webster Street pedestrian bridge, construction-period noise and vibration impacts in the area would be reduced.

Also, the removal of BRT stops from the Hybrid Alternative/SRA in the Spruce/Cook area would reduce construction noise in this area. Construction of the additional pedestrian improvements would increase short-term noise levels in added areas (see **Figure 2-5**), but the relatively short duration of such activities and their location within the public right-of-way limits the potential for these additional improvements to substantially worsen any previously identified construction-period noise effects. The same minimization measures included in the Draft EIS/EIR (MIN-NOISE-C1 through MIN-NOISE-C5) would be applicable to the additional pedestrian improvements. Adherence to these measures, as well as pertinent City construction noise regulations, would ensure that no new or worsened construction-period effect would occur.

The modifications would have no bearing on operational noise. As such, no new or worsened effects of noise and vibration would occur as a result of the changes to the Hybrid Alternative/SRA. Therefore, no new avoidance, minimization, or mitigation measures would be needed.

Changes to the Draft EIS/EIR

The following text changes are needed to Draft EIS/EIR Section 4.11, Noise and Vibration, as a result of staff-initiated modifications or in response to a comment received on the Draft EIS/EIR. In particular, comment A-1.3 (see **Appendix B**) pointed out a discrepancy between information presented in Table 4.11-4 of the Draft EIS/EIR and the text; some of the text changes below correct this error.

Page 4.11-13, changes in response to comment A-1.3

ALTERNATIVE 2 - CONSTRUCTION EFFECTS

As shown on Table 4.11-4 above, the expected noise levels from construction equipment would ~~not~~ exceed 80 dBA at 100 feet from dump trucks and jack hammering. With adherence to the San Francisco Noise Ordinance, which includes limiting the noise levels from individual pieces of construction equipment to 80 dBA at a distance of 100 feet, equipping impact tools with both intake and exhaust mufflers, and obtaining a noise permit for night work from DPW, these temporary construction noise effects would not be adverse.

Page 4.11-14, changes in response to comment A-1.3 and staff-initiated modifications

ALTERNATIVES 3 AND 3-CONSOLIDATED - CONSTRUCTION EFFECTS

The same general construction methods described for Alternative 2 would be used to build the physical elements of Alternatives 3 and 3-Consolidated, although Alternatives 3 and 3-Consolidated would entail more intensive construction of bus-only lanes and medians in the center of Geary Boulevard west of Gough Street. This activity would be further from sensitive receptors compared to Alternative 2, which would construct bus-only lanes closer to the edge of the street.

These alternatives would also include the conversion of the Fillmore Street underpass to a conventional, at-grade intersection (which in turn involves the filling and/or removal of the existing pump station, demolition of the existing grade separation structure, and rebuilding of the roadway). As previously discussed, the expected noise levels from construction equipment ~~could~~would not exceed 80 dBA at 100 feet. With adherence to the San Francisco Noise Ordinance, equipping impact tools with both intake and exhaust mufflers, and obtaining a noise permit for night work from DPW, temporary construction noise effects would not be adverse.

HYBRID ALTERNATIVE - CONSTRUCTION EFFECTS

The Hybrid Alternative consists of different components from Alternatives 2, 3, and 3-Consolidated, thus the focus of construction activity would not be concentrated in one particular section of the street right-of-way. Therefore, the Hybrid Alternative would be represented by the range of construction activity covered between the three build alternatives. However, given that the Hybrid Alternative would not remove the Webster Street pedestrian bridge nor would it construct a new BRT station at Spruce/Cook, construction-period noise impacts would be reduced relative to the other build alternatives.

With adherence to the San Francisco Noise Ordinance, equipping impact tools with both intake and exhaust mufflers, and obtaining a noise permit for night work from DPW, temporary construction noise effects would not be adverse.

