

4.13 Biological Resources

This section discusses pertinent regulations and existing conditions relative to biological resources and potential effects to such resources resulting from the project alternatives. This discussion was informed in part by a tree survey prepared in 2013. The survey is included in Appendix I and is on file at the San Francisco County Transportation Authority (SFCTA).

4.13.1 | Regulatory Setting

This following discussion provides an overview of federal, state, and local laws, regulations, ordinances, and policies relevant to biological resources that may occur within the study area.

4.13.1.1 | FEDERAL REGULATIONS

4.13.1.1.1 ENDANGERED SPECIES ACT OF 1973¹

The Endangered Species Act (ESA) of 1973 requires federal agencies, in consultation with the U.S. Fish and Wildlife Service (USFWS) and/or the National Marine Fisheries Service (NMFS), to ensure that actions authorized, funded, or implemented are not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of designated critical habitat. While USFWS has jurisdiction over plants, wildlife, and non-marine fish, NMFS has jurisdiction over anadromous fish, marine fish, and marine mammals. For actions involving a federal approval or federal funding, Section 7(a) of the ESA requires that agencies consult with USFWS and/or NMFS to ensure that their actions are not likely to jeopardize the continued existence of listed species or result in destruction or adverse modification of critical habitat. Under Section 7 consultation, incidental “take” may be authorized for federal actions through issuance of a Biological Opinion (BO) by USFWS and/or NMFS. A BO will typically include measures to minimize adverse effects, such as permanently protecting land, restoring habitat, or relocating plants or animals.

4.13.1.1.2 CLEAN WATER ACT SECTION 404 AND 401

Section 404 of the Clean Water Act (CWA) regulates discharge of dredged and fill material into waters of the U.S. Responsibility for administering and enforcing Section 404 is shared by the United States Army Corps of Engineers (USACE) and Environmental Protection Agency (EPA). Responsibility for jurisdictional determinations and permitting decisions associated with waters of the U.S. generally falls to USACE.

RESOURCES

For more information on federal and state environmental laws and regulations, reference the following links:

CLEAN WATER ACT SECTION 401

www.epa.gov/wetlands/regs/sec401.cfm

CLEAN WATER ACT SECTION 404

www.epa.gov/wetlands/regs/sec404.cfm

FEDERAL ENDANGERED SPECIES ACT OF 1973

<http://www.fws.gov/endangered/laws-policies/index.html>

MIGRATORY BIRD TREATY ACT

<http://www.fws.gov/laws/lawsdigest/migtrea.html>

EXECUTIVE ORDER 13112 - INVASIVE SPECIES

www.invasivespeciesinfo.gov/laws/execorder.shtml

CALIFORNIA ENDANGERED SPECIES ACT OF 1984

www.dfg.ca.gov/habcon/cesa

PORTER-COLOGNE ACT

www.waterboards.ca.gov/laws_regulations/docs/portercologne.pdf

¹ 16 U.S.C. Section 1531 et seq.

Section 401 of the CWA requires a water quality certification from the State Water Quality Control Board or Regional Water Quality Control Board (RWQCB) when a project requires a federal license or permit and would result in a discharge to waters of the U.S. Issuance of water quality certification by RWQCB is considered a discretionary action that requires review under California Environmental Quality Act (CEQA) and considers effects on all waters of the U.S. and wetlands within a project’s study area.

4.13.1.1.3 MIGRATORY BIRD TREATY ACT²

The Migratory Bird Treaty Act (MBTA) enacts the provisions of treaties between the U.S., Great Britain, Mexico, Japan, and the former Soviet Union, which authorizes the U.S. Secretary of the Interior to protect and regulate the take of migratory birds. USFWS is responsible for overseeing compliance with the MBTA. The MBTA establishes protection measures for migratory birds, their occupied nests, and their eggs.³ Most actions that result in a taking or the permanent or temporary possession of a protected species constitute violations of the MBTA. The MBTA prohibits activities that cause abandonment of a nest and/or loss of reproductive effort. Inactive nests are not protected by the MBTA; such nests may be removed during the non-nesting season.

4.13.1.1.4 EXECUTIVE ORDER (EO) 13112 - INVASIVE SPECIES

EO 13112 is intended to combat the spread of invasive vegetation (weeds). If an action has potential to spread or promote invasive species, the EO requires implementation of all feasible and prudent measures to minimize such spread.

4.13.1.2 | STATE REGULATIONS

4.13.1.2.1 CALIFORNIA ENDANGERED SPECIES ACT OF 1984⁴

The California Endangered Species Act (CESA) established a policy to conserve, protect, restore, and enhance threatened or endangered species and their habitats. CESA mandates that state agencies not approve projects that would jeopardize the continued existence of threatened or endangered species, if reasonable and prudent alternatives are available that would avoid jeopardy. CESA also requires that a lead agency conduct an endangered species consultation with the California Department of Fish and Wildlife (CDFW), if a project could affect a state-listed species. CESA generally coincides with the main provisions of the ESA and with Section 2080 of the California Fish and Game Code that prohibits the taking, possession, purchase, sale, and import or export of endangered, threatened, or candidate species, unless otherwise authorized by permit or in the regulations. Under Section 2081, the CDFW may authorize take of endangered, threatened, or candidate species through issuance of permits or a memorandum of understanding. In addition to endangered, threatened, and candidate classifications, various provisions of the Fish and Game Code identify “fully protected” animals.⁵ There is no provision to take any fully protected species except for scientific research.

² 16 USC 703.

³ 16 USC 703, 50 CFR 21, 50 CFR 10.

⁴ California Fish and Game Code Sections 2050-2098.

⁵ California Fish and Game Code Sections 3511, 4700, 5050, 5515.

DEFINITIONS

TAKE:

Endangered Species Act

Harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct

California Endangered Species Act

The hunting, pursuing, catching, capturing, or killing (or attempt to hunt, pursue, catch, capture, or kill)

DEFINITION

4.13.1.2.2 PORTER-COLOGNE WATER QUALITY CONTROL ACT OF 1969⁶

The Porter-Cologne Water Quality Control Act is the major water quality control law for California. It authorizes the State to implement the provisions of the CWA through RWQCB. Section 13263 of this act authorizes RWQCB to regulate discharges of waste and fill material to waters of the state, including “isolated” waters and wetlands that may not be jurisdictional under USACE. RWQCB does this through the issuance of waste discharge requirements. If USACE authorizes the placement of fill in waters of the U.S. under a nationwide or an individual permit, then the applicant is required to obtain a Section 401 Water Quality Certification, or a waiver, from RWQCB. Additional information on this regulation can be found in Section 4.9 (Hydrology and Water Quality).

4.13.1.3 | LOCAL REGULATIONS

4.13.1.3.1 URBAN FORESTRY ORDINANCE⁷

San Francisco Public Works (SFPW) established guidelines for implementation of tree protection within the City/County limits through an Urban Forestry Ordinance (Article 16) of the Public Works Code. Removal of any Protected Trees requires a permit. All permit applications that could potentially affect a protected tree must include a Planning Department “Tree Protection and Planting Checklist.” The Tree Protection and Planting Checklist is the applicant’s legal declaration of the status of all trees on the property, and must include the size of the trunk diameter and canopy dripline in relation to the proposed project. All permit applications are reviewed by SFPW, and an inspector is sent out to evaluate the trees planned for removal. If any activity is to occur within the drip line area of a tree, prior to issuance of a building permit, a tree protection plan is to be prepared by an International Society of Arboriculture-certified arborist and is to be submitted to SFPW for review and approval. For each tree removed, SFPW requires planting of a replacement tree.⁸ The following defines what SFPW considers Protected Trees.

- **Landmark Trees.** Landmark Trees have the highest level of protection. These trees meet criteria for age, size, shape, species, location, historical association, visual quality, or other contribution to San Francisco’s character and have been found worthy of landmark status after Urban Forestry Council and Board of Supervisors public hearings. Temporary landmark status is also afforded to nominated trees currently undergoing the public hearing process. SFPW maintains a list of all Landmark Trees.
- **Significant Trees.** Significant Trees are located on private property, but within 10 feet of the public right-of-way and must also meet one of the following requirements: a) 20 feet or greater in height; b) 15 feet or greater canopy width, or c) 12 inches or greater diameter of trunk measured at 4.5 feet above grade.