4.12 Energy

Summary of Draft EIS/EIR

Section 4.12 of the Draft EIS/EIR assessed the direct and indirect effects of the project alternatives on energy consumption. *Direct* energy consumption includes the fuel required for passenger vehicles (i.e., automobiles, vans, and light trucks), heavy trucks (i.e., three or more axles), and transit buses that travel on the corridor. *Indirect* energy consumption includes fossil fuel expenditures required to construct the project alternatives using various equipment and materials.

Construction of the build alternatives would require *indirect* consumption of fossil fuels, labor, and construction materials. Construction includes energy used by construction equipment and other activities at the worksite (i.e., median removal, excavation, paving), in addition to the energy used to manufacture the equipment, materials, and supplies to transport them to the worksite. Energy for maintenance includes that for day-to-day upkeep of equipment and systems, as well as energy embedded in any replacement equipment, materials, and supplies. These expenditures would be, for the most part, irrecoverable; however, they are not in short supply, and the Draft EIS/EIR found that their use would not have an adverse effect upon continued availability of these resources.

Automobile VMT is considered indirect energy use and any changes that would occur to automobile VMT would be an indirect effect of the project. In general, because the automobile VMT of the build alternatives would not vary significantly coupled with a small fraction of total energy used by transit vehicles (less than 0.5 percent of the total energy), the build alternatives would have little to no effect on auto vehicles energy supply and consumption. The Draft EIS/EIR found that the Hybrid Alternative would result in a slight reduction in direct transportation energy use—a small, but beneficial, effect. As none of the build alternatives would result in adverse effects, Draft EIS/EIR Section 4.12.5 concluded that no avoidance, minimization, or mitigation measures would be required.

Changes to the Hybrid Alternative/SRA

The changes to the Hybrid Alternative/SRA were examined for the potential to introduce new or worsened effects related to energy use. The modifications to the Spruce-Cook area and the retention of the Webster Street pedestrian bridge would reduce construction-period energy consumption in these areas. Conversely, construction of additional pedestrian improvements would increase construction-period energy consumption. However, these changes would not appreciably affect overall energy consumption, nor would energy consumption during project operation be affected as none of these changes would substantially affect bus operations from the levels described in the Draft EIS/EIR (also please see **Section 3.3** of this Final EIR). As such, no new or worsened effects to energy would occur as a result of the changes to the Hybrid Alternative/SRA. Therefore, no new avoidance, minimization, or mitigation measures would be needed.

Changes to the Draft EIS/EIR

No text changes are needed to Draft EIS/EIR Section 4.12, Energy, as a result of staff-initiated modifications or in response to a comment received on the Draft EIS/EIR.

4.13 Biological Resources

Summary of Draft EIS/EIR

Section 4.13 of the Draft EIS/EIR analyzed potential effects of the alternatives to biological resources. The analysis was informed by a Geary corridor tree survey (included in Appendix I of the Draft EIS/EIR), a pedestrian survey of the corridor, review of the California Natural Diversity Database (CNDDDB), California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants, U.S. Fish and Wildlife Service (USFWS) Threatened and Endangered Species database, USFWS Critical Habitat Mapper, USFWS Wetlands Mapper, National Marine Fisheries Service (NMFS) Essential Fish Habitat Mapper, and NMFS Critical Habitat Mapper.

The Geary corridor does not contain any known special-status species or habitat for special-status species, so the Draft EIS/EIR found that construction-period effects to biological resources would be limited to trees protected under the Urban Forestry Ordinance, birds, nests, and eggs protected under the Migratory Bird Treaty Act (MBTA), and potential for introduction or increases in noxious weeds associated with ground disturbance, as considered under Executive Order 13112.

While the Draft EIS/EIR found that the Geary corridor does not contain native plant assemblages, several landscape trees would likely be removed under each of the build alternatives. Construction of the Hybrid Alternative analyzed in the Draft EIS/EIR would require removal of 195 trees along the Geary corridor, of which 118 are considered Significant Trees (i.e., is located within 10 feet of the property edge of the sidewalk, is above 20 feet in height, has a canopy greater than 15 feet in diameter, or has a trunk diameter greater than 12 inches at breast height).