Drip line:

The outermost circumference of a tree canopy where water drips from and onto the ground



Looking west toward a New Zealand Christmas tree on Geary Boulevard between 40th Avenue and 41st Avenue



Looking west toward a Tawhiwhi tree on Geary Boulevard between 20th Avenue and 21st Avenue

⁶ California Water Code, Section 13020.

⁷ Director’s Bulletin No. 2006-01.

⁸ SFPW, Street Tree Removal Permitting Process. Available at: <http://www.sfdpw.org/index.aspx?page=656>.

- **Street Trees.** Street Trees are trees within the public right-of-way. Street Trees may be maintained by either the adjacent property owner or the City/County of San Francisco. All Street Trees are protected by the City, even if not considered Significant.

4.13.2 | Affected Environment

DEFINITION

For the purposes of this Draft EIS/EIR, the term “special-status species” refers to plant and wildlife species protected under the ESA or CESA or listed in the CNDDDB, CDFW, and/or CNPS databases

DEFINITIONS

SENSITIVE SPECIES: Refers to all of the taxa included in the CNDDDB regardless of their legal or protection status. This includes:

- Plants and animals legally protected under the California and Federal Endangered Species Acts or under other regulations;
- Plants and animals considered sufficiently rare by the scientific community to qualify for such listing; or
- Plants and animals considered to be sensitive because they are unique, declining regionally or locally, or are at the extent of their natural range.

The study area for biological resources includes the roadway medians and sidewalks that contain natural resources within the Geary corridor. For purposes of this analysis, this includes all areas between building fronts along the corridor. The study area is fully urbanized environment, with little or no indigenous vegetation. No riparian habitats, wetlands, or other special habitats exist in the study area.

Vegetation. Existing vegetation within the study area generally consists of non-native ornamental trees and shrubs along the sidewalks and within the Geary Boulevard median. Most of the trees are ornamental species and are not native to California. A tree survey conducted in support of this analysis (on file with SFCTA) noted 1,958 trees from 60 species within the study area. In order of frequency, these include London plane (*Platanus acerifolia*), New Zealand Christmas tree (*Metrosideros excelsa*), Victorian box (*Pittosporum undulatum*), Indian laurel fig (*Ficus microcarpa*), brisbane box (*Tristania conferta*), Canary Island pine (*Pinus canariensis*), and Monterey cypress (*Cupressus macrocarpa*). No substantial invasive species populations (i.e. weeds) were observed in the study area.

Wildlife. Trees and shrubs can provide marginal suitable refuge for bird species during seasonal nesting and migration periods. San Francisco is located within the Pacific Flyway, which is a major north-south travel route for migratory birds in North America. Some common bird species found within the City/County limits include Anna’s hummingbird (*Calypte anna*), house finch (*Carpodacus mexicanus*), Brewer’s blackbird (*Euphagus cyanocephalus*), mourning dove (*Zenaida macroura*), American crow (*Corvus brachyrhynchos*), red-tailed hawk (*Buteo jamaicensis*), and Cooper’s hawk (*Accipiter cooperii*).

Sensitive Species. Sensitive species include:

- Plants and animals legally protected under the ESA and/or CESA or other regulations;
- Plants and animals considered sufficiently rare by the scientific community to qualify for such listing;
- Plants and animals considered to be sensitive because they are unique, declining regionally or locally, or are at the extent of their natural range.

Searches of relevant databases revealed a list of 32 plant and 21 wildlife special-status species that could potentially be found in or near the study area. Of these, 12 are listed as federally threatened or endangered (seven plant species and five wildlife species). Seven are listed as State Endangered (five plant species and two wildlife species). The remaining plant species have special status under the CNPS. The remaining four wildlife species are considered to be Species of Special Concern by CDFW.