Section 4.13.4 of the Draft EIS/EIR also found that there would be a potential to directly affect migratory birds or their eggs and nests during construction. Direct effects to nesting birds could be due to tree or shrub removal or noise, vibration, or human activity during the nesting season. While the Hybrid Alternative proposed to replant a comparable quantity of new trees, tree removal and new plantings would have short-term indirect effect of having less capacity to host bird nests until replacement plantings matured.

The Draft EIS/EIR also indicated the potential for the introduction or spread of noxious species as a potential adverse effect. To minimize these potential effects, the Draft EIS/EIR identified minimization measures related to tree removal and invasive species in Section 4.13.5.

The Draft EIS/EIR found that project operation would not affect biological resources, as the Geary corridor is urbanized with little to no indigenous vegetation and no known special-status species.

Changes to the Hybrid Alternative/SRA

The changes to the Hybrid Alternative/SRA were examined for the potential to introduce new or worsened effects to biological resources. Thirteen trees that were proposed for removal on the block of Geary Boulevard between Spruce and Cook Streets to accommodate the proposed BRT stops under the Hybrid Alternative analyzed in the Draft EIS/EIR would now no longer need to be removed, as the existing bus stops would now remain and be reduced slightly in length. This would slightly lessen effects to biological resources identified in the Draft EIS/EIR, as the modifications would now require the removal of 182 total trees rather than the 195 trees reported

in the Draft EIS/EIR. Regardless, the same conclusions and minimization measures identified in the Draft EIS/EIR would still apply to the modified Hybrid Alternative/SRA. As such, no new or worsened effects to biological resources would occur as a result of the changes to the Hybrid Alternative/SRA. Therefore, no new avoidance, minimization, or mitigation measures would be needed.

Changes to the Draft EIS/EIR

The following text changes are needed to Draft EIS/EIR Section 4.13, Biological Resources, as a result of staff-initiated modifications.

Page 4.13-8, staff-initiated modifications

Effects to Trees. Each build alternative would have the direct effect of removing a number of trees, including some Significant Trees. No build alternative would remove any Landmark Tree.

- **Alternative 2 (Side-Lane BRT):** A total of 156 trees would be removed. Of these, 86 are Significant Trees.
- **Alternative 3 (Center-Lane BRT with Dual Medians and Passing Lanes):** A total of 253 trees would be removed. Of these, 154 are Significant Trees.
- **Alternative 3-Consolidated (Center-Lane BRT with Dual Medians and Consolidated Bus Service):** A total of 268 trees would be removed. Of these, 168 are Significant Trees.
- **Hybrid Alternative:** A total of 1824~~95~~ trees would be removed. Of these, 118 are Significant Trees.

4.14 Environmental Justice

Summary of Draft EIS/EIR

Section 4.13 of the Draft EIS/EIR analyzed the potential for the alternatives to result in disproportionately high or adverse human health or environmental effects to minority or low-income populations (environmental justice communities).

Section 4.13.4 of the Draft EIS/EIR found that the alternatives would have no disproportionate effects on environmental justice communities and, therefore, no additional avoidance, minimization, or mitigation measures would be required.

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.

Changes to the Hybrid Alternative/SRA

The changes to the Hybrid Alternative/SRA were examined for the potential to introduce new or worsened effects to environmental justice communities. As described in several preceding sections of this Final EIR, the modifications to the Hybrid Alternative/SRA would not result in any new

or worsened impacts that would disproportionately affect environmental justice communities 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. As such, no new or worsened effects to environmental justice communities would occur as a result of the changes to the Hybrid Alternative/SRA. Therefore, no new avoidance, minimization, or mitigation measures would be needed.

Changes to the Draft EIS/EIR

No text changes are needed to Draft EIS/EIR Section 4.14, Environmental Justice, as a result of staff-initiated modifications or in response to a comment received on the Draft EIS/EIR.