While none of the special-status species are known to occur within the study area, five special-status and one CESA fully protected wildlife species are known to have occurred within 0.5 mile of the study area. Table 4.13-1 lists all of the special-status animal species that are known to have occurred within 0.5 mile of the study area. One is federally listed as threatened and a Species of Special Concern (California red-legged frog [*Rana aurora draytonii*]), two are state listed as Endangered (California black rail [*Laterallus jamaicensis coturniculus*] and bank swallow [*Riparia riparia*]), and two are listed as Species of Special Concern (Western pond turtle [*Emys marmorata*] and American badger [*Taxidea taxus*]). Of these species, one is considered to be extirpated⁹ (California black rail), two others are historic occurrences (bank swallow and American badger), and the remaining species are known to occur within Golden Gate Park, which is approximately 0.5 mile south of the study area (Western pond turtle and California red-legged frog). The peregrine falcon (*Falco peregrinus*) is a fully protected species that is known to nest on buildings in urban settings. An active peregrine falcon nest is located adjacent to the study area on the roof of the Pacific Gas and Electric Building at the corner of Beale Street and Mission Street.¹⁰

Table 4.13-1 Special-Status Animal Species Within ½ Mile of Study Area

SPECIES COMMON NAME	FEDERAL STATUS	STATE STATUS	CDFW STATUS	EXTIRPATED (Y/N)	HISTORIC OCCURRENCE (Y/N)
Western pond turtle	--	--	Species of Special Concern	No	No
California black rail	--	Endangered	--	Yes	Yes
California red-legged frog	Threatened	--	Species of Special Concern	No	No
Bank swallow	--	Endangered	--	No	Yes
American badger	--	--	Species of Special Concern	No	Yes
American peregrine falcon	--	--	Fully Protected	No	Yes

Source: Jacobs, 2014

There are 18 special-status plant species that are known to occur within 0.5 mile of the study area. However, nine of these species are historical occurrences. The remaining nine plant species are considered to be extirpated (Francisco manzanita [*Arctostaphylos franciscana*], Presidio manzanita [*Arctostaphylos montana* ssp. *ravenii*], Marin Western flax [*Hesperolinon congestum*], San Francisco lessingia [*Lessingia germanorum*], and the San Francisco Bay spineflower [*Chorizanthe cuspidata* var. *cuspidata*]) or are to occur in non-developed preserved habitats, such as the Presidio (San Francisco campion [*Silene verecunda* ssp. *verecunda*]), Golden Gate Park (San Francisco popcornflower [*Plagiobothrys difusus*]), or Point Lobos (San Francisco gumplant [*Grindelia hirsutula* var. *maritime*]) and Kellog’s horkelia (*Horkelia cuneata* var. *sericea*) (CNDDB 2013).

⁹ Historic occurrences are considered species that haven’t been seen in over 30 years.

¹⁰ CNDDB 2013 and Santa Cruz Predatory Research Group 2014.

Table 4.13-2 Special-Status Plant Species for the Study Area

SPECIES COMMON NAME	FEDERAL STATUS	STATE STATUS	CNPS STATUS	EXTIRPATED (Y/N)	HISTORIC OCCURRENCE (Y/N)
Franciscan Manzanita	--	--	1B.1	Yes	No
Presidio manzanita	Endangered	Endangered	1B.1	Yes	No
Bristly sedge	--	--	2.1	Yes	Yes
San Francisco Bay spineflower	--	--	1B.2	Yes	No
Round-headed chinese-houses	--	--	1B.2	No	Yes
Blue coast Gilia	--	--	1B.1	Yes	Yes
Dark-eyed gilia	--	--	1B.2	Yes	Yes
San Francisco gumplant	--	--	3.2	No	No
White seaside tarplant	--	--	1B.2	No	Yes
Marin Western flax	Threatened	Endangered	1B.1	Yes	No
Kellog's Horkelia	--	--	1B.1	No	No
Beach layia	Endangered	Endangered	1B.1	Yes	Yes
Rose leptosiphon	--	--	1B.1	Yes	Yes
San Francisco lessingia	Endangered	Endangered	1B.1	Yes	No
Marsh microseris	--	--	1B.2	Yes	Yes
Choris' popcornflower	--	--	1B.2	No	Yes
San Francisco popcorn flower	--	Endangered	1B.1	No	No
San Francisco campion	--	--	1B.2	No	No

CNPS Status
 1A - Plants presumed extinct in California.
 1B - Plants rare, threatened, or endangered in California and elsewhere.
 2 - Plants rare, threatened, or endangered in California, but more common elsewhere.
 3 - Plants about which we need more information - a review list.
 CNPS threat code extensions
 .1 - Seriously endangered in California.
 .2 - Fairly endangered in California.
 .3 - Not very endangered in California.