4.15 Constructions Methods and Impacts

Summary of Draft EIS/EIR

Section 4.15 of the Draft EIS/EIR provided an overview of anticipated construction activities, including construction stages and their estimated durations, for each of the alternatives. While individual sections of Chapters 3 and 4 of the Draft EIS/EIR described and disclosed both construction and operational period impacts, Section 4.15 of the Draft EIS/EIR aggregated all such construction-related impacts as well as all avoidance, minimization, and mitigation measures previously disclosed in preceding sections of the Draft EIS/EIR.

Changes to the Hybrid Alternative/SRA

The changes to the Hybrid Alternative/SRA were examined for the potential to introduce new or worsened effects related to construction activities. As described in several preceding sections of this chapter, two of the changes to the Hybrid Alternative/SRA would reduce the extent of construction in their respective areas. The Draft EIS/EIR discussed a number of construction-related effects unique to the prospective removal of the Webster Street pedestrian bridge. Because the Hybrid Alternative/SRA has been changed to retain this bridge, all such construction- (and demolition-) related effects described in the Draft EIS/EIR would no longer occur. The protection measures identified in the Draft EIS/EIR to avoid damage to an adjacent underground auxiliary water service system (AWSS) cistern would no longer be needed. There would no longer be a potential risk of exposure of asbestos from demolition of the Webster Street bridge. Demolition equipment would also no longer be needed at Webster Street. Residences located as close as 15 feet to the Webster Street bridge would no longer be exposed to temporary noise increases during active demolition.

Retaining the Webster Street bridge and not constructing BRT stops on the Spruce-Cook block would lead to reduced construction activities in these areas and, hence, construction impacts. Construction of the additional pedestrian improvements would increase construction activities in added areas (see **Figure 2-5**), but the relatively short duration of such activities and their location within the public right-of-way limits the potential for these additional improvements to substantially worsen any previously identified construction-period effects. As such, no new or worsened effects related to construction activities would occur as a result of the changes to the Hybrid Alternative/SRA. Therefore, no new avoidance, minimization, or mitigation measures would be needed.

Changes to the Draft EIS/EIR

The following text changes are needed to Draft EIS/EIR Section 4.15, Construction Methods and Impacts, as a result of staff-initiated modifications or in response to a comment received on the Draft EIS/EIR.

Page 4.15-4, staff-initiated modifications

Pedestrian Bridge Removal (All Build Alternatives)

The alignments of proposed bus-only lanes within each build alternative would conflict with the piers of ~~the existing pedestrian bridges at Webster Street and Steiner Streets which would be removed under all build alternatives. Alternatives 2, 3, and 3-Consolidated would also remove the Webster Street pedestrian bridge. As a result, these reinforced concrete pedestrian bridges would need to be removed.~~ Demolition would include removal of the bridge superstructures, substructures, and below-ground (spread footing) foundations. Prior to removing the bridges a protective soil “blanket” would be spread under the bridges to catch debris. At Webster Street, protection measures would need to be implemented to avoid damage to an adjacent underground auxiliary water service system (AWSS) cistern.

Page 4.15-5, staff-initiated modifications

Table 4.15-1 Major Construction Activities by Alternative

Segment	Median Bus lanes	Side Bus lanes	Median Platform	New Medians	Bus Bulb ¹	Ped Xing Bulb	Modify Sewer	Modify Tunnel	Remove Underpass	Remove Pedestrian Bridge(s) ²
ALTERNATIVE 2										
34th to Palm/Jordan		●			●	●				
Masonic Area		●			●	●				
Fillmore Area		●			●	●				●
Inner Geary Corridor		●			●	●				
ALTERNATIVES 3 & 3-CONSOLIDATED										
34th to Palm/Jordan	●	●	●	●	●	●	●			
Masonic Area		●			●	●		●		
Fillmore Area		●			●	●			●	●
Inner Geary Corridor		●			●	●				

Segment	Median Bus lanes	Side Bus lanes	Median Platform	New Medians	Bus Bulb ¹	Ped Xing Bulb	Modify Sewer	Modify Tunnel	Remove Under-pass	Remove Ped-estrian Bridge(s) ²
HYBRID ALTERNATIVE										
34th to Palm/Jordan	●	●	●	●	●	●	●			
Masonic Area		●			●	●				
Fillmore Area		●			●	●				●
Inner Geary Corridor		●			●	●				

¹ BRT and Local Bus Bulbs.

² Under the Hybrid Alternative, only the Steiner Street pedestrian bridge would be removed.

Source: Draft Project Construction Plan (PCP), Jacobs Engineering Group, Inc. October 2013

Page 4.15-31, staff-initiated modifications and text edits in response to comment A-1.3²

Construction Period Effects - Noise and Vibration

ENVIRONMENTAL CONSEQUENCES

Noise: As shown in Table 4.15-8, construction equipment noise (~~from jack hammers and dump truck activity~~) ~~would not be anticipated to exceed 80 dBA at 100 feet;~~ however, With adherence to the San Francisco Noise Ordinance, which includes limiting the noise levels from individual pieces of construction equipment to 80 dBA at a distance of 100 feet, equipping impact tools with both intake and exhaust mufflers, and obtaining a noise permit for night work from DPW, temporary construction noise effects would not be adverse. ~~As shown in Table 4.15-8, construction equipment noise would not be anticipated to exceed 80 dBA at 100 feet;~~ however, Additionally, some construction-related activities have potential to result in disturbance and annoyance effects on nearby sensitive receptors. To this end, minimization measures are incorporated herein to provide for noise monitoring throughout construction as well as the implementation of additional sound-attenuating measures (including but not limited to sound walls, management of truck routes, etc.) that are necessary to address potential adverse effects.

Each of the build alternatives includes demolition and removal of one or both of the pedestrian bridges at Webster and Steiner Streets, including all above- and below-ground bridge components. The bridge at Webster Street (proposed for removal under Alternatives 2, 3, and 3-Consolidated) is located as close as 15 feet to residential uses; the bridge at Steiner Street is proposed for removal under all of the build alternatives and is located approximately 60 feet from residences.

Bridge demolition and removal would expose these residential uses to temporary noise increases during active demolition. The primary source of noise associated with bridge removal would be from jack hammers and similar impact equipment. Jack hammers generate a noise level of

² Comment A-1.3 (see **Appendix B**) pointed out a discrepancy between information presented in Table 4.11-4 of the Draft EIS/EIR and the text; some of the text changes are needed to correct this error.

approximately 88 dBA at 50 feet, or 82 dBA at 100 feet. Section 2907(b) of the San Francisco Police Code states that it shall be unlawful for any person to operate any powered construction equipment if the operation of such equipment emits noise level above 80 dBA when measured at a distance of 100 feet from such equipment. However, this provision is not applicable to impact tools and equipment fitted with intake and exhaust mufflers recommended by the manufacturers and approved by the Director of Public Works or the Director of Building Inspection as best accomplishing maximum noise attenuation. In addition, pavement breakers and jack hammers are required to be equipped with acoustically attenuating shields or shrouds recommended by the manufacturers and approved by the Director of Public Works or the Director of Building Inspection as best accomplishing maximum noise attenuation. With adherence to the San Francisco Noise Control Ordinance the temporary construction noise generated would not result in any adverse effects.

With the construction of Alternatives 3 and 3-Consolidated, the focus of construction activity would occur in the center of the right-of-way, where the new bus-only lanes would be located. This activity would be further from sensitive receptors compared to Alternative 2, which would construct bus-only lanes closer to the edge of the street. The Hybrid Alternative consists of different components from Alternatives 2, 3, and 3-Consolidated, thus the focus of construction activity would not be concentrated in one particular section of the street right-of-way. Therefore, the Hybrid Alternative would be represented by the range of construction activity covered between the three build alternatives.