Source: Jacobs, 2014

4.13.3 | Methodology

The alternatives were evaluated for potential effects to biological resources based on a literature review and a pedestrian survey. Potential effects are assumed for those resources that may exist within the biological study area. The data sources reviewed were the:

- California Natural Diversity Database (CNDDDB) for USGS (United States Geological Survey) San Francisco North 7.5-minute quadrangle and the surrounding four quadrangles within a 5-mile buffer around the study area (Hunters Point, Oakland West, Point Bonita, and San Francisco South) (CNDDDB 2013);

- California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants database for the USGS San Francisco North 7.5-minute quadrangle and the surrounding four quadrangles within a 5-mile buffer around the study area (Hunters Point, Oakland West, Point Bonita, and San Francisco South) (CNPS 2013);
- USFWS Threatened and Endangered Species database for San Francisco County (USFWS 2013a);
- USFWS Critical Habitat Mapper (USFWS 2013b);
- USFWS Wetlands Mapper (USFWS 2013c);
- NMFS Essential Fish Habitat Mapper (NMFS 2013b); and
- NMFS Critical Habitat Mapper (NMFS 2013a).

A pedestrian survey of the study area was conducted by qualified biologist(s) from April through June 2013. The pedestrian survey was conducted in tandem with a tree survey, conducted by qualified arborist(s).

The alternatives have the potential to result in construction period effects as noted below.

Construction-Related Effects

- Ground disturbing activities
- Tree removal/potential disruption to migratory bird species

Operational Effects

Some degree of tree removal and construction activity would occur under each build alternative. However, each alternative would have varying levels of effect based on the extent of ground disturbance, tree removal, and other construction activities.

4.13.4 | Environmental Consequences

This section describes potential impacts and benefits for biological resources. The analysis compares each build alternative relative to the No Build Alternative.

As set forth in Section 4.13.4.1, the modifications to the Hybrid Alternative/LPA since publication of the Draft EIS/EIR do not change the conclusions regarding impacts to biological resources in the Draft EIS/EIR.

4.13.4.1 | HYBRID ALTERNATIVE/LPA MODIFICATIONS: POTENTIAL ADDITIVE EFFECTS SINCE PUBLICATION OF THE DRAFT EIS/EIR

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

- 1) Retention of the Webster Street pedestrian bridge;
- 2) Removal of proposed BRT stops between Spruce and Cook streets (existing stops would remain and provide local and express services);

- 3) Addition of more pedestrian crossing and safety improvements;
- 4) Addition of BRT stops at Laguna Street;
- 5) Retention of existing local and express stops at Collins Street; and
- 6) 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 these six modifications could result in any new or more severe impacts to biological resources during construction and operation. As documented below, the Hybrid Alternative/LPA as modified would not result in any new or more severe impacts to biological resources relative to what was disclosed in the Draft EIS/EIR.

Retention of the Webster Street Pedestrian Bridge

Construction: The modification to retain the Webster Street bridge would not require any additional tree removal beyond that described in the Draft EIS/EIR. (Demolishing the bridge would not have entailed the removal of any trees.) This modification would reduce construction activity at this location. Therefore, this modification would not result in any new or more severe impacts to biological resources during construction.

Operation: No operational-period effects were identified in the Draft EIS/EIR for the Hybrid Alternative. Retention of the bridge would not introduce any new biological resources to the immediate area and thus would not result in any new or more severe impacts to biological resources during operation.

Removal of Proposed BRT Stops between Spruce and Cook Streets

Construction: 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. As a result, there would be no need to implement any protections to bird species/nests covered by the MBTA. Overall, this modification would not result in any new or more severe impacts to biological resources during construction.

Operation: No operational-period effects were identified in the Draft EIS/EIR for the Hybrid Alternative. Removing the proposed BRT stops and maintaining the existing local/express stops would not introduce any new biological resources to the immediate area and thus would not result in any new or more severe impacts to biological resources during operation.

Addition of More Pedestrian Crossing and Safety Improvements

Construction: The modification to construct additional pedestrian improvements throughout the Geary corridor would not require any tree removal beyond that described in the Draft EIS/EIR. While this modification would require additional localized construction activities, all would take place on paved roadway areas within the existing transportation right of way. Therefore, this modification would not result in any new or more severe impacts to biological resources during construction.

Operation: No operational-period effects were identified in the Draft EIS/EIR for the Hybrid Alternative. Adding pedestrian crossing and safety improvements, all of which would be constructed entirely within the existing paved right-of-way, would

not introduce any new biological resources to the immediate area and thus would not result in any new or more severe impacts to biological resources during operation.

Addition of BRT Stops at Laguna Street

Construction: The modification to add BRT stops at Laguna Street would not require any tree removal beyond that described in the Draft EIS/EIR. This modification would include construction of transit islands, which would occur in the existing transportation right of way on the paved roadway surface. Transit islands may increase the potential for introduction of noxious plants if they are landscaped, though the project would be subject to the measures described in Section 4.13.5 – adherence to which would successfully avoid the introduction of such species. Therefore, this modification would not result in any new or more severe impacts to biological resources during construction.

Operation: No operational-period effects were identified in the Draft EIS/EIR for the Hybrid Alternative. Adding BRT stops at Laguna Street, which would be constructed entirely within the existing paved right-of-way, would not introduce any new biological resources to the immediate area and thus would not result in any new or more severe impacts to biological resources during operation.

Retention of Existing Local and Express Stops at Collins Street

Construction: The modification to retain the existing bus stops at Collins Street would reduce construction activity at this location. Therefore, this modification would not result in any new or more severe impacts to biological resources during construction.

Operation: No operational-period effects were identified in the Draft EIS/EIR for the Hybrid Alternative. Retaining existing local and express stops at Collins Street would not introduce any new biological resources to the immediate area and thus would not result in any new or more severe impacts to biological resources during operation.

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

Construction: Relocation of the westbound bus lane transition at 27th Avenue would not alter the total level of construction activities but would simply shift about half of it one block to the west. Construction of center-running bus lanes requires the removal of the existing landscaped median, which in turn would require the removal of existing trees. The tree survey completed for the Draft EIS/EIR (see Appendix I) determined that no tree removal would be necessary to construct the westbound bus lane transition as originally proposed between 26th and 27th avenues. The modification to relocate the westbound bus lane transition between 27th and 28th avenues would not require any additional tree removal in this area either. This modification would include similar construction activities as described in the Draft EIS/EIR. Therefore, this modification would not result in any new or more severe impacts to biological resources during construction.

Operation: No operational-period effects were identified in the Draft EIS/EIR for the Hybrid Alternative. This modification to the transition would not introduce any new biological resources to the immediate area and thus would not result in any new or more severe impacts to biological resources during operation.

4.13.4.2 | CONSTRUCTION EFFECTS

4.13.4.2.1 NO BUILD ALTERNATIVE - CONSTRUCTION EFFECTS

The No Build Alternative is comprised of several physical infrastructure and transit service changes associated with other previously approved City projects that are either planned or programmed to be implemented in the Geary corridor by 2020. Construction of these improvements would be within public right-of-way areas. In some locations, the No Build Alternative could require tree removal during construction, during which potential effects to migratory birds could result.

4.13.4.2.2 BUILD ALTERNATIVES - CONSTRUCTION EFFECTS

Construction of any of the build alternatives would have a potential to directly affect biological resources. None of the previously discussed special-status species (Tables 4.13-1 and 4.13-2) are known to occur within the study area; therefore, there would be no construction-related effects to these species. Furthermore, due to the developed nature of the area, no habitat exists for certain special status species (western pond turtle and California red-legged frog). Therefore, potential adverse construction period effects to biological resources are expected to be limited to:

- Trees protected under the Urban Forestry Ordinance;
- Birds, their nests, and eggs as protected under the MBTA; and
- Potential for introduction or increases in noxious weeds associated with ground disturbance activities, as considered under EO 13112.

- The study area has no special-status species that could be affected by the project
- The study area does include trees that could host nesting birds that are protected by the MBTA;
- Effects associated with project construction activities are expected to be limited to:
 - The removal of protected trees
 - Birds, their nests, and eggs as protected under the MBTA
 - Introduction of noxious weeds
- No indirect or operational effects are anticipated

While the Geary corridor does not contain native plant assemblages, several landscape trees would likely be removed under each of the build alternatives. The following presents the biological effects associated with construction of each of the build alternatives.