All build alternatives may result in noise levels in excess of 80 dBA at 100 feet due to removal of pedestrian bridges at Webster and/or Steiner Streets. Given that the Hybrid Alternative only proposes to remove the pedestrian bridge at Steiner Street, construction-period noise impacts would be slightly reduced relative to the other build alternatives. However, with adherence to the aforementioned provisions of the San Francisco Noise Ordinance, these temporary construction noise effects would not be adverse.

4.16 Irreversible and Irretrievable Commitment of Resources

Summary of Draft EIS/EIR

Section 4.16 of the Draft EIS/EIR discussed the uses of nonrenewable resources under implementation of the alternatives. Construction and operation of any of the build alternatives would require consumption of fossil fuels, labor, and construction materials. These expenditures would be, for the most part, irrecoverable. However, such resources are not considered to be in short supply, and their use would not have an adverse effect upon continued availability of these resources to other projects. Moreover, the project would accommodate a greater number of transit trips into the future and would thus provide more efficient use of fossil fuels than if these trips were to be taken in private automobiles. Additionally, the project would upgrade the existing bus fleet from a mix of diesel motor coaches to diesel hybrid motor coaches, which are more fuel efficient.

Construction would also require a substantial one-time expenditure of federal and local funds. These funds have been planned and programmed and are further explained in **Chapter 6** of this Final EIR. The capital cost of BRT elements and related improvements of the project are estimated to cost between \$190 to \$450 million, depending on alternative.

Changes to the Hybrid Alternative/SRA

The changes to the Hybrid Alternative/SRA would not appreciably change the expenditures of nonrenewable resources or project costs described above. Two of these changes would reduce the extent of resources needed to construct the Hybrid Alternative/SRA (no addition of BRT stops in the Spruce/Cook area; Webster Street pedestrian bridge retention). The other change would increase the number of pedestrian improvements implemented in the corridor, but as described in **Section 4.12** above, this would not require substantial additional energy resources over levels anticipated in the Draft EIS/EIR. Moreover, none of the changes to the Hybrid Alternative would result in changes to bus operations (see **Section 3.3**), so no long-term changes in resource usage would result.

Changes to the Draft EIS/EIR

No text changes are needed to Draft EIS/EIR Section 4.16, Irreversible and Irretrievable Commitment of Resources, as a result of staff-initiated modifications or in response to a comment received on the Draft EIS/EIR.

4.17 Relationship between Local Short-Term Uses of the Environment and the Maintenance and Enhancement of Long-Term Productivity

Summary of Draft EIS/EIR

Section 4.17 of the Draft EIS/EIR discussed that each of the alternatives would involve construction of public infrastructure improvements, which would involve short-term uses of the environment via the use of fuels and construction materials as well as through temporary increases in noise levels and air pollutants. For the build alternatives, these short-term effects and uses of resources would result in demonstrable long-term benefits, such as improved transit travel times and increases in transit ridership. As demonstrated above, other long-term benefits to air quality, noise, and energy demand would result from an upgrade of the existing bus fleet to diesel hybrid buses, as well as from an anticipated reduction in auto use in favor of bus use. Each of the build alternatives is expected to reduce emissions of several air pollutants, including nitrogen oxides, particulate matter, carbon dioxide, and greenhouse gases. These improvements would contribute to the long-term livability and, therefore, productivity of the Geary corridor.

Changes to the Hybrid Alternative/SRA; Changes to the Draft EIS/EIR

The changes to the Hybrid Alternative/SRA would not appreciably change the short-term uses and long-term benefits described above. No text changes are needed to Draft EIS/EIR Section 4.17, Relationship between Local Short-Term Uses of the Environment and the Maintenance and Enhancement of Long-Term Productivity, as a result of staff-initiated modifications or in response to a comment received on the Draft EIS/EIR.