Effects to Trees. Each build alternative would have the direct effect of removing a number of trees, including some Significant Trees. None of the build alternatives would remove any Landmark Trees.

- **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/LPA:** A total of 182 trees would be removed. Of these, 118 are Significant Trees.

Effects to Migratory Birds. Trees are a resource of biological value as they can serve as nesting habitat for migratory birds. There is a potential to directly affect migratory birds or their eggs and nests during project construction. Direct effects to nesting birds could come from tree or shrub removal or from noise, vibration, or activity (e.g., human presence) during nesting season.

Each build alternative includes planting of new trees, at least one tree replaced for each tree removed. Even though each build alternative would plant a comparable number of trees, tree removal and new plantings would have the short-term indirect effect of resulting in somewhat less capacity to host bird nests during the time that newly planted trees would grow in size and thus have greater capacity to host nests.

Effects from Weeds. Project construction could increase the potential introduction of unwanted plants in the landscaped areas. This could occur through introduction of noxious species into the seed palette used in revegetation of the corridor, or from seed entering the area from wind- or animal-borne sources.

4.13.4.3 | OPERATIONAL EFFECTS

The Geary corridor does not contain any wetlands, water bodies, or riparian habitat; therefore, provisions of the CWA and California Fish and Game Code would not apply. No threatened, endangered, or other regulated or sensitive species and no sensitive habitats are known to occur within the Geary corridor (refer to Tables 4.13-1 and 4.13-2). Therefore, provisions of the ESA and CESA are not applicable to this project.

Given that the study area is located entirely within an urban (developed) environment with little or no indigenous vegetation, it is unlikely that any sensitive or special-status species would be affected by the No Build Alternative or the build alternatives. Furthermore, none of the special-status plant and animal species are known or expected to occur within the Geary corridor.

Operational activities associated with the build alternatives are not expected to result in increased disturbance to migratory birds or other biological resources in the Geary corridor. As such, no indirect or operational effects are anticipated.

4.13.4.4 | COMPARATIVE EFFECTS OF ALTERNATIVES

As demonstrated in the preceding subsections, all project alternatives are similar in that they would occur within the same urban (developed) environment. The No Build Alternative would have the least potential for tree removal, followed by Alternative 2, the Hybrid Alternative/LPA, then Alternative 3. Alternative 3-Consolidated would remove the greatest number of trees.

4.13.5 | Avoidance, Minimization, and/or Mitigation Measures

4.13.5.1 | CONSTRUCTION MEASURES

To minimize adverse effects from the removal of existing trees and landscaping and weeds during construction, the following measures and permit requirements shall be incorporated into the project design for each build alternative.

MIN-BO-C1. Mature trees shall be preserved and incorporated into the project landscape plan as feasible, as well as the planting of replacement trees and landscaping. For each tree removed, a replacement tree is required.

MIN-BO-C2. To preclude potential effects under the MBTA, tree removal shall occur outside nesting bird season (February 1 through August 31). Regardless of time of year, preconstruction surveys shall be performed prior to tree removal to determine occurrence of nesting birds. If active protected bird nests are encountered during preconstruction surveys, no-disturbance buffers would be created around active protected bird and/or raptor nests during the breeding season, or until it is determined that all young have fledged. Typical buffers include 500 feet for raptors and 50 feet for passerine nesting birds. The size of the buffer zones and types of construction activities restricted in these areas may be further modified during consultation with CDFW, and shall be based on existing noise and human disturbance levels at the project site. Nests initiated during construction are presumed to be unaffected, and no buffer will be necessary. The “take” of any individual protected birds shall be prohibited. Monitoring of active nests when construction activities encroach upon established buffers may be required by CDFW.

MIN-BO-C3. Seed palettes used for revegetation of disturbed areas shall be reviewed to prevent introduction of invasive species to the site. Follow-up site maintenance shall include a protocol for landscaping staff to recognize weeds and perform maintenance in a manner that prevents weed establishment.

4.13.5.2 | OPERATIONAL MEASURES

Given that operational activities associated with all of the build alternatives are not expected to result in increased disturbance to migratory birds or other biological resources in the Geary corridor, no adverse operational effects are anticipated. Therefore, no avoidance, minimization, or mitigation measures are needed.